APPENDIX B

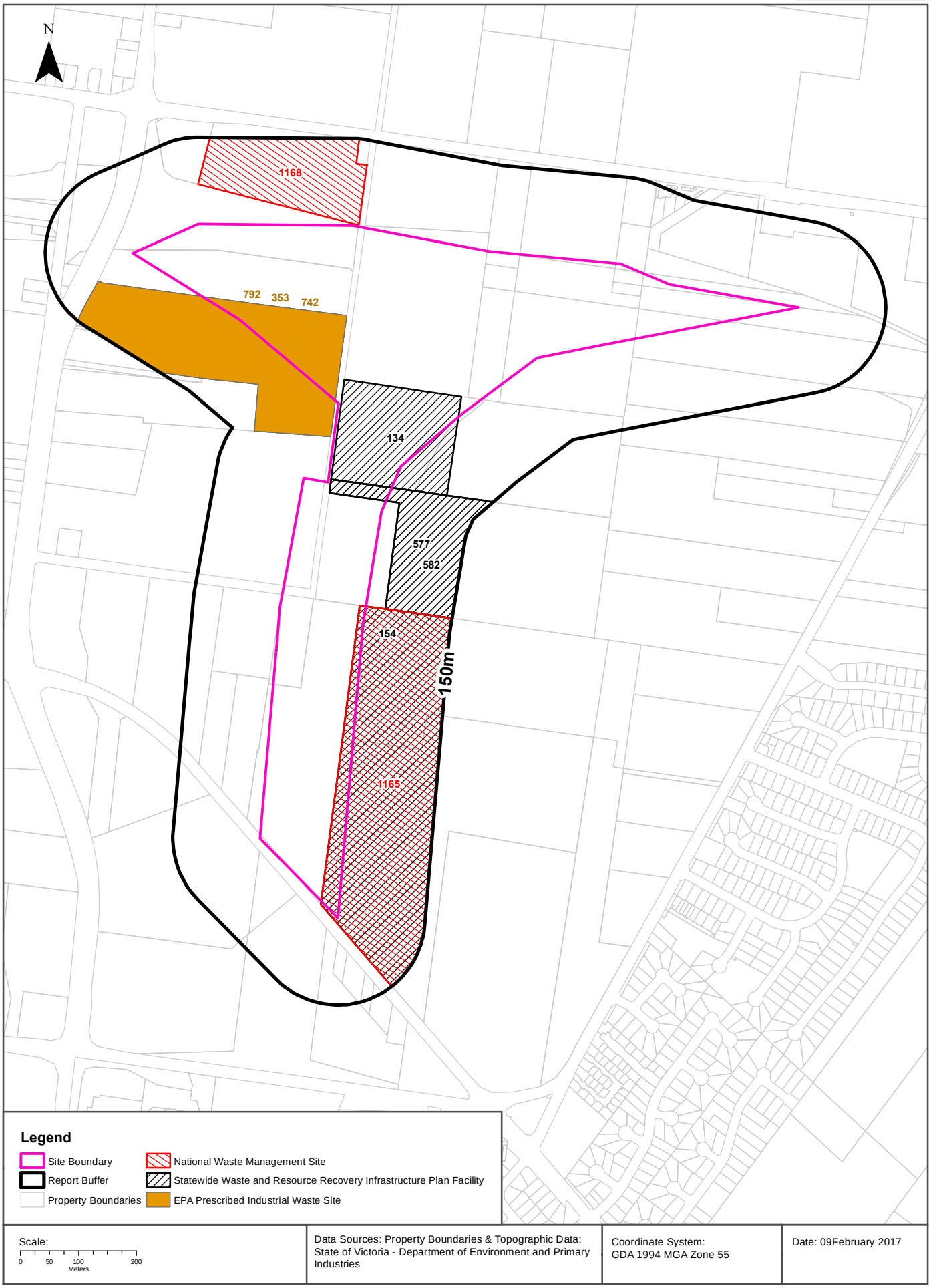
BASELINE ENVIRONMENTAL SITE ASSESSMENT

APPENDIX G

POTENTIALLY CONTAMINATING LAND USES

Waste Management Facilities

OSAR Proposed Road Alignments - Site 26 (Section 1)



Waste Management Facilities

OSAR Proposed Road Alignments - Site 26 (Section 1)

National Waste Management Site Database

Sites on the National Waste Management Site Database within the report buffer:

Site Id	Owner	Name	Address	Suburb	Postcode	Landfill	Reprocess	Transfer	Loc Conf	Dist (m)	Direction
1165	Kingston Council	Ernest Smith Contractors Pty Ltd	Tootal Road	Dingley Village	3172	Operating	Not Applicable	Not Applicable	Premise Match	0m	Onsite
1168	Kingston Council	Vidotta	Corner Grange Road & Heatherton Road	Clayton South	3169	Operating	Not Applicable	Not Applicable	Premise Match	3m	North

Waste Management Facilities Data Source: Australian Government Geoscience Australia
Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

Statewide Waste and Resource Recovery Infrastructure Plan Facilities

Statewide Waste and Resource Recovery Infrastructure Plan Facilities within the report buffer:

Map Id	Owner	Site Name	Address	Suburb	Category	Sub Category	Loc Conf	Distance	Direction
134	Vic roads	Enviromix	Lot 2, Grange Road	DINGLEY VILLAGE	Organics	Garden Waste	Premise Match	0m	Onsite
154		Ernest Smith Contractors (ES 146)	370-418 Old Dandenong Rd	Dingley Village	Landfill	Landfill	Premise Match	0m	Onsite
582		Transpacific Industries (Dingley Soils)	Lot 1 Grange Rd	Dingley Village	Organics	Garden Waste	Premise Match	0m	Onsite
577		Transpacific Industries	Lot 1 Grange Rd	Dingley Village	Commercial & Industrial	C&I Recovery	Premise Match	0m	Onsite

SWRRIPF Data Source: State Government Victoria - Department of Sustainability

EPA Prescribed Industrial Waste

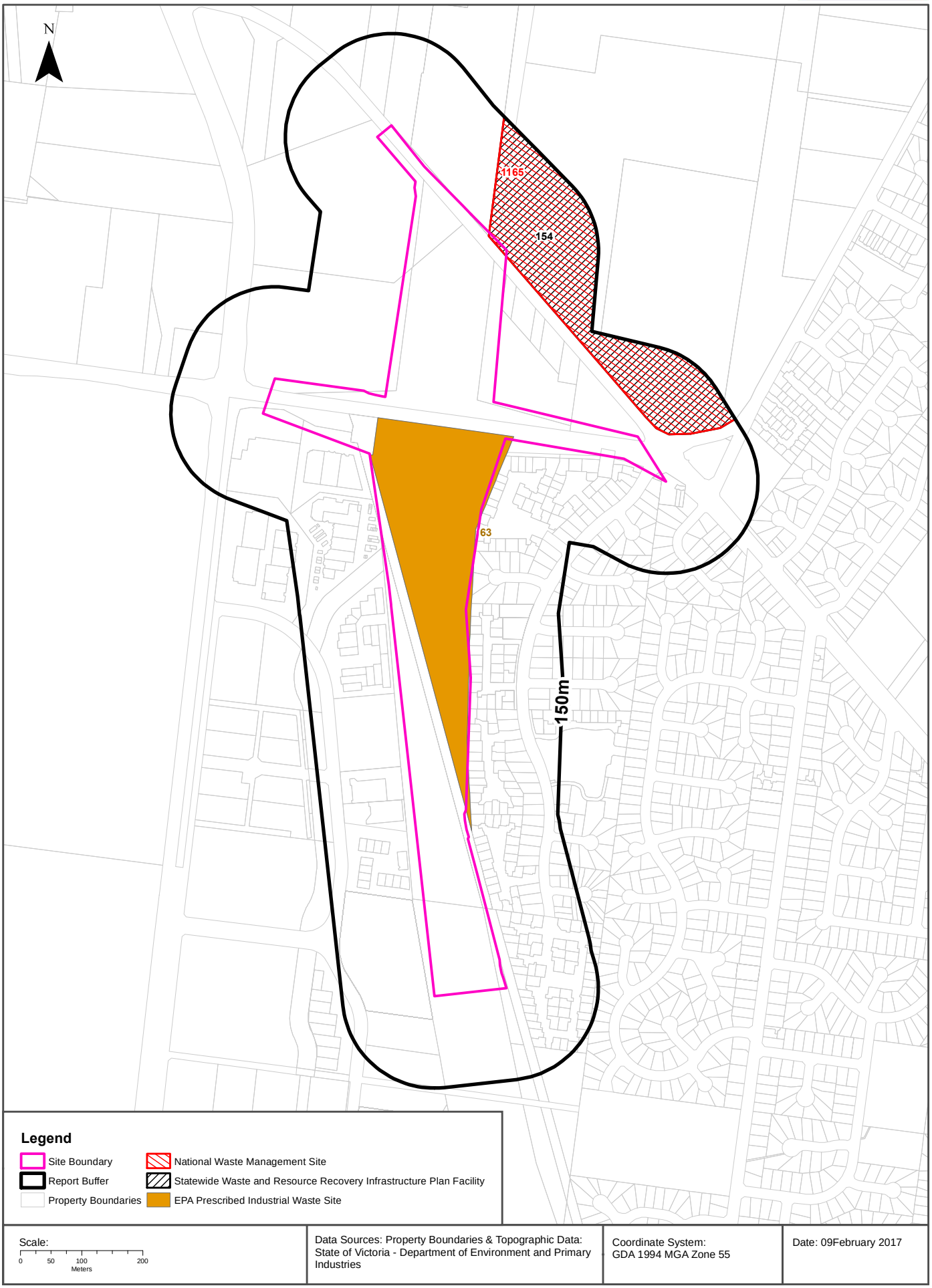
EPA Prescribed industrial waste sites within the report buffer:

Map Id	Company Name	Address	Suburb	Treatment /Disposal	Transport	Accredited Agent	EPA List Status	Loc Conf	Dist (m)	Direct
353	KS ENVIRONMENTAL PTY LTD	544 BOUNDARY RD	HEATHERTON VIC 3202	No	Yes	Yes	Current EPA List	Premise Match	0m	Onsite
742	PADGET PTY LTD	544-554 BOUNDARY RD	DINGLEY VILLAGE VIC 3172	No	Yes	Yes	Current EPA List	Premise Match	0m	Onsite
792	PADGET PTY LTD [DINGLEY VILLAGE]	544-554 BOUNDARY RD	DINGLEY VILLAGE VIC 3172	No	Yes	Yes	Previous EPA List	Premise Match	0m	Onsite

Prescribed Industrial Waste Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

Waste Management Facilities

OSAR Proposed Road Alignments - Site 26 (Section 2)



Waste Management Facilities

OSAR Proposed Road Alignments - Site 26 (Section 2)

National Waste Management Site Database

Sites on the National Waste Management Site Database within the report buffer:

Site Id	Owner	Name	Address	Suburb	Postcode	Landfill	Reprocess	Transfer	Loc Conf	Dist (m)	Direction
1165	Kingston Council	Ernest Smith Contractors Pty Ltd	Tootal Road	Dingley Village	3172	Operating	Not Applicable	Not Applicable	Premise Match	0m	Onsite

Waste Management Facilities Data Source: Australian Government Geoscience Australia
Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

Statewide Waste and Resource Recovery Infrastructure Plan Facilities

Statewide Waste and Resource Recovery Infrastructure Plan Facilities within the report buffer:

Map Id	Owner	Site Name	Address	Suburb	Category	Sub Category	Loc Conf	Distance	Direction
154		Ernest Smith Contractors (ES 146)	370-418 Old Dandenong Rd	Dingley Village	Landfill	Landfill	Premise Match	0m	Onsite

SWRRIPF Data Source: State Government Victoria - Department of Sustainability

EPA Prescribed Industrial Waste

EPA Prescribed industrial waste sites within the report buffer:

Map Id	Company Name	Address	Suburb	Treatment /Disposal	Transport	Accredited Agent	EPA List Status	Loc Conf	Dist (m)	Direct
63	B.R. DEMOLITION AUSTRALIA PTY LTD [DINGLEY]	262 CENTRE DANDENONG RD	DINGLEY VILLAGE VIC 3172	No	Yes	No	Current EPA List	Premise Match	0m	Onsite

Prescribed Industrial Waste Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

Waste Management Facilities

OSAR Proposed Road Alignments - Site 26 (Section 3)

National Waste Management Site Database

Sites on the National Waste Management Site Database within the report buffer:

Site Id	Owner	Name	Address	Suburb	Postcode	Landfill	Reprocess	Transfer	Loc Conf	Dist (m)	Direction
N/A	No records in buffer										

Waste Management Facilities Data Source: Australian Government Geoscience Australia
Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

Statewide Waste and Resource Recovery Infrastructure Plan Facilities

Statewide Waste and Resource Recovery Infrastructure Plan Facilities within the report buffer:

Map Id	Owner	Site Name	Address	Suburb	Category	Sub Category	Loc Conf	Distance	Direction
N/A	No records in buffer								

SWRRIPF Data Source: State Government Victoria - Department of Sustainability

EPA Prescribed Industrial Waste

EPA Prescribed industrial waste sites within the report buffer:

Map Id	Company Name	Address	Suburb	Treatment /Disposal	Transport	Accredited Agent	EPA List Status	Loc Conf	Dist (m)	Direct
N/A	No records in buffer									

Prescribed Industrial Waste Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

Waste Management Facilities

OSAR Proposed Road Alignments - Site 26 (Section 4)

National Waste Management Site Database

Sites on the National Waste Management Site Database within the report buffer:

Site Id	Owner	Name	Address	Suburb	Postcode	Landfill	Reprocess	Transfer	Loc Conf	Dist (m)	Direction
N/A	No records in buffer										

Waste Management Facilities Data Source: Australian Government Geoscience Australia
Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

Statewide Waste and Resource Recovery Infrastructure Plan Facilities

Statewide Waste and Resource Recovery Infrastructure Plan Facilities within the report buffer:

Map Id	Owner	Site Name	Address	Suburb	Category	Sub Category	Loc Conf	Distance	Direction
N/A	No records in buffer								

SWRRIPF Data Source: State Government Victoria - Department of Sustainability

EPA Prescribed Industrial Waste

EPA Prescribed industrial waste sites within the report buffer:

Map Id	Company Name	Address	Suburb	Treatment /Disposal	Transport	Accredited Agent	EPA List Status	Loc Conf	Dist (m)	Direct
N/A	No records in buffer									

Prescribed Industrial Waste Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

Waste Management Facilities

OSAR Proposed Road Alignments - Site 26 (Section 5)

National Waste Management Site Database

Sites on the National Waste Management Site Database within the report buffer:

Site Id	Owner	Name	Address	Suburb	Postcode	Landfill	Reprocess	Transfer	Loc Conf	Dist (m)	Direction
N/A	No records in buffer										

Waste Management Facilities Data Source: Australian Government Geoscience Australia
Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

Statewide Waste and Resource Recovery Infrastructure Plan Facilities

Statewide Waste and Resource Recovery Infrastructure Plan Facilities within the report buffer:

Map Id	Owner	Site Name	Address	Suburb	Category	Sub Category	Loc Conf	Distance	Direction
N/A	No records in buffer								

SWRRIPF Data Source: State Government Victoria - Department of Sustainability

EPA Prescribed Industrial Waste

EPA Prescribed industrial waste sites within the report buffer:

Map Id	Company Name	Address	Suburb	Treatment /Disposal	Transport	Accredited Agent	EPA List Status	Loc Conf	Dist (m)	Direct
N/A	No records in buffer									

Prescribed Industrial Waste Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

Waste Management Facilities

OSAR Proposed Road Alignments - Site 26 (Section 6)

National Waste Management Site Database

Sites on the National Waste Management Site Database within the report buffer:

Site Id	Owner	Name	Address	Suburb	Postcode	Landfill	Reprocess	Transfer	Loc Conf	Dist (m)	Direction
N/A	No records in buffer										

Waste Management Facilities Data Source: Australian Government Geoscience Australia
Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

Statewide Waste and Resource Recovery Infrastructure Plan Facilities

Statewide Waste and Resource Recovery Infrastructure Plan Facilities within the report buffer:

Map Id	Owner	Site Name	Address	Suburb	Category	Sub Category	Loc Conf	Distance	Direction
N/A	No records in buffer								

SWRRIPF Data Source: State Government Victoria - Department of Sustainability

EPA Prescribed Industrial Waste

EPA Prescribed industrial waste sites within the report buffer:

Map Id	Company Name	Address	Suburb	Treatment /Disposal	Transport	Accredited Agent	EPA List Status	Loc Conf	Dist (m)	Direct
N/A	No records in buffer									

Prescribed Industrial Waste Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

Waste Management Facilities

OSAR Proposed Road Alignments - Site 26 (Section 7)

National Waste Management Site Database

Sites on the National Waste Management Site Database within the report buffer:

Site Id	Owner	Name	Address	Suburb	Postcode	Landfill	Reprocess	Transfer	Loc Conf	Dist (m)	Direction
N/A	No records in buffer										

Waste Management Facilities Data Source: Australian Government Geoscience Australia
Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

Statewide Waste and Resource Recovery Infrastructure Plan Facilities

Statewide Waste and Resource Recovery Infrastructure Plan Facilities within the report buffer:

Map Id	Owner	Site Name	Address	Suburb	Category	Sub Category	Loc Conf	Distance	Direction
N/A	No records in buffer								

SWRRIPF Data Source: State Government Victoria - Department of Sustainability

EPA Prescribed Industrial Waste

EPA Prescribed industrial waste sites within the report buffer:

Map Id	Company Name	Address	Suburb	Treatment /Disposal	Transport	Accredited Agent	EPA List Status	Loc Conf	Dist (m)	Direct
N/A	No records in buffer									

Prescribed Industrial Waste Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

Waste Management Facilities

OSAR Proposed Road Alignments - Site 26 (Section 8)

National Waste Management Site Database

Sites on the National Waste Management Site Database within the report buffer:

Site Id	Owner	Name	Address	Suburb	Postcode	Landfill	Reprocess	Transfer	Loc Conf	Dist (m)	Direction
N/A	No records in buffer										

Waste Management Facilities Data Source: Australian Government Geoscience Australia
Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

Statewide Waste and Resource Recovery Infrastructure Plan Facilities

Statewide Waste and Resource Recovery Infrastructure Plan Facilities within the report buffer:

Map Id	Owner	Site Name	Address	Suburb	Category	Sub Category	Loc Conf	Distance	Direction
N/A	No records in buffer								

SWRRIPF Data Source: State Government Victoria - Department of Sustainability

EPA Prescribed Industrial Waste

EPA Prescribed industrial waste sites within the report buffer:

Map Id	Company Name	Address	Suburb	Treatment /Disposal	Transport	Accredited Agent	EPA List Status	Loc Conf	Dist (m)	Direct
N/A	No records in buffer									

Prescribed Industrial Waste Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

Waste Management Facilities

OSAR Proposed Road Alignments - Site 26 (Section 9)

National Waste Management Site Database

Sites on the National Waste Management Site Database within the report buffer:

Site Id	Owner	Name	Address	Suburb	Postcode	Landfill	Reprocess	Transfer	Loc Conf	Dist (m)	Direction
N/A	No records in buffer										

Waste Management Facilities Data Source: Australian Government Geoscience Australia
Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

Statewide Waste and Resource Recovery Infrastructure Plan Facilities

Statewide Waste and Resource Recovery Infrastructure Plan Facilities within the report buffer:

Map Id	Owner	Site Name	Address	Suburb	Category	Sub Category	Loc Conf	Distance	Direction
N/A	No records in buffer								

SWRRIPF Data Source: State Government Victoria - Department of Sustainability

EPA Prescribed Industrial Waste

EPA Prescribed industrial waste sites within the report buffer:

Map Id	Company Name	Address	Suburb	Treatment /Disposal	Transport	Accredited Agent	EPA List Status	Loc Conf	Dist (m)	Direct
N/A	No records in buffer									

Prescribed Industrial Waste Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

Waste Management Facilities

OSAR Proposed Road Alignments - Site 26 (Section 10)

National Waste Management Site Database

Sites on the National Waste Management Site Database within the report buffer:

Site Id	Owner	Name	Address	Suburb	Postcode	Landfill	Reprocess	Transfer	Loc Conf	Dist (m)	Direction
N/A	No records in buffer										

Waste Management Facilities Data Source: Australian Government Geoscience Australia
Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

Statewide Waste and Resource Recovery Infrastructure Plan Facilities

Statewide Waste and Resource Recovery Infrastructure Plan Facilities within the report buffer:

Map Id	Owner	Site Name	Address	Suburb	Category	Sub Category	Loc Conf	Distance	Direction
N/A	No records in buffer								

SWRRIPF Data Source: State Government Victoria - Department of Sustainability

EPA Prescribed Industrial Waste

EPA Prescribed industrial waste sites within the report buffer:

Map Id	Company Name	Address	Suburb	Treatment /Disposal	Transport	Accredited Agent	EPA List Status	Loc Conf	Dist (m)	Direct
N/A	No records in buffer									

Prescribed Industrial Waste Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

Waste Management Facilities

Section 11 (Thames Promenade) - Mordialloc Bypass

National Waste Management Site Database

Sites on the National Waste Management Site Database within the dataset buffer:

Site Id	Owner	Name	Address	Suburb	Class	Landfill	Reprocess	Transfer	Comments	Loc Conf	Dist (m)	Direction
N/A	No records in buffer											

Waste Management Facilities Data Source: Australian Government Geoscience Australia
Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

Statewide Waste and Resource Recovery Infrastructure Plan Facilities

Statewide Waste and Resource Recovery Infrastructure Plan Facilities within the dataset buffer:

Map Id	Owner	Site Name	Address	Suburb	Category	Sub Category	Loc Conf	Distance	Direction
N/A	No records in buffer								

SWRRIPF Data Source: State Government Victoria - Department of Sustainability

EPA Prescribed Industrial Waste

EPA Prescribed Industrial Waste sites within the dataset buffer:

Map Id	Company Name	Address	Suburb	Treatment /Disposal	Transport	Accredited Agent	EPA List Status	Loc Conf	Dist (m)	Direct
N/A	No records in buffer									

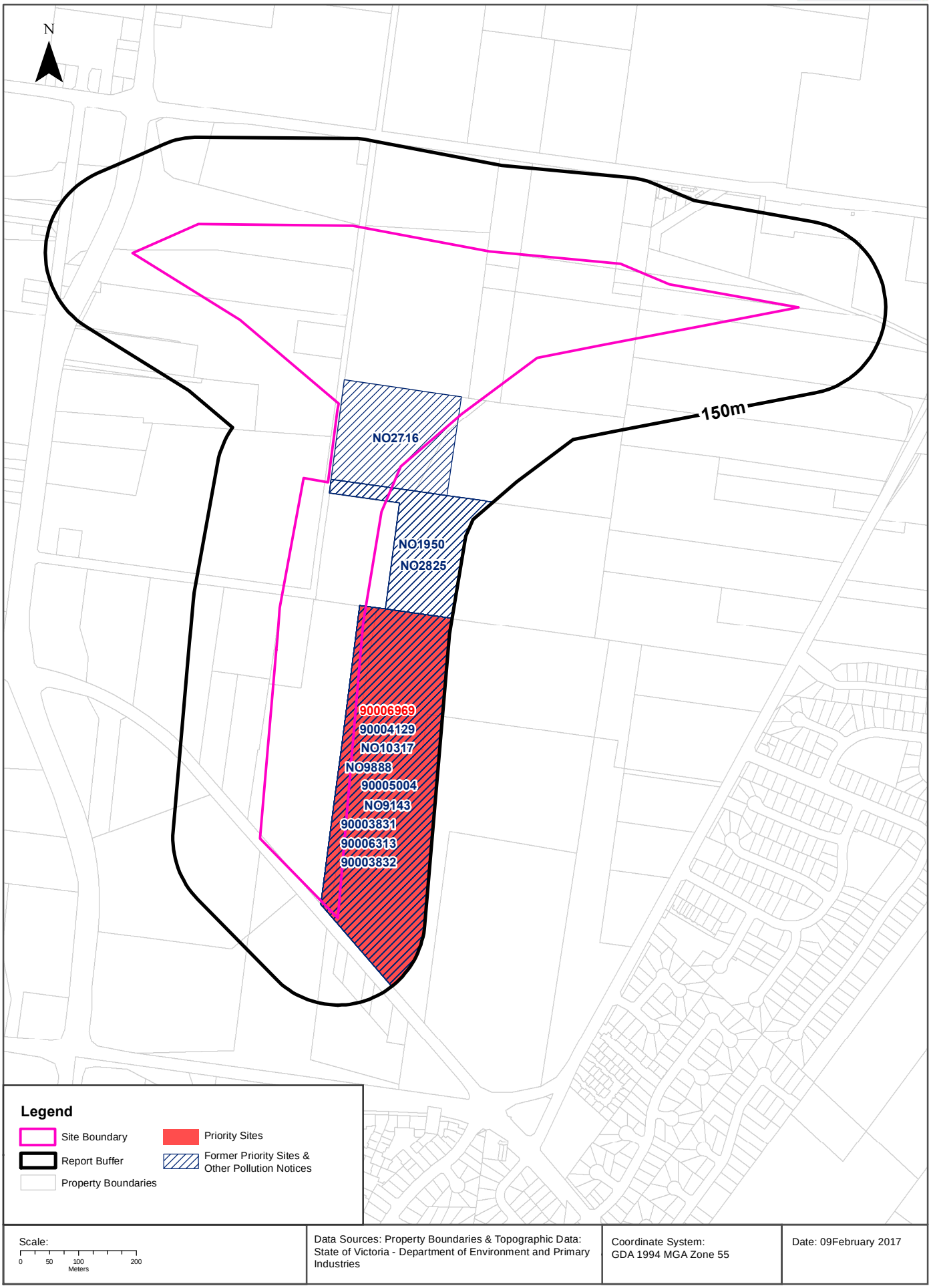
Prescribed Industrial Waste Data Custodian: State Government Victoria - Environment Protection Authority (EPA)

APPENDIX H

EPA PRIORITY SITES

EPA Records - Priority Sites & Pollution Notices

OSAR Proposed Road Alignments - Site 26 (Section 1)



EPA Records

OSAR Proposed Road Alignments - Site 26 (Section 1)

Current EPA Priority Sites Register

What sites on the current EPA priority sites register exist within the report buffer?

Notice No	Address	Suburb	Issue	Loc Conf	Dist (m)	Direction
90006969	370 Old Dandenong RD	DINGLEY VILLAGE		Premise Match	0m	Onsite

Priority Sites Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

Former EPA Priority Sites & Other Pollution Notices

What sites within the report buffer have been issued a Pollution Notice?
Note. Due to pollution notices being revoked and removed from published lists this is not an exhaustive list of all past pollution notices.

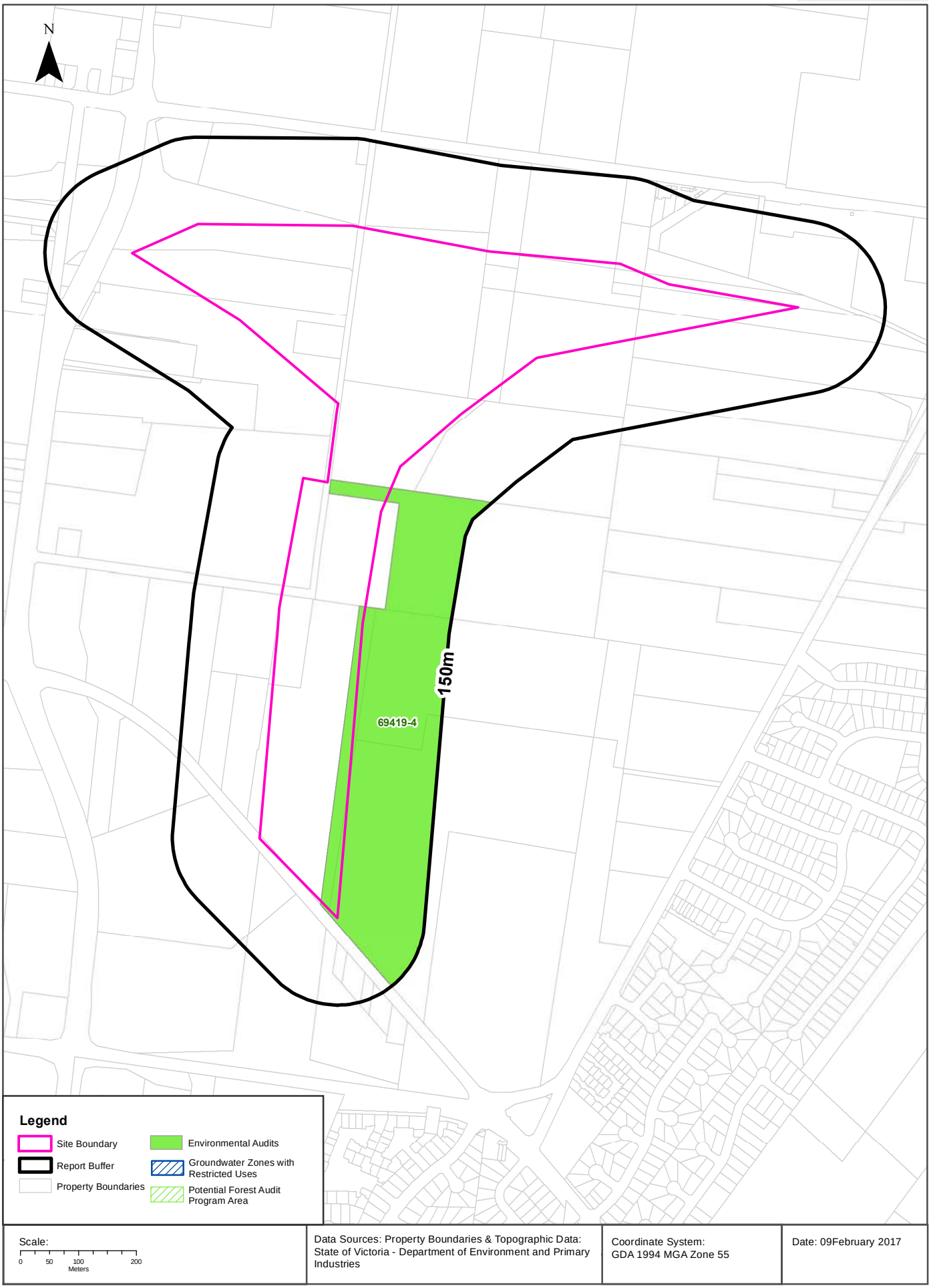
Notice No	Notice Type	Company	Address	Suburb	Status	Issue	Date Issued	Loc Conf	Dist	Dir
NO2716	31A(1)	AGJ CARTAGE CONTRACTORS P/L	LOT 2 GRANGE RD	DINGLEY	Legacy EPA Database Pollution Notice		09/03/2001	Premise Match	0m	Onsite
NO9888	62A(1)	ERNEST SMITH CONTRACTORS P/L	370-418 OLD DANDENONG RD	DINGLEY VILLAGE	Legacy EPA Database Pollution Notice	Current Landfill, Requires assessment and/or clean up.	10/10/2011	Premise Match	0m	Onsite
NO9143	62A(1)	ERNEST SMITH CONTRACTORS P/L	370-418 OLD DANDENONG RD	DINGLEY VILLAGE	Legacy EPA Database Pollution Notice	Current Landfill, Requires ongoing management.	24/02/2011	Premise Match	0m	Onsite
NO10317	31A(1)	ERNEST SMITH CONTRACTORS P/L	370-418 OLD DANDENONG RD	DINGLEY VILLAGE	Legacy EPA Database Pollution Notice	Current Landfill, Requires ongoing management.	03/04/2012	Premise Match	0m	Onsite
90006313	Pollution Abatement Notice	ERNEST SMITH CONTRACTORS	370 Old Dandenong RD	DINGLEY VILLAGE	Previous Pollution Notice	AIR QUALITY - CONTAMINATION (LEGACY)	20/08/2015	Premise Match	0m	Onsite
90005004	Pollution Abatement Notice	ERNEST SMITH CONTRACTORS	370 Old Dandenong RD	DINGLEY VILLAGE	Previous Pollution Notice		11/09/2014	Premise Match	0m	Onsite
90004129	Hydrogeological Assessment PAN	ERNEST SMITH CONTRACTORS	370 Old Dandenong RD	DINGLEY VILLAGE	Previous Pollution Notice	LIQUID - CONTAMINATION (LEGACY)	25/09/2015	Premise Match	0m	Onsite
90003832	Previous Priority Notice, Monitoring, Rehab' & Aftercare PAN	ERNEST SMITH CONTRACTORS PROPRIETARY LIMITED	370 Old Dandenong RD	DINGLEY VILLAGE	Previous Priority Notice	Former Landfill. Requires ongoing management	27/11/2014	Premise Match	0m	Onsite

Notice No	Notice Type	Company	Address	Suburb	Status	Issue	Date Issued	Loc Conf	Dist	Dir
90003831	Previous Priority Notice, Hydrogeological Assessment PAN	ERNEST SMITH CONTRACTORS PROPRIETARY LIMITED	370 Old Dandenong RD	DINGLEY VILLAGE	Previous Priority Notice	Former Landfill. Requires ongoing management	17/07/2014	Premise Match	0m	Onsite
NO1950	31A(1)	STINO NOMINEES P/L	LOT 1 GRANGE RD	SPRINGVALE SOUTH	Legacy EPA Database Pollution Notice		04/04/1990	Premise Match	0m	Onsite
NO2825	31A(1)	SUPER SOIL P/L	LOT 1 GRANGE RD	DINGLEY	Legacy EPA Database Pollution Notice		28/09/2001	Premise Match	0m	Onsite

Pollution Notice Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

EPA Records - Audit Reports & GQRUZ

OSAR Proposed Road Alignments - Site 26 (Section 1)



EPA Records

OSAR Proposed Road Alignments - Site 26 (Section 1)

EPA Environmental Audits

What EPA environmental audit records exist within the report buffer?
Note. Please click on CARMS No. to activate a hyperlink to online documentation. If link does not work, documentation may still be accessible via the EPA Interaction Portal.

CARMS No	Transaction No	Site	Address	Suburb	Date Complete	Loc Conf	Distance	Direction
69419-4	8004942	370-418 OLD DANDENONG RD, DINGLEY VILLAG 370 -418 OLD DANDENONG RD	370-418 OLD DANDENONG RD, DINGLEY VILLAG 370-418 OLD DANDENONG RD	DINGLEY VILLAGE	22/07/2016	Premise Match	0m	Onsite

Environmental Audit Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

EPA Groundwater Zones with Restricted Uses

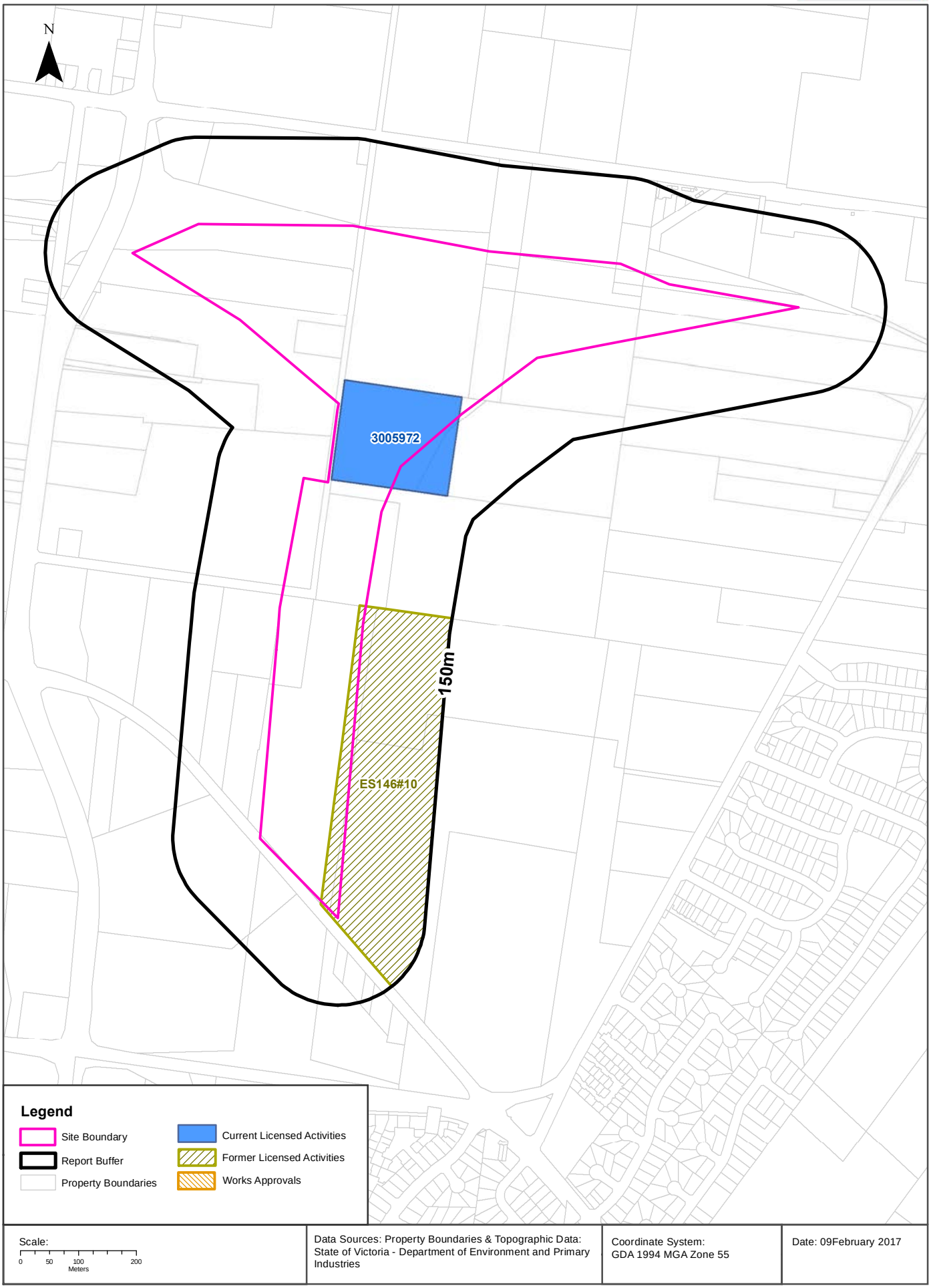
What EPA GQRUZ exist within the report buffer?
Note. Please click on CARMS No. to activate a hyperlink to online documentation.

CARMS No	EPA Id	Site History	Site Address	Restricted Uses	Loc Conf	Distance	Direction
N/A	No records in buffer						

Environmental GQRUZ Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

EPA Records - Licensed Activities & Works Approvals

OSAR Proposed Road Alignments - Site 26 (Section 1)



Data Sources: Property Boundaries & Topographic Data: State of Victoria - Department of Environment and Primary Industries

Coordinate System: GDA 1994 MGA Zone 55

Date: 09February 2017

EPA Records

OSAR Proposed Road Alignments - Site 26 (Section 1)

EPA Licensed Activities

What EPA licensed activities exist within the report buffer?

Trans No	Licence No	Licence Type	Organisation	Premise Ref	Premise Address 1	Premise Address 2	Activities	Loc Conf	Dist (m)	Direction
3005972	EA63780 #6	Licence	ENVIROMIX PTY LTD		LOT 2 GRANGE RD	DINGLEY VILLAGE VIC 3172	A07 Composting	Premise Match	0m	Onsite

Licensed Activity Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

Former EPA Licensed Activities

What former EPA licensed activities exist within the report buffer?

Licence No	Organisation	Premise Address	Suburb	Activities	Loc Conf	Dist (m)	Direction
ES146#10	ERNEST SMITH CONTRACTORS PROPRIETARY LIMITED	370-418 Old Dandenong Rd	DINGLEY VILLAGE VIC 3172	A05 Landfills	Premise Match	0m	Onsite

Former Licensed Activity Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

EPA Works Approvals

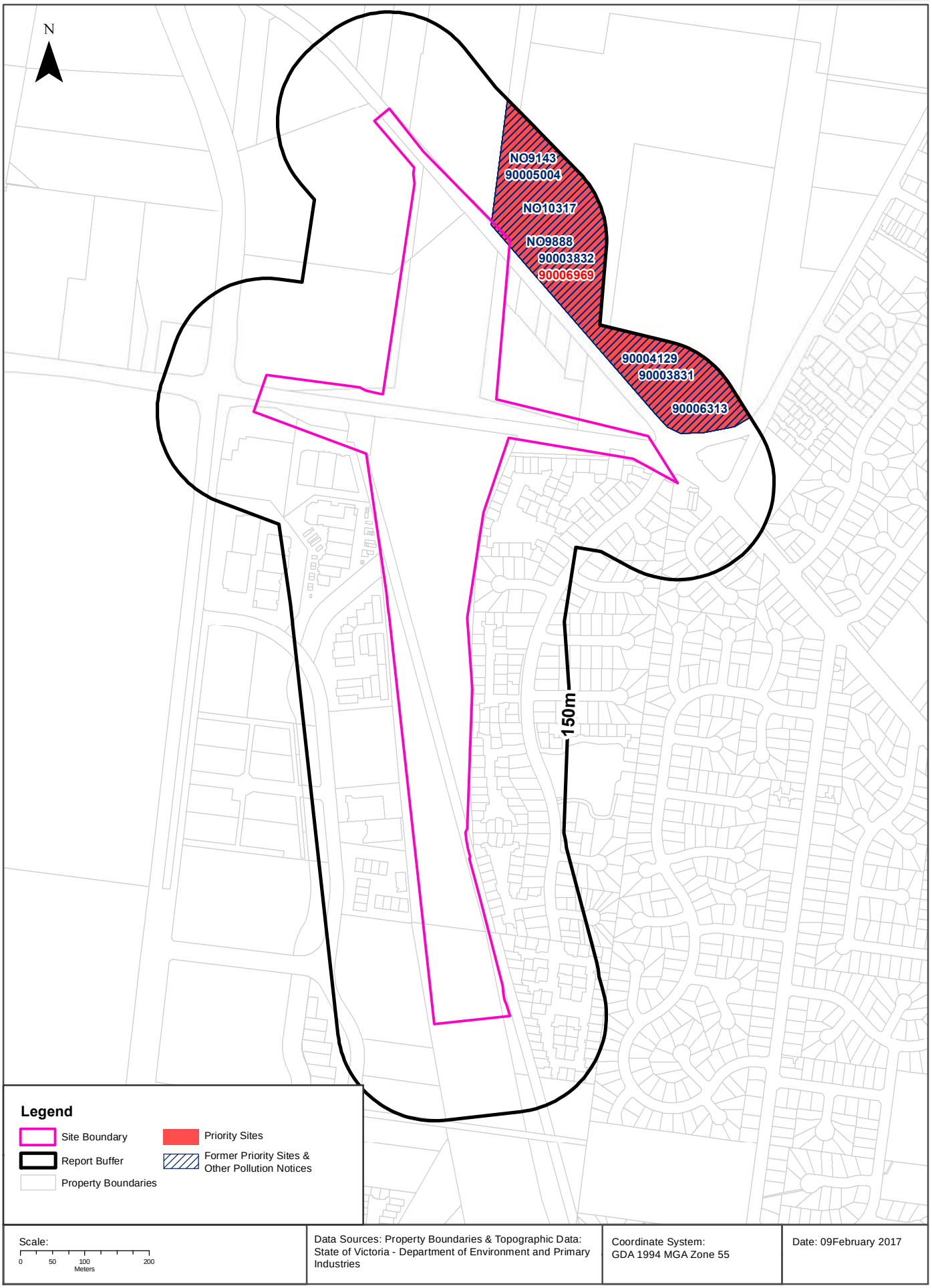
What EPA works approvals exist within the report buffer?

Transaction No	Status	Approval No	Organisation	Premise Address	Suburb	Scheduled Categories	Loc Conf	Dist (m)	Direction
N/A	No records in buffer								

Works Approvals Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

EPA Records - Priority Sites & Pollution Notices

OSAR Proposed Road Alignments - Site 26 (Section 2)



EPA Records

OSAR Proposed Road Alignments - Site 26 (Section 2)

Current EPA Priority Sites Register

What sites on the current EPA priority sites register exist within the report buffer?

Notice No	Address	Suburb	Issue	Loc Conf	Dist (m)	Direction
90006969	370 Old Dandenong RD	DINGLEY VILLAGE		Premise Match	0m	Onsite

Priority Sites Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

Former EPA Priority Sites & Other Pollution Notices

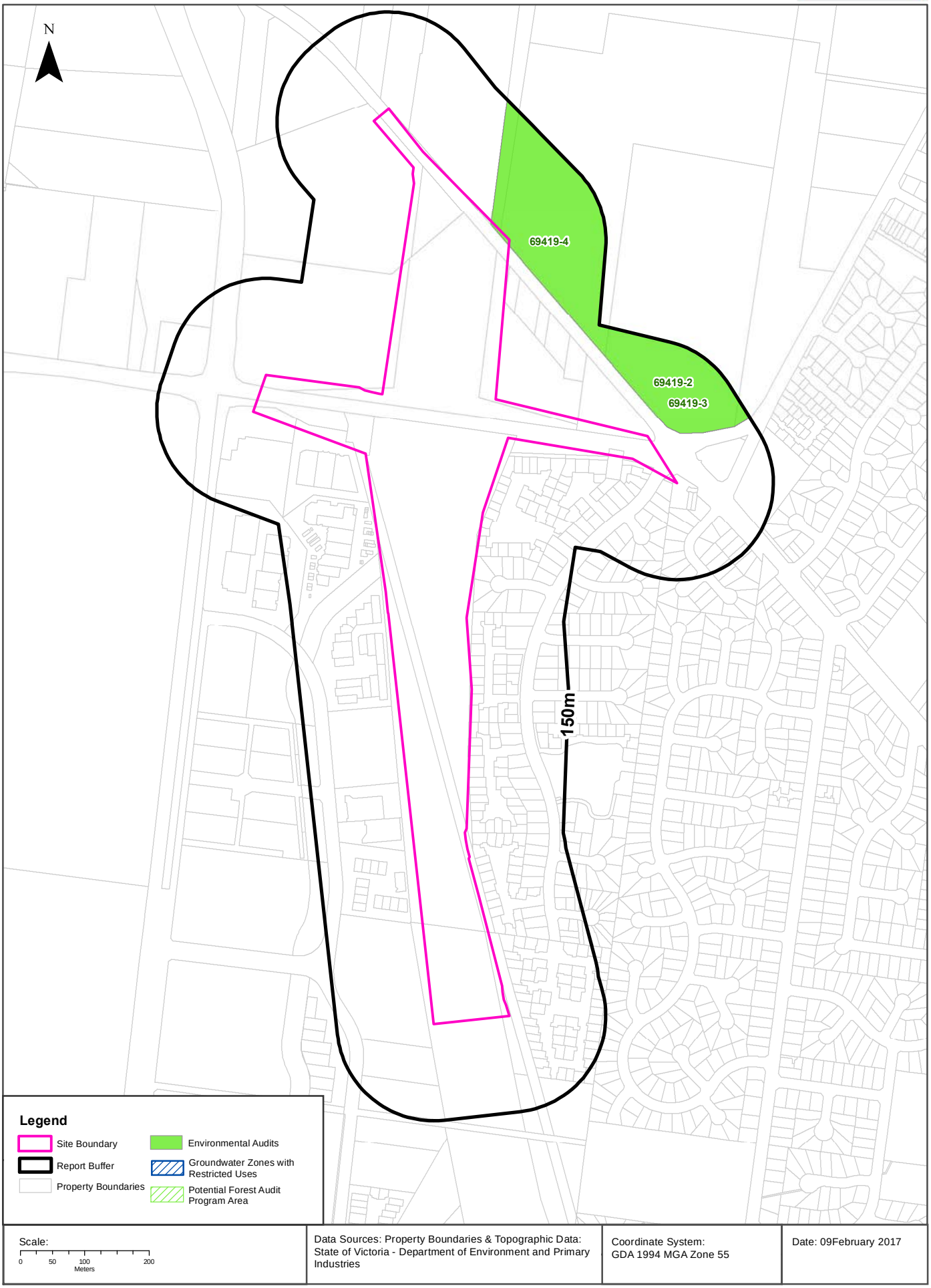
What sites within the report buffer have been issued a Pollution Notice?
Note. Due to pollution notices being revoked and removed from published lists this is not an exhaustive list of all past pollution notices.

Notice No	Notice Type	Company	Address	Suburb	Status	Issue	Date Issued	Loc Conf	Dist	Dir
NO9888	62A(1)	ERNEST SMITH CONTRACTORS P/L	370-418 OLD DANDENONG RD	DINGLEY VILLAGE	Legacy EPA Database Pollution Notice	Current Landfill, Requires assessment and/or clean up.	10/10/2011	Premise Match	0m	Onsite
NO9143	62A(1)	ERNEST SMITH CONTRACTORS P/L	370-418 OLD DANDENONG RD	DINGLEY VILLAGE	Legacy EPA Database Pollution Notice	Current Landfill, Requires ongoing management.	24/02/2011	Premise Match	0m	Onsite
NO10317	31A(1)	ERNEST SMITH CONTRACTORS P/L	370-418 OLD DANDENONG RD	DINGLEY VILLAGE	Legacy EPA Database Pollution Notice	Current Landfill, Requires ongoing management.	03/04/2012	Premise Match	0m	Onsite
90006313	Pollution Abatement Notice	ERNEST SMITH CONTRACTORS	370 Old Dandenong RD	DINGLEY VILLAGE	Previous Pollution Notice	AIR QUALITY - CONTAMINATION (LEGACY)	20/08/2015	Premise Match	0m	Onsite
90005004	Pollution Abatement Notice	ERNEST SMITH CONTRACTORS	370 Old Dandenong RD	DINGLEY VILLAGE	Previous Pollution Notice		11/09/2014	Premise Match	0m	Onsite
90004129	Hydrogeological Assessment PAN	ERNEST SMITH CONTRACTORS	370 Old Dandenong RD	DINGLEY VILLAGE	Previous Pollution Notice	LIQUID - CONTAMINATION (LEGACY)	25/09/2015	Premise Match	0m	Onsite
90003832	Previous Priority Notice, Monitoring, Rehab' & Aftercare PAN	ERNEST SMITH CONTRACTORS PROPRIETARY LIMITED	370 Old Dandenong RD	DINGLEY VILLAGE	Previous Priority Notice	Former Landfill. Requires ongoing management	27/11/2014	Premise Match	0m	Onsite
90003831	Previous Priority Notice, Hydrogeological Assessment PAN	ERNEST SMITH CONTRACTORS PROPRIETARY LIMITED	370 Old Dandenong RD	DINGLEY VILLAGE	Previous Priority Notice	Former Landfill. Requires ongoing management	17/07/2014	Premise Match	0m	Onsite

Pollution Notice Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

EPA Records - Audit Reports & GQRUZ

OSAR Proposed Road Alignments - Site 26 (Section 2)



Data Sources: Property Boundaries & Topographic Data: State of Victoria - Department of Environment and Primary Industries

Coordinate System: GDA 1994 MGA Zone 55

Date: 09February 2017

EPA Records

OSAR Proposed Road Alignments - Site 26 (Section 2)

EPA Environmental Audits

What EPA environmental audit records exist within the report buffer?
Note. Please click on CARMS No. to activate a hyperlink to online documentation. If link does not work, documentation may still be accessible via the EPA Interaction Portal.

CARMS No	Transaction No	Site	Address	Suburb	Date Complete	Loc Conf	Distance	Direction
69419-4	8004942	370-418 OLD DANDENONG RD, DINGLEY VILLAG 370 -418 OLD DANDENONG RD	370-418 OLD DANDENONG RD, DINGLEY VILLAG 370-418 OLD DANDENONG RD	DINGLEY VILLAGE	22/07/2016	Premise Match	0m	Onsite
69419-2	8004084	370-418 OLD DANDENONG ROAD DIN SAN LANDFILL	370-418 OLD DANDENONG ROAD	Dingley	30/06/2014	Premise Match	32m	North East
69419-3	8004540	370-418 OLD DANDENONG ROAD DINGLEY DIN SAN LANDFILL	370-418 OLD DANDENONG ROAD DINGLEY DIN SAN LANDFILL	DINGLEY	30/06/2015	Premise Match	32m	North East

Environmental Audit Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

EPA Groundwater Zones with Restricted Uses

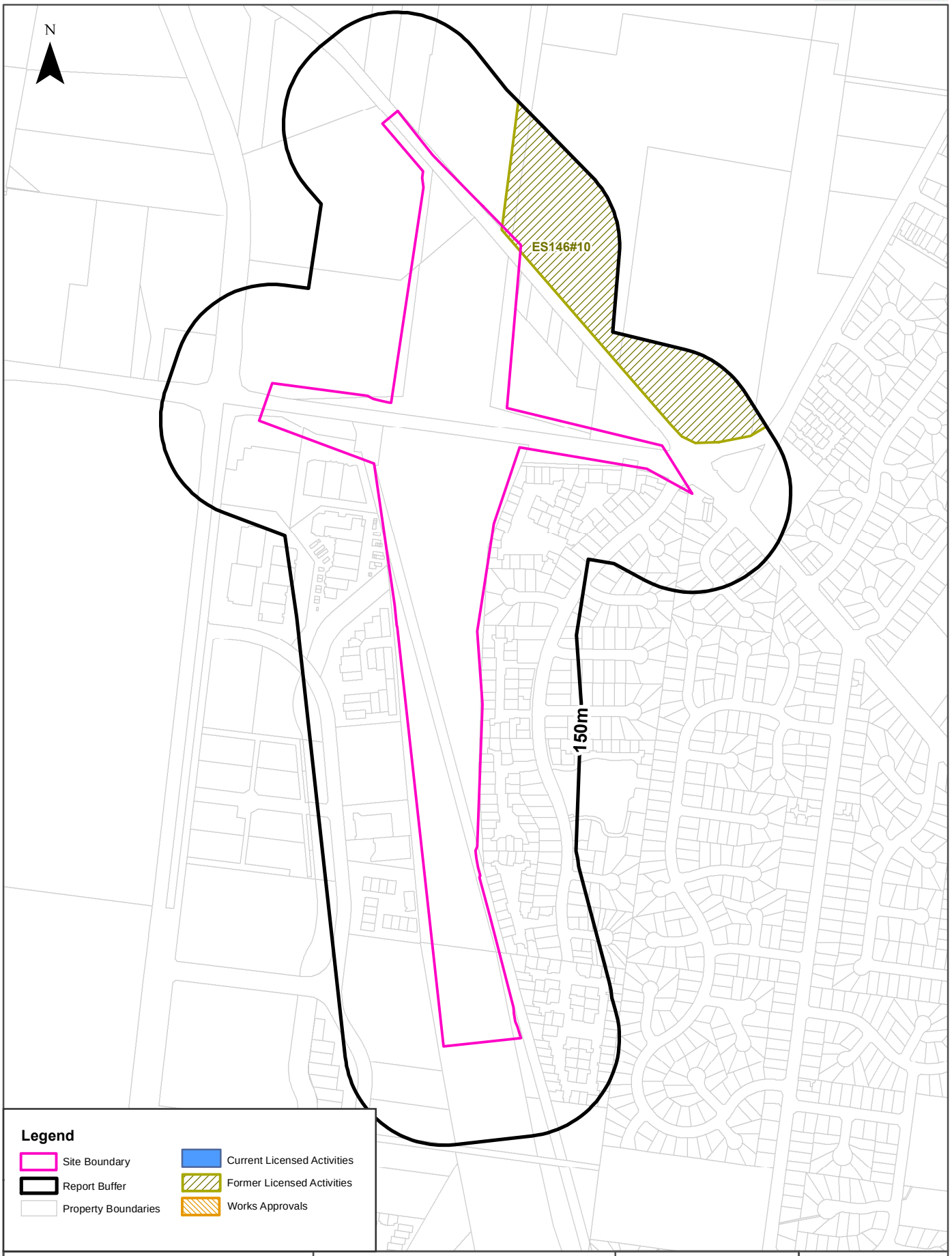
What EPA GQRUZ exist within the report buffer?
Note. Please click on CARMS No. to activate a hyperlink to online documentation.

CARMS No	EPA Id	Site History	Site Address	Restricted Uses	Loc Conf	Distance	Direction
N/A	No records in buffer						

Environmental GQRUZ Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

EPA Records - Licensed Activities & Works Approvals

OSAR Proposed Road Alignments - Site 26 (Section 2)



Data Sources: Property Boundaries & Topographic Data: State of Victoria - Department of Environment and Primary Industries

Coordinate System: GDA 1994 MGA Zone 55

Date: 09February 2017

EPA Records

OSAR Proposed Road Alignments - Site 26 (Section 2)

EPA Licensed Activities

What EPA licensed activities exist within the report buffer?

Trans No	Licence No	Licence Type	Organisation	Premise Ref	Premise Address 1	Premise Address 2	Activities	Loc Conf	Dist (m)	Direction
N/A	No records in buffer									

Licensed Activity Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

Former EPA Licensed Activities

What former EPA licensed activities exist within the report buffer?

Licence No	Organisation	Premise Address	Suburb	Activities	Loc Conf	Dist (m)	Direction
ES146#10	ERNEST SMITH CONTRACTORS PROPRIETARY LIMITED	370-418 Old Dandenong Rd	DINGLEY VILLAGE VIC 3172	A05 Landfills	Premise Match	0m	Onsite

Former Licensed Activity Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

EPA Works Approvals

What EPA works approvals exist within the report buffer?

Transaction No	Status	Approval No	Organisation	Premise Address	Suburb	Scheduled Categories	Loc Conf	Dist (m)	Direction
N/A	No records in buffer								

Works Approvals Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

EPA Records

OSAR Proposed Road Alignments - Site 26 (Section 3)

Current EPA Priority Sites Register

What sites on the current EPA priority sites register exist within the report buffer?

Notice No	Address	Suburb	Issue	Loc Conf	Dist (m)	Direction
N/A	No records in buffer					

Priority Sites Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

Former EPA Priority Sites & Other Pollution Notices

What sites within the report buffer have been issued a Pollution Notice?
Note. Due to pollution notices being revoked and removed from published lists this is not an exhaustive list of all past pollution notices.

Notice No	Notice Type	Company	Address	Suburb	Status	Issue	Date Issued	Loc Conf	Dist	Dir
N/A	No records in buffer									

Pollution Notice Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

EPA Records

OSAR Proposed Road Alignments - Site 26 (Section 3)

EPA Environmental Audits

What EPA environmental audit records exist within the report buffer?
Note. Please click on CARMS No. to activate a hyperlink to online documentation. If link does not work, documentation may still be accessible via the EPA Interaction Portal.

CARMS No	Transaction No	Site	Address	Suburb	Date Complete	Loc Conf	Distance	Direction
N/A	No records in buffer							

Environmental Audit Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

EPA Groundwater Zones with Restricted Uses

What EPA GQRUZ exist within the report buffer?
Note. Please click on CARMS No. to activate a hyperlink to online documentation.

CARMS No	EPA Id	Site History	Site Address	Restricted Uses	Loc Conf	Distance	Direction
N/A	No records in buffer						

Environmental GQRUZ Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

EPA Records

OSAR Proposed Road Alignments - Site 26 (Section 3)

EPA Licensed Activities

What EPA licensed activities exist within the report buffer?

Trans No	Licence No	Licence Type	Organisation	Premise Ref	Premise Address 1	Premise Address 2	Activities	Loc Conf	Dist (m)	Direction
N/A	No records in buffer									

Licensed Activity Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

Former EPA Licensed Activities

What former EPA licensed activities exist within the report buffer?

Licence No	Organisation	Premise Address	Suburb	Activities	Loc Conf	Dist (m)	Direction
N/A	No records in buffer						

Former Licensed Activity Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

EPA Works Approvals

What EPA works approvals exist within the report buffer?

Transaction No	Status	Approval No	Organisation	Premise Address	Suburb	Scheduled Categories	Loc Conf	Dist (m)	Direction
N/A	No records in buffer								

Works Approvals Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

EPA Records

OSAR Proposed Road Alignments - Site 26 (Section 4)

Current EPA Priority Sites Register

What sites on the current EPA priority sites register exist within the report buffer?

Notice No	Address	Suburb	Issue	Loc Conf	Dist (m)	Direction
N/A	No records in buffer					

Priority Sites Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

Former EPA Priority Sites & Other Pollution Notices

What sites within the report buffer have been issued a Pollution Notice?
Note. Due to pollution notices being revoked and removed from published lists this is not an exhaustive list of all past pollution notices.

Notice No	Notice Type	Company	Address	Suburb	Status	Issue	Date Issued	Loc Conf	Dist	Dir
N/A	No records in buffer									

Pollution Notice Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

EPA Records

OSAR Proposed Road Alignments - Site 26 (Section 4)

EPA Environmental Audits

What EPA environmental audit records exist within the report buffer?
Note. Please click on CARMS No. to activate a hyperlink to online documentation. If link does not work, documentation may still be accessible via the EPA Interaction Portal.

CARMS No	Transaction No	Site	Address	Suburb	Date Complete	Loc Conf	Distance	Direction
N/A	No records in buffer							

Environmental Audit Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

EPA Groundwater Zones with Restricted Uses

What EPA GQRUZ exist within the report buffer?
Note. Please click on CARMS No. to activate a hyperlink to online documentation.

CARMS No	EPA Id	Site History	Site Address	Restricted Uses	Loc Conf	Distance	Direction
N/A	No records in buffer						

Environmental GQRUZ Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

EPA Records

OSAR Proposed Road Alignments - Site 26 (Section 4)

EPA Licensed Activities

What EPA licensed activities exist within the report buffer?

Trans No	Licence No	Licence Type	Organisation	Premise Ref	Premise Address 1	Premise Address 2	Activities	Loc Conf	Dist (m)	Direction
N/A	No records in buffer									

Licensed Activity Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

Former EPA Licensed Activities

What former EPA licensed activities exist within the report buffer?

Licence No	Organisation	Premise Address	Suburb	Activities	Loc Conf	Dist (m)	Direction
N/A	No records in buffer						

Former Licensed Activity Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

EPA Works Approvals

What EPA works approvals exist within the report buffer?

Transaction No	Status	Approval No	Organisation	Premise Address	Suburb	Scheduled Categories	Loc Conf	Dist (m)	Direction
N/A	No records in buffer								

Works Approvals Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

EPA Records

OSAR Proposed Road Alignments - Site 26 (Section 5)

Current EPA Priority Sites Register

What sites on the current EPA priority sites register exist within the report buffer?

Notice No	Address	Suburb	Issue	Loc Conf	Dist (m)	Direction
N/A	No records in buffer					

Priority Sites Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

Former EPA Priority Sites & Other Pollution Notices

What sites within the report buffer have been issued a Pollution Notice?
Note. Due to pollution notices being revoked and removed from published lists this is not an exhaustive list of all past pollution notices.

Notice No	Notice Type	Company	Address	Suburb	Status	Issue	Date Issued	Loc Conf	Dist	Dir
N/A	No records in buffer									

Pollution Notice Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

EPA Records

OSAR Proposed Road Alignments - Site 26 (Section 5)

EPA Environmental Audits

What EPA environmental audit records exist within the report buffer?
Note. Please click on CARMS No. to activate a hyperlink to online documentation. If link does not work, documentation may still be accessible via the EPA Interaction Portal.

CARMS No	Transaction No	Site	Address	Suburb	Date Complete	Loc Conf	Distance	Direction
N/A	No records in buffer							

Environmental Audit Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

EPA Groundwater Zones with Restricted Uses

What EPA GQRUZ exist within the report buffer?
Note. Please click on CARMS No. to activate a hyperlink to online documentation.

CARMS No	EPA Id	Site History	Site Address	Restricted Uses	Loc Conf	Distance	Direction
N/A	No records in buffer						

Environmental GQRUZ Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

EPA Records

OSAR Proposed Road Alignments - Site 26 (Section 5)

EPA Licensed Activities

What EPA licensed activities exist within the report buffer?

Trans No	Licence No	Licence Type	Organisation	Premise Ref	Premise Address 1	Premise Address 2	Activities	Loc Conf	Dist (m)	Direction
N/A	No records in buffer									

Licensed Activity Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

Former EPA Licensed Activities

What former EPA licensed activities exist within the report buffer?

Licence No	Organisation	Premise Address	Suburb	Activities	Loc Conf	Dist (m)	Direction
N/A	No records in buffer						

Former Licensed Activity Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

EPA Works Approvals

What EPA works approvals exist within the report buffer?

Transaction No	Status	Approval No	Organisation	Premise Address	Suburb	Scheduled Categories	Loc Conf	Dist (m)	Direction
N/A	No records in buffer								

Works Approvals Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

EPA Records

OSAR Proposed Road Alignments - Site 26 (Section 6)

Current EPA Priority Sites Register

What sites on the current EPA priority sites register exist within the report buffer?

Notice No	Address	Suburb	Issue	Loc Conf	Dist (m)	Direction
N/A	No records in buffer					

Priority Sites Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

Former EPA Priority Sites & Other Pollution Notices

What sites within the report buffer have been issued a Pollution Notice?
Note. Due to pollution notices being revoked and removed from published lists this is not an exhaustive list of all past pollution notices.

Notice No	Notice Type	Company	Address	Suburb	Status	Issue	Date Issued	Loc Conf	Dist	Dir
N/A	No records in buffer									

Pollution Notice Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

EPA Records

OSAR Proposed Road Alignments - Site 26 (Section 6)

EPA Environmental Audits

What EPA environmental audit records exist within the report buffer?
Note. Please click on CARMS No. to activate a hyperlink to online documentation. If link does not work, documentation may still be accessible via the EPA Interaction Portal.

CARMS No	Transaction No	Site	Address	Suburb	Date Complete	Loc Conf	Distance	Direction
N/A	No records in buffer							

Environmental Audit Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

EPA Groundwater Zones with Restricted Uses

What EPA GQRUZ exist within the report buffer?
Note. Please click on CARMS No. to activate a hyperlink to online documentation.

CARMS No	EPA Id	Site History	Site Address	Restricted Uses	Loc Conf	Distance	Direction
N/A	No records in buffer						

Environmental GQRUZ Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

EPA Records

OSAR Proposed Road Alignments - Site 26 (Section 6)

EPA Licensed Activities

What EPA licensed activities exist within the report buffer?

Trans No	Licence No	Licence Type	Organisation	Premise Ref	Premise Address 1	Premise Address 2	Activities	Loc Conf	Dist (m)	Direction
N/A	No records in buffer									

Licensed Activity Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

Former EPA Licensed Activities

What former EPA licensed activities exist within the report buffer?

Licence No	Organisation	Premise Address	Suburb	Activities	Loc Conf	Dist (m)	Direction
N/A	No records in buffer						

Former Licensed Activity Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

EPA Works Approvals

What EPA works approvals exist within the report buffer?

Transaction No	Status	Approval No	Organisation	Premise Address	Suburb	Scheduled Categories	Loc Conf	Dist (m)	Direction
N/A	No records in buffer								

Works Approvals Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

EPA Records

OSAR Proposed Road Alignments - Site 26 (Section 7)

Current EPA Priority Sites Register

What sites on the current EPA priority sites register exist within the report buffer?

Notice No	Address	Suburb	Issue	Loc Conf	Dist (m)	Direction
N/A	No records in buffer					

Priority Sites Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

Former EPA Priority Sites & Other Pollution Notices

What sites within the report buffer have been issued a Pollution Notice?
Note. Due to pollution notices being revoked and removed from published lists this is not an exhaustive list of all past pollution notices.

Notice No	Notice Type	Company	Address	Suburb	Status	Issue	Date Issued	Loc Conf	Dist	Dir
N/A	No records in buffer									

Pollution Notice Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

EPA Records

OSAR Proposed Road Alignments - Site 26 (Section 7)

EPA Environmental Audits

What EPA environmental audit records exist within the report buffer?
Note. Please click on CARMS No. to activate a hyperlink to online documentation. If link does not work, documentation may still be accessible via the EPA Interaction Portal.

CARMS No	Transaction No	Site	Address	Suburb	Date Complete	Loc Conf	Distance	Direction
N/A	No records in buffer							

Environmental Audit Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

EPA Groundwater Zones with Restricted Uses

What EPA GQRUZ exist within the report buffer?
Note. Please click on CARMS No. to activate a hyperlink to online documentation.

CARMS No	EPA Id	Site History	Site Address	Restricted Uses	Loc Conf	Distance	Direction
N/A	No records in buffer						

Environmental GQRUZ Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

EPA Records

OSAR Proposed Road Alignments - Site 26 (Section 7)

EPA Licensed Activities

What EPA licensed activities exist within the report buffer?

Trans No	Licence No	Licence Type	Organisation	Premise Ref	Premise Address 1	Premise Address 2	Activities	Loc Conf	Dist (m)	Direction
N/A	No records in buffer									

Licensed Activity Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

Former EPA Licensed Activities

What former EPA licensed activities exist within the report buffer?

Licence No	Organisation	Premise Address	Suburb	Activities	Loc Conf	Dist (m)	Direction
N/A	No records in buffer						

Former Licensed Activity Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

EPA Works Approvals

What EPA works approvals exist within the report buffer?

Transaction No	Status	Approval No	Organisation	Premise Address	Suburb	Scheduled Categories	Loc Conf	Dist (m)	Direction
N/A	No records in buffer								

Works Approvals Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

EPA Records

OSAR Proposed Road Alignments - Site 26 (Section 8)

Current EPA Priority Sites Register

What sites on the current EPA priority sites register exist within the report buffer?

Notice No	Address	Suburb	Issue	Loc Conf	Dist (m)	Direction
N/A	No records in buffer					

Priority Sites Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

Former EPA Priority Sites & Other Pollution Notices

What sites within the report buffer have been issued a Pollution Notice?
Note. Due to pollution notices being revoked and removed from published lists this is not an exhaustive list of all past pollution notices.

Notice No	Notice Type	Company	Address	Suburb	Status	Issue	Date Issued	Loc Conf	Dist	Dir
N/A	No records in buffer									

Pollution Notice Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

EPA Records

OSAR Proposed Road Alignments - Site 26 (Section 8)

EPA Environmental Audits

What EPA environmental audit records exist within the report buffer?
Note. Please click on CARMS No. to activate a hyperlink to online documentation. If link does not work, documentation may still be accessible via the EPA Interaction Portal.

CARMS No	Transaction No	Site	Address	Suburb	Date Complete	Loc Conf	Distance	Direction
N/A	No records in buffer							

Environmental Audit Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

EPA Groundwater Zones with Restricted Uses

What EPA GQRUZ exist within the report buffer?
Note. Please click on CARMS No. to activate a hyperlink to online documentation.

CARMS No	EPA Id	Site History	Site Address	Restricted Uses	Loc Conf	Distance	Direction
N/A	No records in buffer						

Environmental GQRUZ Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

EPA Records

OSAR Proposed Road Alignments - Site 26 (Section 8)

EPA Licensed Activities

What EPA licensed activities exist within the report buffer?

Trans No	Licence No	Licence Type	Organisation	Premise Ref	Premise Address 1	Premise Address 2	Activities	Loc Conf	Dist (m)	Direction
N/A	No records in buffer									

Licensed Activity Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

Former EPA Licensed Activities

What former EPA licensed activities exist within the report buffer?

Licence No	Organisation	Premise Address	Suburb	Activities	Loc Conf	Dist (m)	Direction
N/A	No records in buffer						

Former Licensed Activity Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

EPA Works Approvals

What EPA works approvals exist within the report buffer?

Transaction No	Status	Approval No	Organisation	Premise Address	Suburb	Scheduled Categories	Loc Conf	Dist (m)	Direction
N/A	No records in buffer								

Works Approvals Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

EPA Records

OSAR Proposed Road Alignments - Site 26 (Section 9)

Current EPA Priority Sites Register

What sites on the current EPA priority sites register exist within the report buffer?

Notice No	Address	Suburb	Issue	Loc Conf	Dist (m)	Direction
N/A	No records in buffer					

Priority Sites Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

Former EPA Priority Sites & Other Pollution Notices

What sites within the report buffer have been issued a Pollution Notice?
Note. Due to pollution notices being revoked and removed from published lists this is not an exhaustive list of all past pollution notices.

Notice No	Notice Type	Company	Address	Suburb	Status	Issue	Date Issued	Loc Conf	Dist	Dir
N/A	No records in buffer									

Pollution Notice Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

EPA Records

OSAR Proposed Road Alignments - Site 26 (Section 9)

EPA Environmental Audits

What EPA environmental audit records exist within the report buffer?
Note. Please click on CARMS No. to activate a hyperlink to online documentation. If link does not work, documentation may still be accessible via the EPA Interaction Portal.

CARMS No	Transaction No	Site	Address	Suburb	Date Complete	Loc Conf	Distance	Direction
N/A	No records in buffer							

Environmental Audit Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

EPA Groundwater Zones with Restricted Uses

What EPA GQRUZ exist within the report buffer?
Note. Please click on CARMS No. to activate a hyperlink to online documentation.

CARMS No	EPA Id	Site History	Site Address	Restricted Uses	Loc Conf	Distance	Direction
N/A	No records in buffer						

Environmental GQRUZ Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

EPA Records

OSAR Proposed Road Alignments - Site 26 (Section 9)

EPA Licensed Activities

What EPA licensed activities exist within the report buffer?

Trans No	Licence No	Licence Type	Organisation	Premise Ref	Premise Address 1	Premise Address 2	Activities	Loc Conf	Dist (m)	Direction
N/A	No records in buffer									

Licensed Activity Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

Former EPA Licensed Activities

What former EPA licensed activities exist within the report buffer?

Licence No	Organisation	Premise Address	Suburb	Activities	Loc Conf	Dist (m)	Direction
N/A	No records in buffer						

Former Licensed Activity Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

EPA Works Approvals

What EPA works approvals exist within the report buffer?

Transaction No	Status	Approval No	Organisation	Premise Address	Suburb	Scheduled Categories	Loc Conf	Dist (m)	Direction
N/A	No records in buffer								

Works Approvals Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

EPA Records

OSAR Proposed Road Alignments - Site 26 (Section 10)

Current EPA Priority Sites Register

What sites on the current EPA priority sites register exist within the report buffer?

Notice No	Address	Suburb	Issue	Loc Conf	Dist (m)	Direction
N/A	No records in buffer					

Priority Sites Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

Former EPA Priority Sites & Other Pollution Notices

What sites within the report buffer have been issued a Pollution Notice?
Note. Due to pollution notices being revoked and removed from published lists this is not an exhaustive list of all past pollution notices.

Notice No	Notice Type	Company	Address	Suburb	Status	Issue	Date Issued	Loc Conf	Dist	Dir
N/A	No records in buffer									

Pollution Notice Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

EPA Records

OSAR Proposed Road Alignments - Site 26 (Section 10)

EPA Environmental Audits

What EPA environmental audit records exist within the report buffer?
Note. Please click on CARMS No. to activate a hyperlink to online documentation. If link does not work, documentation may still be accessible via the EPA Interaction Portal.

CARMS No	Transaction No	Site	Address	Suburb	Date Complete	Loc Conf	Distance	Direction
N/A	No records in buffer							

Environmental Audit Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

EPA Groundwater Zones with Restricted Uses

What EPA GQRUZ exist within the report buffer?
Note. Please click on CARMS No. to activate a hyperlink to online documentation.

CARMS No	EPA Id	Site History	Site Address	Restricted Uses	Loc Conf	Distance	Direction
N/A	No records in buffer						

Environmental GQRUZ Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

EPA Records

OSAR Proposed Road Alignments - Site 26 (Section 10)

EPA Licensed Activities

What EPA licensed activities exist within the report buffer?

Trans No	Licence No	Licence Type	Organisation	Premise Ref	Premise Address 1	Premise Address 2	Activities	Loc Conf	Dist (m)	Direction
N/A	No records in buffer									

Licensed Activity Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

Former EPA Licensed Activities

What former EPA licensed activities exist within the report buffer?

Licence No	Organisation	Premise Address	Suburb	Activities	Loc Conf	Dist (m)	Direction
N/A	No records in buffer						

Former Licensed Activity Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

EPA Works Approvals

What EPA works approvals exist within the report buffer?

Transaction No	Status	Approval No	Organisation	Premise Address	Suburb	Scheduled Categories	Loc Conf	Dist (m)	Direction
N/A	No records in buffer								

Works Approvals Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

EPA Records

Section 11 (Thames Promenade) - Mordialloc Bypass

Current EPA Priority Sites Register

Sites on the current EPA priority sites register that exist within the dataset buffer:

Notice No	Address	Suburb	Issue	Loc Conf	Dist (m)	Direction
N/A	No records in buffer					

Priority Sites Data Custodian: State Government Victoria - Environment Protection Authority (EPA)

Former EPA Priority Sites & Other Pollution Notices

Sites within the dataset buffer that have been issued a Pollution Notice:
Note. Due to pollution notices being revoked and removed from published lists this is not an exhaustive list of all past pollution notices.

Notice No	Notice Type	Company	Address	Suburb	Status	Issue	Date Issued	Loc Conf	Dist	Dir
N/A	No records in buffer									

Pollution Notice Data Custodian: State Government Victoria - Environment Protection Authority (EPA)

EPA Records

Section 11 (Thames Promenade) - Mordialloc Bypass

EPA Environmental Audits

EPA environmental audit records that exist within the dataset buffer:
Note. Please click on CARMS No. to activate a hyperlink to online documentation. If link does not work, documentation may still be accessible via the EPA Interaction Portal.

CARMS No	Transaction No	Site	Address	Suburb	Date Complete	Loc Conf	Distance	Direction
N/A	No records in buffer							

Environmental Audit Data Custodian: State Government Victoria - Environment Protection Authority (EPA)

EPA Records

Section 11 (Thames Promenade) - Mordialloc Bypass

EPA Groundwater Zones with Restricted Uses

EPA GQRUZ records that exist within the dataset buffer:
Note. Please click on CARMS No. to activate a hyperlink to online documentation.

CARMS No	EPA Id	Site History	Site Address	Restricted Uses	Loc Conf	Distance	Direction
N/A	No records in buffer						

Environmental GQRUZ Data Custodian: State Government Victoria - Environment Protection Authority (EPA)

EPA Records

Section 11 (Thames Promenade) - Mordialloc Bypass

EPA Licensed Activities

EPA licensed activities that exist within the dataset buffer:

Trans No	Licence No	Licence Type	Organisation	Premise Ref	Premise Address 1	Premise Address 2	Activities	Loc Conf	Dist (m)	Direction
N/A	No records in buffer									

Licensed Activity Data Custodian: State Government Victoria - Environment Protection Authority (EPA)

Former EPA Licensed Activities

Former EPA licensed activities that exist within the dataset buffer:

Licence No	Organisation	Premise Address	Suburb	Activities	Loc Conf	Dist (m)	Direction
N/A	No records in buffer						

Former Licensed Activity Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

EPA Works Approvals

EPA works approvals that exist within the dataset buffer:

Transaction No	Status	Approval No	Organisation	Premise Address	Suburb	Scheduled Categories	Loc Conf	Dist (m)	Direction
N/A	No records in buffer								

Works Approvals Data Custodian: State Government Victoria - Environment Protection Authority (EPA)

APPENDIX I

BOREHOLE LOGS

BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO. **DB01**

SHEET 1 OF 1

Client:	**VicRoads**	Date Commenced:	**4/10/17**
Project:	**OSAR**	Date Completed:	**4/10/17**
Borehole Location:	**Mordialloc Bypass**	Recorded By:	**B. Purves**
Project Number:	**2135645A**	Log Checked By:	

Drill Model/Mounting:	**Geoprobe - Direct Push**	Driller:	**Drillworx**	Surface RL:	
Borehole Diameter:	**110 mm**	Driller Lic No:		Co-ords:	

Borehole Information							Field Material Description					
	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
				0.45		U50		GM	FILL: Gravelly, silty SAND. Moist, grey with rootlets. Gravel is coarse and subrounded to subangular.			No discernible odours noted
						U50		SC	Sandy CLAY: Moist, grey-brown with darker brown mottles, soft high plasticity with rootlets.			
				0.70 1		U50		SM	Sandy SILT: Moist, dark grey, hard, with rootlets.			
				1.20 1.30				SC	Sandy CLAY: Moist, dark grey, firm, low plasticity.			
						U50		CL	CLAY: Moist, dark grey with brown mottles, firm, low plasticity.			
				2		U50						
						U75						
				2.90 3		U50		CL	CLAY: Wet, light brown, firm, moderate plasticity.			
						U50						
				3.90 4		U50		SC	Sandy CLAY: Wet, brown, firm, moderate plasticity.			
						U50						
				5		U50						
				5.20		U50		GC	Gravelly clayey SAND: Wet, brown with fine rounded gravel.			
				6		U50						
				6.30		U50		GC	Gravelly sandy CLAY: Wet, brown, soft, high plasticity with fine rounded gravel.			
				7.00 7		U50		GC	Gravelly clayey SAND: Wet, brown with fine rounded gravel.			
						U50						
				8.00 8		U50		GC	Gravelly CLAY: Wet, brown, soft, high plasticity. Gravel is medium and angular.			
				8.70		U50		CH	CLAY: Wet, brown with grey mottles, soft, high plasticity.			
				9		U50						
						U50						
				10.00 10		U50			END OF BOREHOLE AT 10.00 m			
				11								

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BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO. **DB02**

SHEET 1 OF 1

Client:	**VicRoads**	Date Commenced:	**3/10/17**
Project:	**OSAR**	Date Completed:	**3/10/17**
Borehole Location:	**Mordialloc Bypass**	Recorded By:	**O. Nazario**
Project Number:	**2135645A**	Log Checked By:	

Drill Model/Mounting:	**Geoprobe - Direct Push**	Driller:	**Drillworx**	Surface RL:	
Borehole Diameter:	**110 mm**	Driller Lic No:		Co-ords:	

Borehole Information							Field Material Description					
	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
				0		U50		CL	Silty CLAY: Moist, dark grey, loose to dense, low plasticity with rootlets.			
				1.00 1		U50		GC	Gravelly silty CLAY: Moist, dark grey, dense, low plasticity. Gravel is calcitic clay.			
				2.00 2		U50		CL	Silty CLAY: Moist, brown, moderate plasticity.			
				2.50		U50		CH	Slightly gravelly sandy CLAY: moist, grey, high plasticity. Sand is coarse grained. Gravel is fine.			Dark grey staining
				3		U50						
				4		U50						
				4.50		U50		GC	Slightly gravelly clayey SAND: Moist becoming wet, brown. Sand is coarse.			
				5								
				6		U50						
				7		U50						
				8.00 8		U50		SM	Slightly clayey SAND: Moist and brown. Sand is medium grained and subrounded.			
				9		U50						
				10.00 10		U50			END OF BOREHOLE AT 10.00 m			
				11								

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BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO. **DB03**

SHEET 1 OF 1

Client:	**VicRoads**	Date Commenced:	**5/10/17**
Project:	**OSAR**	Date Completed:	**5/10/17**
Borehole Location:	**Mordialloc Bypass**	Recorded By:	**B. Purves**
Project Number:	**2135645A**	Log Checked By:	

Drill Model/Mounting:	**Geoprobe - Direct Push**	Driller:	**Drillworx**	Surface RL:	
Borehole Diameter:	**110 mm**	Driller Lic No:		Co-ords:	

Borehole Information							Field Material Description					
	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
				0.30		U50		SM	Silty SAND: Moist, brown with rootlets.			No discernible odours noted.
						U50		CL	CLAY: Moist, dark grey, firm, moderate plasticity.			
				0.90 1		U50		CH	CLAY: Moist becoming wet, dark brown to grey, soft, high plasticity.			
						U50						
				2		U50						
						U75						
				3		U50						
						U50						
				3.60 3.70				SC	Sandy CLAY: Wet, grey, firm, high plasticity.			
				4		U50		CL	CLAY: Wet, grey with orange mottles, firm, moderate plasticity with pockets of brittle white clay.			
						U50						
				4.60 4.80				GC	Gravelly sandy CLAY: Wet, grey with brown mottles, firm, low plasticity. Gravel is medium and subrounded.			
				5		U50		CL	CLAY: Wet, grey with brown mottles, firm, low plasticity.			
						U50						
				6		U50						
						U50						
				7		U50						
				7.40		U50		SC	Sandy CLAY: Wet, grey, firm, moderate plasticity with intermittent thin banding of sand.			
				8		U50						
						U50						
				9		U50						
						U50						
				10.00 10		U50			END OF BOREHOLE AT 10.00 m			
				11								

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BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO. **DB04**

SHEET 1 OF 1

Client:	**VicRoads**	Date Commenced:	**13/10/17**
Project:	**OSAR**	Date Completed:	**13/10/17**
Borehole Location:	**Mordialloc Bypass**	Recorded By:	**B. Purves**
Project Number:	**2135645A**	Log Checked By:	

Drill Model/Mounting:	**Hollow Stem Auger 2"**	Driller:	**Drillworx**	Surface RL:	
Borehole Diameter:	**160 mm**	Driller Lic No:		Co-ords:	

Borehole Information | **Field Material Description**

1 METHOD	2 SUPPORT	3 WATER	4 WELL CONSTRUCTION	5 RL(m) / DEPTH(m)	6 FIELD TEST	7 SAMPLE	8 GRAPHIC LOG	9 USC SYMBOL	10 SOIL/ROCK MATERIAL FIELD DESCRIPTION	11 MOISTURE	12 RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	13 STRUCTURE AND ADDITIONAL OBSERVATIONS
				0		U50		CL	Sandy CLAY: Moist, dark brown with orange brown mottles (from 0.6m), firm, low plasticity with rootlets.			
				1		U50						
				1.80		U50						
				2		U50		CL	Sandy CLAY: Moist becoming wet, grey-brown with darker grey and orange-brown mottles, soft, moderate plasticity.			
				2.40		U50		CL				
				2.80		U50		SM	SAND and CLAY: Wet, orange-brown with grey mottles. Clay is firm with moderate plasticity.			
				3		U50						
				4		U50			SAND: Wet, light brown.			Decomposing, organic odour.
				4.80				CL	Sandy CLAY: Wet, grey with darker grey and brown mottles, soft becoming firm, moderate plasticity.			
				5								
				6		U50						
				7		U50						
				7.50		U50		GC	Gravelly sandy CLAY: Wet, grey with darker grey and brown mottles, soft becoming firm, moderate plasticity. Gravel is fine to medium, angular calcite.			
				7.70		U50		CL				
				8		U50			Sandy CLAY: Wet, grey and brown mottled, firm, moderate plasticity.			Faint burnt/smokey odour prevalent in sections of orange-brown mottling
				9		U50						
				9.90		U50		GC	Gravelly sandy CLAY: Wet, grey and brown mottles, soft becoming firm, moderate plasticity. Gravel is medium, subangular basalt.			Red mottling dominant around gravel
				10		U50						
				10.50		U50		SM	SAND: Wet, grey.			
				10.80		U50		CL	Sandy CLAY: Wet, grey and brown mottles, firm, low plasticity.			
				11		U50						
				12		U50						
				13		U50						
				13.50		U50		SM	SAND: Wet, grey.			
				14		U50						
				14.40		U50		SC	SAND and CLAY: Wet, grey. Clay is firm, low plasticity.			
				15								
				15.30				SC	Sandy CLAY: Wet, red, very firm, low plasticity.			No discernible odours noted.
				16		U50						
				16.90		U50		SC	Clayey SAND: Wet, pale red.			
				17		U50						
				17.90		U50		SC	SAND and CLAY: Wet, light grey-brown and pale red banding of red sand and grey clayey sand.. Clay is stiff, high plasticity.			
				18		U50						
				19		U50						
				20		U50						
				20.00					END OF BOREHOLE AT 20.00 m			
				21								

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BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO. **DB05**

SHEET 1 OF 1

Client:	**VicRoads**	Date Commenced:	**12/10/17**
Project:	**OSAR**	Date Completed:	**12/10/17**
Borehole Location:	**Mordialloc Bypass**	Recorded By:	**B. Purves**
Project Number:	**2135645A**	Log Checked By:	

Drill Model/Mounting:	**Hollow Stem Auger 2"**	Driller:	**Drillworx**	Surface RL:	
Borehole Diameter:	**160 mm**	Driller Lic No:		Co-ords:	

Borehole Information

1 METHOD	2 SUPPORT	3 WATER	4 WELL CONSTRUCTION	5 RL(m)	5 DEPTH(m)	6 FIELD TEST	7 SAMPLE
				0.20	0		U50
				1.00	1		U50
							U50
				2.00	2		U50
							U50
							U50
				3.00	3		U50
							U50
					4		U50
				4.20			U50
				5.00	5		
					6		U50
							U50
				7.00	7		U50
				7.30			U50
					8		U50
							U50
							U50
					9		U50
							U50
							U50
					10		U50
							U50
							U50
				11.50	11		U50
					12		U50
							U50
							U50
				13.00	13		U50
							U50
				14.00	14		U50
							U50
					15		U50
							U50
					16		U50
				16.50			U50
				17.00	17		U50
							U50
					18		
				18.50			U50
					19		U50
							U50
				20.00	20		U50
					21		

Field Material Description

8 GRAPHIC LOG	9 USC SYMBOL	10 SOIL/ROCK MATERIAL FIELD DESCRIPTION	11 MOISTURE	12 RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	13 STRUCTURE AND ADDITIONAL OBSERVATIONS
	SM	Silty SAND: Moist, dark grey-brown with rootlets.			No discernible odours noted.
	SC	Sandy CLAY: Moist, dark brown, stiff, low plasticity with rootlets.			
	SC	Sandy CLAY: Moist, dark grey-brown with orange mottles, firm, low plasticity.			
	SC	Sandy CLAY: Moist becoming wet, light grey with orange-brown mottles, soft, moderate plasticity.			
	SM	SAND: Wet, grey brown becoming darker with orange-brown mottles.			
	SC	Clayey SAND: Wet, grey-brown.			
	CL	Sandy CLAY: Wet, grey with orange-brown mottles, firm, low plasticity.			
	CL	Sandy CLAY: Wet, grey-green, firm, low plasticity.			
	SM	SAND: Wet, grey-green with occasional brown bands.			
	SC	Clayey SAND: Wet, brown and blue-grey.			
	SC	Clayey SAND: Wet, blue-grey.			
	SC	Clayey SAND: Wet, light brown with light cream banding and darker grey-brown patches.			
	GC	Gravelly sandy CLAY: Wet, light brown, soft, moderate plasticity. Gravel is fine, subrounded to subangular.			
	GC	Clayey GRAVEL: Wet, light brown, gravel is fine and subrounded to subangular.			
	GC	Gravelly CLAY: Wet, light brown, soft, high plasticity.			
	GC	Clayey GRAVEL: Wet, light brown, gravel is fine, subrounded to subangular basalt.			
		END OF BOREHOLE AT 20.00 m			

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BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO. **SB01**

SHEET 1 OF 1

Client:	**VicRoads**	Date Commenced:	**28/9/17**
Project:	**OSAR**	Date Completed:	**28/9/17**
Borehole Location:	**Mordialloc Bypass**	Recorded By:	**B. Purves**
Project Number:	**2135645A**	Log Checked By:	

Drill Model/Mounting:	**Hand Auger**	Driller:	**Drillworx**	Surface RL:	
Borehole Diameter:	**110 mm**	Driller Lic No:		Co-ords:	

Borehole Information							Field Material Description					
	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY VS S F ST VST H / FB VL L MD D VD	STRUCTURE AND ADDITIONAL OBSERVATIONS
								SM	SAND: Moist, grey-brown with rootlets.			
				0.65				SC	Clayey SAND: Moist, grey-brown.			
				0.75				CL	CLAY: Moist, grey-brown with orange mottles, firm, low plasticity.			
				1.00 1				SC	CLAY: Moist, grey-brown with orange mottles, firm, moderate plasticity.			
				1.50					END OF BOREHOLE AT 1.50 m			

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BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO. **SB02**

SHEET 1 OF 1

Client:	**VicRoads**	Date Commenced:	**28/9/17**
Project:	**OSAR**	Date Completed:	**28/9/17**
Borehole Location:	**Mordialloc Bypass**	Recorded By:	**B. Purves**
Project Number:	**2135645A**	Log Checked By:	

Drill Model/Mounting:	**Hand Auger**	Driller:	**Drillworx**	Surface RL:	
Borehole Diameter:	**110 mm**	Driller Lic No:		Co-ords:	

Borehole Information							Field Material Description					
	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
								SM	SAND: Moist becoming wet, grey-brown.			
				0.70				SC	Clayey SAND: Wet, grey-brown with orange mottles.			
				1								
				1.10				SC	Sandy CLAY: Wet, grey-brown with orange mottles, firm becoming soft, moderate plasticity.			
				1.40				SM	SAND: Wet, orange-brown.			
				1.50					END OF BOREHOLE AT 1.50 m			

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BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO. **SB03**

SHEET 1 OF 1

Client:	**VicRoads**	Date Commenced:	**4/10/17**
Project:	**OSAR**	Date Completed:	**4/10/17**
Borehole Location:	**Mordialloc Bypass**	Recorded By:	**B. Purves**
Project Number:	**2135645A**	Log Checked By:	

Drill Model/Mounting:	**Geoprobe - Direct Push**	Driller:	**Drillworx**	Surface RL:	
Borehole Diameter:	**110 mm**	Driller Lic No:		Co-ords:	

Borehole Information							Field Material Description					
	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
								GM	FILL: Gravelly silty SAND. Light grey-brown. Gravel is fine to medium and angular.			No discernible odours noted
				0.30				SM	Silty SAND: Moist, grey-brown.			
						U50						
				0.60				CL	CLAY: Moist, grey with darker grey and brown mottles, firm, moderate plasticity.			
				1		U75						
				1.50		U50			END OF BOREHOLE AT 1.50 m			

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BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO. **SB04**

SHEET 1 OF 1

Client:	**VicRoads**	Date Commenced:	**5/10/17**
Project:	**OSAR**	Date Completed:	**5/10/17**
Borehole Location:	**Mordialloc Bypass**	Recorded By:	**B. Purves**
Project Number:	**2135645A**	Log Checked By:	

Drill Model/Mounting:	**Geoprobe - Direct Push**	Driller:	**Drillworx**	Surface RL:	
Borehole Diameter:	**110 mm**	Driller Lic No:		Co-ords:	

Borehole Information							Field Material Description					
	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
								SM	Silty SAND: Dry, brown with rootlets.			No discernible odours noted.
				0.40		U50		SM	SAND: Moist, brown.			
				0.70				GP	Gravelly SAND: Moist, brown. Gravel is coarse and subrounded.			
				0.80				SM	SAND: Moist, grey-brown.			
				1.00 1		U75		SC	Clayey SAND: Wet, grey-brown with red mottles.			
				1.50		U50			END OF BOREHOLE AT 1.50 m			

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BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO. **SB05**

SHEET 1 OF 1

Client:	**VicRoads**	Date Commenced:	**5/10/17**
Project:	**OSAR**	Date Completed:	**5/10/17**
Borehole Location:	**Mordialloc Bypass**	Recorded By:	**B. Purves**
Project Number:	**2135645A**	Log Checked By:	

Drill Model/Mounting:	**Geoprobe - Direct Push**	Driller:	**Drillworx**	Surface RL:	
Borehole Diameter:	**110 mm**	Driller Lic No:		Co-ords:	

Borehole Information							Field Material Description					
	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
						U50		SM	Silty SAND: Dry, brown with rootlets.			No discernible odours noted.
				0.80				SC	Sandy CLAY: Moist, brown with grey striations, firm, low plasticity.			
				1		U50						
				1.20				SC	Sandy CLAY: Moist, grey with orange-brown mottles, firm, low plasticity.			
						U50						
				1.50		U50			END OF BOREHOLE AT 1.50 m			

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BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO. **SB06**

SHEET 1 OF 1

Client:	**VicRoads**	Date Commenced:	**5/10/17**
Project:	**OSAR**	Date Completed:	**5/10/17**
Borehole Location:	**Mordialloc Bypass**	Recorded By:	**B. Purves**
Project Number:	**2135645A**	Log Checked By:	

Drill Model/Mounting:	**Geoprobe - Direct Push**	Driller:	**Drillworx**	Surface RL:	
Borehole Diameter:	**110 mm**	Driller Lic No:		Co-ords:	

Borehole Information							Field Material Description					
	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
								GM	Gravelly silty SAND: Dry, grey. Gravel is medium and subangular.			No discernible odours noted.
				0.40		U50		SM	Silty SAND: Dry, grey.			
				0.60				SM	SAND: Moist, grey.			
				1		U50						
				1.10				CL	CLAY: Moist becoming wet, grey, firm, moderate plasticity.			
						U50						
				1.50		U50			END OF BOREHOLE AT 1.50 m			

This borehole log should be read in conjunction with WSP | Parsons Brinckerhoff's accompanying standard notes.

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BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO. **SB07**

SHEET 1 OF 1

Client:	**VicRoads**	Date Commenced:	**12/10/17**
Project:	**OSAR**	Date Completed:	**12/10/17**
Borehole Location:	**Mordialloc Bypass**	Recorded By:	**B. Purves**
Project Number:	**2135645A**	Log Checked By:	

Drill Model/Mounting:	**Geoprobe - Direct Push**	Driller:	**Drillworx**	Surface RL:	
Borehole Diameter:	**110 mm**	Driller Lic No:		Co-ords:	

Borehole Information							Field Material Description					
	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
								SM	Silty SAND: Moist, dark grey-brown with rootlets.			
				0.10				SC	Clayey SAND: Moist, grey-brown with orange and darker grey mottles.			
				0.90				SC	Sandy CLAY: Moist becoming wet, light brown with orange and grey mottles, firm, low plasticity.			
				1								
				1.40				GC	Sandy CLAY: Moist, light grey-brown, with orange and darker grey mottles, firm, low plasticity.			
				1.50					END OF BOREHOLE AT 1.50 m			

This borehole log should be read in conjunction with WSP | Parsons Brinckerhoff's accompanying standard notes.

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BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO. **SB08**

SHEET 1 OF 1

Client:	**VicRoads**	Date Commenced:	**12/10/17**
Project:	**OSAR**	Date Completed:	**12/10/17**
Borehole Location:	**Mordialloc Bypass**	Recorded By:	**B. Purves**
Project Number:	**2135645A**	Log Checked By:	

Drill Model/Mounting:	**Geoprobe - Direct Push**	Driller:	**Drillworx**	Surface RL:	
Borehole Diameter:	**110 mm**	Driller Lic No:		Co-ords:	

Borehole Information							Field Material Description					
	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
								SM	Silty SAND: Moist, dark grey-brown with rootlets.			
				0.10				SC	Clayey SAND: Moist, grey-brown with orange and darker grey mottles.			
				0.90				SC	Sandy CLAY: Moist becoming wet, light brown with orange and grey mottles, firm, low plasticity.			
				1								
				1.40				GC	Gravelly sandy CLAY: Moist becoming wet, light brown with orange and grey mottles, firm, low plasticity, gravelly. Gravel is angular, fine to medium.			
				1.50					END OF BOREHOLE AT 1.50 m			

This borehole log should be read in conjunction with WSP | Parsons Brinckerhoff's accompanying standard notes.

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BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO. **SB09**

SHEET 1 OF 1

Client:	**VicRoads**	Date Commenced:	**3/10/17**
Project:	**OSAR**	Date Completed:	**3/10/17**
Borehole Location:	**Mordialloc Bypass**	Recorded By:	**B. Purves**
Project Number:	**2135645A**	Log Checked By:	

Drill Model/Mounting:	**Geoprobe - Direct Push**	Driller:	**Drillworx**	Surface RL:	
Borehole Diameter:	**110 mm**	Driller Lic No:		Co-ords:	

Borehole Information							Field Material Description					
	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
				0.01				SM	FILL: Silty SAND. Dry, brown with rootlets.			No discernible odours noted
								GC	FILL: Gravelly silty CLAY. Moist, brown, firm, moderate plasticity. Gravel is fine to medium and subangular.			
						U50						
												Brick gravel noted
				0.90				SM	Silty SAND: Moist, grey.			
				1		U50						
				1.20				CL	Sandy CLAY: Moist, grey, firm, low plasticity.			
				1.50		U50			END OF BOREHOLE AT 1.50 m			

This borehole log should be read in conjunction with WSP | Parsons Brinckerhoff's accompanying standard notes.

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BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO. **SB10**

SHEET 1 OF 1

Client:	**VicRoads**	Date Commenced:	**3/10/17**
Project:	**OSAR**	Date Completed:	**3/10/17**
Borehole Location:	**Mordialloc Bypass**	Recorded By:	**B. Purves**
Project Number:	**2135645A**	Log Checked By:	

Drill Model/Mounting:	**Geoprobe - Direct Push**	Driller:	**Drillworx**	Surface RL:	
Borehole Diameter:	**110 mm**	Driller Lic No:		Co-ords:	

Borehole Information							Field Material Description					
	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY VS S F ST VST H / FB VL L MD D VD	STRUCTURE AND ADDITIONAL OBSERVATIONS
								SM	Silty SAND: Dry, grey-brown with rootlets.			No discernible odours noted.
				0.30				CL	CLAY: Moist, dark brown becoming grey with brown mottles, firm, low plasticity.			
						U50						
				1		U50						
				1.50		U50			END OF BOREHOLE AT 1.50 m			

This borehole log should be read in conjunction with WSP | Parsons Brinckerhoff's accompanying standard notes.

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BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO. **SB11**

SHEET 1 OF 1

Client:	**VicRoads**	Date Commenced:	**3/10/17**
Project:	**OSAR**	Date Completed:	**3/10/17**
Borehole Location:	**Mordialloc Bypass**	Recorded By:	**O. Nazario**
Project Number:	**2135645A**	Log Checked By:	

Drill Model/Mounting:	**Geoprobe - Direct Push**	Driller:	**Drillworx**	Surface RL:	
Borehole Diameter:	**110 mm**	Driller Lic No:		Co-ords:	

Borehole Information							Field Material Description					
	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
						U50		CL	Silty CLAY: Moist, gey-brown, loose becoming firm, moderate plasticity with rootlets.			No discernible odoours noted.
				0.70				CL	Silty CLAY: Moist, Dark grey, stiff, high plasticity.			
				1		U50						
				1.50		U50			END OF BOREHOLE AT 1.50 m			

This borehole log should be read in conjunction with WSP | Parsons Brinckerhoff's accompanying standard notes.

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BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO. **SB12**

SHEET 1 OF 1

Client:	**VicRoads**	Date Commenced:	**3/10/17**
Project:	**OSAR**	Date Completed:	**3/10/17**
Borehole Location:	**Mordialloc Bypass**	Recorded By:	**O. Nazario**
Project Number:	**2135645A**	Log Checked By:	

Drill Model/Mounting:	**Geoprobe - Direct Push**	Driller:	**Drillworx**	Surface RL:	
Borehole Diameter:	**110 mm**	Driller Lic No:		Co-ords:	

Borehole Information							Field Material Description					
	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
								CL	Silty CLAY: Moist, dark grey-brown, moderate plasticity with rootlets.			No discernible odoours noted.
				0.50		U50		CH	Gravelly silty CLAY: Moist, grey, high plasticity			
				1.00 1		U50		CH	Gravelly sandy CLAY: Moist, grey, high plasticity			
				1.50		U50			END OF BOREHOLE AT 1.50 m			

This borehole log should be read in conjunction with WSP | Parsons Brinckerhoff's accompanying standard notes.

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BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO. **SB13**

SHEET 1 OF 1

Client:	**VicRoads**	Date Commenced:	**4/10/17**
Project:	**OSAR**	Date Completed:	**4/10/17**
Borehole Location:	**Mordialloc Bypass**	Recorded By:	**B. Purves**
Project Number:	**2135645A**	Log Checked By:	

Drill Model/Mounting:	**Geoprobe - Direct Push**	Driller:	**Drillworx**	Surface RL:	
Borehole Diameter:	**110 mm**	Driller Lic No:		Co-ords:	

Borehole Information							Field Material Description					
	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
								SM	TOPSOIL: Silty SAND. Moist, brown with rootlets.			No discernible odours noted
				0.30		U50		SC	Sandy CLAY: Moist, dark brown, firm, low plasticity.			
				0.60				SM	SAND: Moist, grey.			
				0.90				CL	CLAY: Moist, brown, firm, moderate plasticity.			
				1		U75						
				1.50		U50			END OF BOREHOLE AT 1.50 m			

This borehole log should be read in conjunction with WSP | Parsons Brinckerhoff's accompanying standard notes.

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BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO. **SB14**

SHEET 1 OF 1

Client:	**VicRoads**	Date Commenced:	**4/10/17**
Project:	**OSAR**	Date Completed:	**4/10/17**
Borehole Location:	**Mordialloc Bypass**	Recorded By:	**B. Purves**
Project Number:	**2135645A**	Log Checked By:	

Drill Model/Mounting:	**Geoprobe - Direct Push**	Driller:	**Drillworx**	Surface RL:	
Borehole Diameter:	**110 mm**	Driller Lic No:		Co-ords:	

Borehole Information							Field Material Description					
	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
								GC	FILL: Gravelly sandy CLAY. Moist, grey-brown. Gravel is medium angular concrete.			No discernible odours noted
				0.40		U50		CL	CLAY: Moist, grey, firm, moderate plasticity.			
				1		U75						
				1.40				GC	Gravelly CLAY: Moist, grey, firm, high plasticity. Gravel is fine to medium and subangular.			
				1.50		U50			END OF BOREHOLE AT 1.50 m			

This borehole log should be read in conjunction with WSP | Parsons Brinckerhoff's accompanying standard notes.

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BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO. **SB15**

SHEET 1 OF 1

Client:	**VicRoads**	Date Commenced:	**4/10/17**
Project:	**OSAR**	Date Completed:	**4/10/17**
Borehole Location:	**Mordialloc Bypass**	Recorded By:	**B. Purves**
Project Number:	**2135645A**	Log Checked By:	

Drill Model/Mounting:	**Geoprobe - Direct Push**	Driller:	**Drillworx**	Surface RL:	
Borehole Diameter:	**110 mm**	Driller Lic No:		Co-ords:	

Borehole Information							Field Material Description					
	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
								GC	FILL: Gravelly sandy CLAY. Moist, grey-brown. Gravel is medium angular concrete.			No discernible odours noted
				0.40		U50		CL	CLAY: Moist, grey, firm, moderate plasticity.			
				1		U75						
				1.40				GC	Gravelly CLAY: Moist, firm, high plasticity. Gravel is fine to medium and subangular.			
				1.50		U50			END OF BOREHOLE AT 1.50 m			

This borehole log should be read in conjunction with WSP | Parsons Brinckerhoff's accompanying standard notes.

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BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO. **SB16**

SHEET 1 OF 1

Client:	**VicRoads**	Date Commenced:	**4/10/17**
Project:	**OSAR**	Date Completed:	**4/10/17**
Borehole Location:	**Mordialloc Bypass**	Recorded By:	**B. Purves**
Project Number:	**2135645A**	Log Checked By:	

Drill Model/Mounting:	**Geoprobe - Direct Push**	Driller:	**Drillworx**	Surface RL:	
Borehole Diameter:	**110 mm**	Driller Lic No:		Co-ords:	

Borehole Information							Field Material Description					
	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
								CL	TOPSOIL: Sandy CLAY. Moist, brown, firm, low plasticity with rootlets.			No discernible odours noted
				0.20				CL	CLAY: Moist, grey, firm, moderate plasticity.			
						U50						
				1		U75						
				1.20				CH	CLAY: Wet, grey, soft, high plasticity.			
				1.50		U50			END OF BOREHOLE AT 1.50 m			

This borehole log should be read in conjunction with WSP | Parsons Brinckerhoff's accompanying standard notes.

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BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO. **SB17**

SHEET 1 OF 1

Client:	**VicRoads**	Date Commenced:	**4/10/17**
Project:	**OSAR**	Date Completed:	**4/10/17**
Borehole Location:	**Mordialloc Bypass**	Recorded By:	**B. Purves**
Project Number:	**2135645A**	Log Checked By:	

Drill Model/Mounting:	**Geoprobe - Direct Push**	Driller:	**Drillworx**	Surface RL:	
Borehole Diameter:	**110 mm**	Driller Lic No:		Co-ords:	

Borehole Information							Field Material Description					
	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
								CL	TOPSOIL: Sandy CLAY. Moist, brown, firm, low plasticity with rootlets.			No discernible oours noted
				0.20				CL	CLAY: Moist, dark grey, firm, moderate plasticity.			
						U50						
				1		U75						
				1.20				CH	CLAY: Wet, dark grey, soft, high plasticity.			
				1.50		U50			END OF BOREHOLE AT 1.50 m			

This borehole log should be read in conjunction with WSP | Parsons Brinckerhoff's accompanying standard notes.

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BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO. **SB18**

SHEET 1 OF 1

Client:	**VicRoads**	Date Commenced:	**27/9/17**
Project:	**OSAR**	Date Completed:	**27/9/17**
Borehole Location:	**Mordialloc Bypass**	Recorded By:	**B. Purves**
Project Number:	**2135645A**	Log Checked By:	

Drill Model/Mounting:	**Hand Auger**	Driller:	**Drillworx**	Surface RL:	
Borehole Diameter:	**110 mm**	Driller Lic No:		Co-ords:	

Borehole Information							Field Material Description					
	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
								CL	Silty CLAY: Moist, dark brown to dark grey, firm, moderate plasticity with rootlets.			No discernible odours noted.
				0.30				CH	CLAY: Moist, dark brown to dark grey, firm becoming soft, high plasticity.			
						U50						
				1		U50						
				1.50		U50			END OF BOREHOLE AT 1.50 m			

This borehole log should be read in conjunction with WSP | Parsons Brinckerhoff's accompanying standard notes.

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BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO. **SB19**

SHEET 1 OF 1

Client:	**VicRoads**	Date Commenced:	**27/9/17**
Project:	**OSAR**	Date Completed:	**27/9/17**
Borehole Location:	**Mordialloc Bypass**	Recorded By:	**B. Purves**
Project Number:	**2135645A**	Log Checked By:	

Drill Model/Mounting:	**Hand Auger**	Driller:	**Drillworx**	Surface RL:	
Borehole Diameter:	**110 mm**	Driller Lic No:		Co-ords:	

Borehole Information							Field Material Description					
	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
				0.30		U50		CL	Silty CLAY: Moist, dark brown to dark grey, firm, moderate plasticity with rootlets.			No discernible odours noted.
				1		U50		CH	CLAY: Moist, dark brown to dark grey, firm becoming soft, high plasticity.			
				1.50		U50			END OF BOREHOLE AT 1.50 m			

This borehole log should be read in conjunction with WSP | Parsons Brinckerhoff's accompanying standard notes.

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BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO. **SB20**

SHEET 1 OF 1

Client:	**VicRoads**	Date Commenced:	**5/10/17**
Project:	**OSAR**	Date Completed:	**5/10/17**
Borehole Location:	**Mordialloc Bypass**	Recorded By:	**B. Purves**
Project Number:	**2135645A**	Log Checked By:	

Drill Model/Mounting:	**Hand Auger**	Driller:	**Drillworx**	Surface RL:	
Borehole Diameter:	**110 mm**	Driller Lic No:		Co-ords:	

Borehole Information							Field Material Description					
	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
								CL	Clayey SILT: Moist, dark brown with rootlets.			No discernible odours noted.
				0.30				CL	CLAY: Moist, dark brown, firm, low plasticity.			
						U50						
				0.70				CH	CLAY: Moist, dark brown, soft, high plasticity.			Occasional pockets of brown sand.
				1		U75						
				1.50		U50			END OF BOREHOLE AT 1.50 m			

This borehole log should be read in conjunction with WSP | Parsons Brinckerhoff's accompanying standard notes.

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BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO. **SB21**

SHEET 1 OF 1

Client:	**VicRoads**	Date Commenced:	**5/10/17**
Project:	**OSAR**	Date Completed:	**5/10/17**
Borehole Location:	**Mordialloc Bypass**	Recorded By:	**B. Purves**
Project Number:	**2135645A**	Log Checked By:	

Drill Model/Mounting:	**Geoprobe - Direct Push**	Driller:	**Drillworx**	Surface RL:	
Borehole Diameter:	**110 mm**	Driller Lic No:		Co-ords:	

Borehole Information							Field Material Description					
	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY VS S F ST VST H / FB VL L MD D VD	STRUCTURE AND ADDITIONAL OBSERVATIONS
						U50		CL	Silty CLAY: Moist, dark brown, firm, low plasticity with abundant rootlets at surface.			No discernible odours noted.
				0.90				CL	CLAY: Moist, dark brown, firm, low plasticity.			
				1		U50						
						U50						
				1.50		U50			END OF BOREHOLE AT 1.50 m			

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BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO. **SB22**

SHEET 1 OF 1

Client:	**VicRoads**	Date Commenced:	**5/10/17**
Project:	**OSAR**	Date Completed:	**5/10/17**
Borehole Location:	**Mordialloc Bypass**	Recorded By:	**B. Purves**
Project Number:	**2135645A**	Log Checked By:	

Drill Model/Mounting:	**Geoprobe - Direct Push**	Driller:	**Drillworx**	Surface RL:	
Borehole Diameter:	**110 mm**	Driller Lic No:		Co-ords:	

Borehole Information							Field Material Description					
	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
								CL	Silty CLAY: Moist, dark brown, firm, low plasticity with rootlets.			No discernible odours noted.
				0.40		U50		CL	CLAY: Moist, dark brown, firm, low plasticity.			
				1		U50						
				1.30		U50		CL	CLAY: Moist, dark brown, firm, moderate plasticity.			
				1.50		U50			END OF BOREHOLE AT 1.50 m			

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BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO. **SB23**

SHEET 1 OF 1

Client:	**VicRoads**	Date Commenced:	**5/10/17**
Project:	**OSAR**	Date Completed:	**5/10/17**
Borehole Location:	**Mordialloc Bypass**	Recorded By:	**B. Purves**
Project Number:	**2135645A**	Log Checked By:	

Drill Model/Mounting:	**Geoprobe - Direct Push**	Driller:	**Drillworx**	Surface RL:	
Borehole Diameter:	**110 mm**	Driller Lic No:		Co-ords:	

Borehole Information							Field Material Description					
	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
								CL	Silty CLAY: Moist, dark brown, firm, moderate plasticity with rootlets.			No discernible odours noted.
				0.40		U50		CL	Sandy CLAY: Moist, dark brown to black, firm, moderate plasticity.			
				1		U50						
						U50						
				1.50		U50			END OF BOREHOLE AT 1.50 m			

This borehole log should be read in conjunction with WSP | Parsons Brinckerhoff's accompanying standard notes.

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BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO. **SB24**

SHEET 1 OF 1

Client:	**VicRoads**	Date Commenced:	**11/10/17**
Project:	**OSAR**	Date Completed:	**11/10/17**
Borehole Location:	**Mordialloc Bypass**	Recorded By:	**B. Purves**
Project Number:	**2135645A**	Log Checked By:	

Drill Model/Mounting:	**Hand Auger**	Driller:	**Drillworx**	Surface RL:	
Borehole Diameter:	**110 mm**	Driller Lic No:		Co-ords:	

Borehole Information							Field Material Description					
	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
								CH	CLAY: Wet, dark brown to dark grey, soft, sticky, high plasticity with rootlets.	W		No discernible odours
				0.20		U50		CH	Sandy CLAY: Wet, dark grey with occasional brown mottling, soft, high plasticity.			
				0.80				CH	Sandy CLAY: Wet, light grey with brown mottling, soft, high plasticity.			
				1		U75						
				1.30				CH	Sandy CLAY: Wet, light brown with slightly darker brown mottles, soft, high plasticity.			
				1.50		U50			END OF BOREHOLE AT 1.50 m			

This borehole log should be read in conjunction with WSP | Parsons Brinckerhoff's accompanying standard notes.

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BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO. **SB25**

SHEET 1 OF 1

Client:	**VicRoads**	Date Commenced:	**11/10/17**
Project:	**OSAR**	Date Completed:	**11/10/17**
Borehole Location:	**Mordialloc Bypass**	Recorded By:	**B. Purves**
Project Number:	**2135645A**	Log Checked By:	

Drill Model/Mounting:	**Hand Auger**	Driller:	**Drillworx**	Surface RL:	
Borehole Diameter:	**110 mm**	Driller Lic No:		Co-ords:	

Borehole Information							Field Material Description					
	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
				0.10				SM	Silty SAND: Moist, brown with rootlets.			No discernible odours Roots throughout profile
				0.20				SC	Sandy CLAY: Wet, grey-brown with orange-brown mottles, soft, high plasticity.			
				0.40				SM	SAND: Wet, grey-brown with orange-brown mottles.			
						U50		OH	CLAY: Wet, dark grey, soft, high plasticity.			Strong slightly sulphurous, old decomposing organic odour.
				0.90				SC	Sandy CLAY: Wet, dark grey and light grey with orange-brown mottles, soft, high plasticity.			No discernible odours
				1		U50						
				1.20				SC	SAND and CLAY: Wet, grey and dark grey. Clay is soft, high plasticity.			
				1.30				SM	SAND: Wet, grey.			
				1.50		U50			END OF BOREHOLE AT 1.50 m			

This borehole log should be read in conjunction with WSP | Parsons Brinckerhoff's accompanying standard notes.

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BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO. **SB26**

SHEET 1 OF 1

Client:	**VicRoads**	Date Commenced:	**11/10/17**
Project:	**OSAR**	Date Completed:	**11/10/17**
Borehole Location:	**Mordialloc Bypass**	Recorded By:	**B. Purves**
Project Number:	**2135645A**	Log Checked By:	

Drill Model/Mounting:	**Hand Auger**	Driller:	**Drillworx**	Surface RL:	
Borehole Diameter:	**110 mm**	Driller Lic No:		Co-ords:	

Borehole Information							Field Material Description					
	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
								SM	Silty SAND: Slighty moist, brown with rootlets.			No discernible odours
				0.20				CL	Silty CLAY: Slightly moist, dark brown, very stiff, low plasticity with rootlets.			
						U50						
				0.90				CL	CLAY: Moist, dark brown, firm, moderate plasticity.			
				1		U50						
						U50						
				1.20				CH	CLAY: Moist becoming wet, dark brown with orange-brown mottles, soft, sticky, high plasticity.			
				1.50		U50			END OF BOREHOLE AT 1.50 m			

This borehole log should be read in conjunction with WSP | Parsons Brinckerhoff's accompanying standard notes.

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BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO. **SB27**

SHEET 1 OF 1

Client:	**VicRoads**	Date Commenced:	**11/10/17**
Project:	**OSAR**	Date Completed:	**11/10/17**
Borehole Location:	**Mordialloc Bypass**	Recorded By:	**B. Purves**
Project Number:	**2135645A**	Log Checked By:	

Drill Model/Mounting:	**Hand Auger**	Driller:	**Drillworx**	Surface RL:	
Borehole Diameter:	**110 mm**	Driller Lic No:		Co-ords:	

Borehole Information							Field Material Description					
	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
								SM	Silty SAND: Slightly moist, dark brown with rootlets.			No discernible odours
				0.40		U50		SC	Clayey SAND: Slightly moist, dark brown with occasional orange-brown mottles with rootlets.			
				1		U50						
				1.30		U50		SC	Sandy CLAY: Moist, dark brown with occasional orange-brown mottles, firm, low plasticity.			
				1.50		U50			END OF BOREHOLE AT 1.50 m			

This borehole log should be read in conjunction with WSP | Parsons Brinckerhoff's accompanying standard notes.

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BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO. **SB28**

SHEET 1 OF 1

Client:	**VicRoads**	Date Commenced:	**11/10/17**
Project:	**OSAR**	Date Completed:	**11/10/17**
Borehole Location:	**Mordialloc Bypass**	Recorded By:	**B. Purves**
Project Number:	**2135645A**	Log Checked By:	

Drill Model/Mounting:	**Hand Auger**	Driller:	**Drillworx**	Surface RL:	
Borehole Diameter:	**110 mm**	Driller Lic No:		Co-ords:	

Borehole Information							Field Material Description					
	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
								SM	Silty SAND: Moist, dark brown with rootlets.			No discernible odours
				0.20				SC	Clayey SAND: Moist, dark brown with rootlets.			
				0.40		U50		CL	Sandy CLAY: Moist, dark brown with orange-brown mottles, firm, moderate plasticity.			
				0.60				CL	CLAY: Moist, dark grey with orange-brown mottles, firm becoming soft, low plasticity.			
				0.90		U50		CL	Sandy CLAY: Moist, dark grey with orange-brown mottles, firm, low plasticity.			
				1		U50						
				1.20				SC	Clayey SAND: Moist, light and dark grey with orange-brown mottles.			
				1.50		U50			END OF BOREHOLE AT 1.50 m			

This borehole log should be read in conjunction with WSP | Parsons Brinckerhoff's accompanying standard notes.

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BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO. **SB29**

SHEET 1 OF 1

Client:	**VicRoads**	Date Commenced:	**12/10/17**
Project:	**OSAR**	Date Completed:	**12/10/17**
Borehole Location:	**Mordialloc Bypass**	Recorded By:	**B. Purves**
Project Number:	**2135645A**	Log Checked By:	

Drill Model/Mounting:	**Geoprobe - Direct Push**	Driller:	**Drillworx**	Surface RL:	
Borehole Diameter:	**110 mm**	Driller Lic No:		Co-ords:	

Borehole Information							Field Material Description					
1	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
								SM	Silty SAND: Dry, dark brown with rootlets.			No discernible odours noted.
				0.40		U50		SC	Clayey SAND: Moist, dark brown with rootlets.			
				0.70				SC	Sandy CLAY: Moist, dark brown with orange-brown mottles, stiff, no plasticity, with rootlets.			
				1		U50						
				1.30				SC	Clayey SAND: Moist, dark brown with orange-brown mottles.			
						U50						
				1.50		U50			END OF BOREHOLE AT 1.50 m			

This borehole log should be read in conjunction with WSP | Parsons Brinckerhoff's accompanying standard notes.

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BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO. **SB30**

SHEET 1 OF 1

Client:	**VicRoads**	Date Commenced:	**12/10/17**
Project:	**OSAR**	Date Completed:	**12/10/17**
Borehole Location:	**Mordialloc Bypass**	Recorded By:	**B. Purves**
Project Number:	**2135645A**	Log Checked By:	

Drill Model/Mounting:	**Geoprobe - Direct Push**	Driller:	**Drillworx**	Surface RL:	
Borehole Diameter:	**110 mm**	Driller Lic No:		Co-ords:	

Borehole Information							Field Material Description					
	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
								SM	Silty SAND: Dry, dark brown with rootlets.			No discernible odours noted.
				0.40		U50		SC	Clayey SAND: Moist, dark brown with rootlets.			
				0.70		U50		SC	Sandy CLAY: Moist, dark brown with orange-brown mottles, stiff, no plasticity, with rootlets.			
				1		U50						
				1.50		U50			END OF BOREHOLE AT 1.50 m			

This borehole log should be read in conjunction with WSP | Parsons Brinckerhoff's accompanying standard notes.

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BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO. **SB31**

SHEET 1 OF 1

Client:	**VicRoads**	Date Commenced:	**12/10/17**
Project:	**OSAR**	Date Completed:	**12/10/17**
Borehole Location:	**Mordialloc Bypass**	Recorded By:	**B. Purves**
Project Number:	**2135645A**	Log Checked By:	

Drill Model/Mounting:	**Geoprobe - Direct Push**	Driller:	**Drillworx**	Surface RL:	
Borehole Diameter:	**110 mm**	Driller Lic No:		Co-ords:	

Borehole Information							Field Material Description					
	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY VS S F ST VST H / FB VL L MD D VD	STRUCTURE AND ADDITIONAL OBSERVATIONS
								SM	Silty SAND: Dry, dark brown with rootlets.			No discernible odours
				0.40		U50		CL	Sandy CLAY: Moist, dark brown, very firm, low plasticity.			
				1.00 1		U50		CL	Sandy CLAY: Moist, dark brown with orange-brown mottles, hard, low plasticity.			
						U50						
				1.50		U50			END OF BOREHOLE AT 1.50 m			

This borehole log should be read in conjunction with WSP | Parsons Brinckerhoff's accompanying standard notes.

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BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO. **SB32**

SHEET 1 OF 1

Client:	**VicRoads**	Date Commenced:	**12/10/17**
Project:	**OSAR**	Date Completed:	**12/10/17**
Borehole Location:	**Mordialloc Bypass**	Recorded By:	**B. Purves**
Project Number:	**2135645A**	Log Checked By:	

Drill Model/Mounting:	**Geoprobe - Direct Push**	Driller:	**Drillworx**	Surface RL:	
Borehole Diameter:	**110 mm**	Driller Lic No:		Co-ords:	

Borehole Information							Field Material Description					
	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
								SM	Silty SAND: Slightly moist, dark brown with rootlets.			No discernible odours
				0.40		U50		CL	Sandy CLAY: Moist, dark brown with orange-brown mottles and layers, very firm, low plasticity.			
				1		U50						
						U50						
				1.50		U50			END OF BOREHOLE AT 1.50 m			

This borehole log should be read in conjunction with WSP | Parsons Brinckerhoff's accompanying standard notes.

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BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO. **SB33**

SHEET 1 OF 1

Client:	**VicRoads**	Date Commenced:	**12/10/17**
Project:	**OSAR**	Date Completed:	**12/10/17**
Borehole Location:	**Mordialloc Bypass**	Recorded By:	**B. Purves**
Project Number:	**2135645A**	Log Checked By:	

Drill Model/Mounting:	**Geoprobe - Direct Push**	Driller:	**Drillworx**	Surface RL:	
Borehole Diameter:	**110 mm**	Driller Lic No:		Co-ords:	

Borehole Information							Field Material Description					
	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
						U50		SM	Silty SAND: Slightly moist, dark brown with rootlets.			No discernible odours
				0.10				SC	Clayey SAND: Moist, dark brown with rootlets.			
				1		U50						
				1.10				SC	Sandy CLAY: Moist, dark brown with orange-brown mottles, very firm, low plasticity.			
				1.50		U50			END OF BOREHOLE AT 1.50 m			

This borehole log should be read in conjunction with WSP | Parsons Brinckerhoff's accompanying standard notes.

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BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO. **SB34**

SHEET 1 OF 1

Client:	**VicRoads**	Date Commenced:	**28/9/17**
Project:	**OSAR**	Date Completed:	**28/9/17**
Borehole Location:	**Mordialloc Bypass**	Recorded By:	**B. Purves**
Project Number:	**2135645A**	Log Checked By:	

Drill Model/Mounting:	**Hand Auger**	Driller:	**Drillworx**	Surface RL:	
Borehole Diameter:	**110 mm**	Driller Lic No:		Co-ords:	

Borehole Information							Field Material Description					
	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
				0.10				SM	TOPSOIL: Silty SAND. Moist, brown with rootlets.			No discernible odours noted.
				0.40				GM	FILL: Gravelly, clayey SAND. Moist, brown with orange and light brown mottles. Gravel is coarse and subangular.			
						U50		SC	Clayey SAND: Moist, light brown.			
				0.70				CL	Sandy CLAY: Moist, dark grey, very firm, low plasticity.			
				1		U50						
				1.50		U50			END OF BOREHOLE AT 1.50 m			

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BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO. **SB35**

SHEET 1 OF 1

Client:	**VicRoads**	Date Commenced:	**3/10/17**
Project:	**OSAR**	Date Completed:	**3/10/17**
Borehole Location:	**Mordialloc Bypass**	Recorded By:	**O. Nazario**
Project Number:	**2135645A**	Log Checked By:	

Drill Model/Mounting:	**Hand Auger**	Driller:	**Drillworx**	Surface RL:	
Borehole Diameter:	**110 mm**	Driller Lic No:		Co-ords:	

Borehole Information							Field Material Description					
	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
								SC	Sandy silty CLAY: Dark grey, loose, low plasticity with rootlets.			No discernible odours noted.
				0.50		U50		CL	Silty CLAY: Dark grey, stiff, moderate plasticity, dense.			
				0.90				SC	Sandy silty CLAY: Dark grey, stiff, moderate plasticity, dense.			
				1		U75						
				1.50		U50			END OF BOREHOLE AT 1.50 m			

This borehole log should be read in conjunction with WSP | Parsons Brinckerhoff's accompanying standard notes.

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BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO. **SB36**

SHEET 1 OF 1

Client:	**VicRoads**	Date Commenced:	**3/10/17**
Project:	**OSAR**	Date Completed:	**3/10/17**
Borehole Location:	**Mordialloc Bypass**	Recorded By:	**O. Nazario**
Project Number:	**2135645A**	Log Checked By:	

Drill Model/Mounting:	**Hand Auger**	Driller:	**Drillworx**	Surface RL:	
Borehole Diameter:	**110 mm**	Driller Lic No:		Co-ords:	

Borehole Information							Field Material Description					
	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
								CL	Sandy silty CLAY: Dark grey, loose, low plasticity with rootlets.			No discernible odours noted.
				0.40		U50		CL	Silty CLAY: Dark grey, stiff, moderate plasticity with rootlets.			
				0.80		U50		CL	Sandy silty CLAY: Dark grey, stiff, high plasticity with rootlets.			
				1								
				1.50		U50			END OF BOREHOLE AT 1.50 m			

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BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO. **SB37**

SHEET 1 OF 1

Client:	**VicRoads**	Date Commenced:	**5/10/17**
Project:	**OSAR**	Date Completed:	**5/10/17**
Borehole Location:	**Mordialloc Bypass**	Recorded By:	**B. Purves**
Project Number:	**2135645A**	Log Checked By:	

Drill Model/Mounting:	**Hand Auger**	Driller:	**Drillworx**	Surface RL:	
Borehole Diameter:	**110 mm**	Driller Lic No:		Co-ords:	

Borehole Information							Field Material Description					
	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
				0.20		U50		SM	Silty SAND: Dry, dark brown with rootlets.			No discernible oours noted.
				0.60		U50		CL	CLAY: Dry, dark brown, stiff, brittle/no plasticity.			
				1		U50		CL	CLAY: Moist, dark brown, firm, low plasticity with rootlets.			
				1.50		U50			END OF BOREHOLE AT 1.50 m			

This borehole log should be read in conjunction with WSP | Parsons Brinckerhoff's accompanying standard notes.

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BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO. **SB38**

SHEET 1 OF 1

Client:	**VicRoads**	Date Commenced:	**5/10/17**
Project:	**OSAR**	Date Completed:	**5/10/17**
Borehole Location:	**Mordialloc Bypass**	Recorded By:	**B. Purves**
Project Number:	**2135645A**	Log Checked By:	

Drill Model/Mounting:	**Hand Auger**	Driller:	**Drillworx**	Surface RL:	
Borehole Diameter:	**110 mm**	Driller Lic No:		Co-ords:	

Borehole Information							Field Material Description					
	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY VS S F ST VST H / FB VL L MD D VD	STRUCTURE AND ADDITIONAL OBSERVATIONS
								SM	Silty SAND: Dry, brown with rootlets.			No discernible odours noted.
				0.20				SC	Clayey SAND: Moist, light brown and orange with rootlets.			
						U50						
				0.60				SM	SAND: Moist, light brown.			
				0.80				SM	SAND: Moist, dark grey.			
				1.00 1		U50		SC	Clayey SAND: Moist, dark grey.			
				1.40		U50		CL	CLAY: Moist, dark grey, stiff, no plasticity.			
				1.50		U50			END OF BOREHOLE AT 1.50 m			

This borehole log should be read in conjunction with WSP | Parsons Brinckerhoff's accompanying standard notes.

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BOREHOLE ENGINEERING LOG

BOREHOLE NO. **B17-68167**

SHEET : 1 OF 13

Client:	**VicRoads**	Date Commenced:	**6/3/17**
Project:	**Mordialloc Bypass**	Date Completed:	**31/5/17**
Borehole Location:	**Waterways**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**MDL**

Drill Model/Mounting:	**Comacchio Geo 305/ Track**	Hole Angle:	**-90°**	Surface RL:	**2.17 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 335375.286 N 5790772.7 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
AS	Nil		2.0	0.25					TOPSOIL: Silty CLAY; high plasticity, brown, trace fine grained gravel, rootlets observed	D			TOPSOIL
				0.5				CH	Silty CLAY; medium to high plasticity, dark grey, black, mottled orange-brown, trace organic matter.	D			QUATERNARY ALLUVIUM
			1.5	1.0									
			1.0	1.0	SPT 2, 3, 3 N=6	SPT		CI	Silty CLAY; medium plasticity, dark grey, black, mottled orange-brown, trace organic matter.	D			
				1.5									
			0.5										
		07/03/17		2.0									
			0.0										
				2.5		U63		SC	Clayey SAND; fine to medium grained, pale grey, grey, medium plasticity clay	W			
			-0.5										
WB	Nil			3.0				CI-CH	Silty CLAY; medium to high plasticity, pale grey, with fine grained sand	MC>PL			
			-1.0										
				3.5									
			-1.5										

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This Borehole log should be read in conjunction with WSP's accompanying standard notes.

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BOREHOLE ENGINEERING LOG

BOREHOLE NO. **B17-68167**

SHEET : 2 OF 13

Client:	**VicRoads**	Date Commenced:	**6/3/17**
Project:	**Mordialloc Bypass**	Date Completed:	**31/5/17**
Borehole Location:	**Waterways**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**MDL**

Drill Model/Mounting:	**Comacchio Geo 305/ Track**	Hole Angle:	**-90°**	Surface RL:	**2.17 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 335375.286 N 5790772.7 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS FB, S VL, F L, ST MD, VST D, H VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
WB	Nil		-2.0	4.5		U63		CI-CH	Silty CLAY; medium to high plasticity, pale grey, with fine grained sand	MC>PL		100 - 140	
			-3.0	5.0									
			-3.5	5.5	SPT 2, 2, 4 N=6	SPT		CH	Sandy CLAY; high plasticity, blue grey, fine grained sand, trace fine grained sand gravel.				TERTIARY BRIGHTON GROUP (RED BLUFF FORMATION)
			-4.0	6.0									
			-4.5	6.5					6.5m: becoming pale grey mottled orange brown	MC>PL			
			-5.0	7.0		U63							
			-5.5	7.5					7.36 m: becoming pale grey mottled orange-brown			200 - 220	

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BOREHOLE NO.

BOREHOLE ENGINEERING LOG

B17-68167

SHEET : 3 OF 13

Client:	**VicRoads**	Date Commenced:	**6/3/17**
Project:	**Mordialloc Bypass**	Date Completed:	**31/5/17**
Borehole Location:	**Waterways**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**MDL**

Drill Model/Mounting:	**Comacchio Geo 305/ Track**	Hole Angle:	**-90°**	Surface RL:	**2.17 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 335375.286 N 5790772.7 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS FB, S VL, F L, ST MD, VST D, H VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
WB	Nil		8.00					CH	Sandy CLAY; high plasticity, pale grey mottled orange-brown, fine grained sand, trace fine grained sand gravel.	MC>PL			
			-6.0	8.5	SPT 4, 6, 8 N=14	SPT							
			-6.5										
			-7.0	9.0									
				9.5									
			-7.5										
				10.0	SPT 3, 6, 7 N=13	SPT							10.0 m: Poor SPT recovery. Sample fell out of SPT split spoon
			-8.0										
				10.5									
			-8.5										
				11.0									
			-9.0										
				11.5	SPT 7, 9, 11 N=20								
			-9.5										

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BOREHOLE ENGINEERING LOG

BOREHOLE NO. **B17-68167**

SHEET : 4 OF 13

Client:	**VicRoads**	Date Commenced:	**6/3/17**
Project:	**Mordialloc Bypass**	Date Completed:	**31/5/17**
Borehole Location:	**Waterways**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**MDL**

Drill Model/Mounting:	**Comacchio Geo 305/ Track**	Hole Angle:	**-90°**	Surface RL:	**2.17 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 335375.286 N 5790772.7 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD) / DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS FB, S VL, F L, ST MD, VST D, H VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
WB	Nil		12.00 / 0.0				CH	Sandy CLAY; high plasticity, pale blue grey mottled orange-brown, fine grained sand, trace fine grained sand gravel.	MC>PL			
			-10.0 / 12.5									
			-10.5 / 13.0									
			-11.0 / 13.25		U63							
							SW	SAND; fine to coarse grained, pale grey, with silt, trace thin bands of medium to high plasticity clay.	W			
			13.5 / -11.5	SPT 13, 15, 19 N=34	SPT							
			14.0 / -12.0									
			14.5 / -12.5									
			15 / 15.0				CH	Sandy CLAY; high plasticity, pale brown, pale grey, fine to coarse grained sand, trace silt.	MC=PL			
			-13.0 / 15.5	SPT 10, 10, 15 N=25	SPT							
			-13.5									

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BOREHOLE ENGINEERING LOG

BOREHOLE NO. **B17-68167**

SHEET : 5 OF 13

Client:	**VicRoads**	Date Commenced:	**6/3/17**
Project:	**Mordialloc Bypass**	Date Completed:	**31/5/17**
Borehole Location:	**Waterways**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**MDL**

Drill Model/Mounting:	**Comacchio Geo 305/ Track**	Hole Angle:	**-90°**	Surface RL:	**2.17 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 335375.286 N 5790772.7 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD) / DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
WB	Nil		-14.0 / 16.5				CH	Sandy CLAY; high plasticity, pale brown, pale grey, fine to coarse grained sand, trace silt.	MC>=PL			
			16.60 -14.5	SPT 5, 8, 18/80mm N=R	SPT		SP	SAND; medium to coarse grained, pale grey, trace thin bands of medium to high plasticity clay.	W			
			17.0 / -15.0 / 17.5 / -15.5									
			18 18.0				SC	Clayey SAND; medium to coarse grained, pale brown to pale grey, medium to high plasticity clay.	MC>PL			
			-16.0	SPT 3, 5, 6 N=11	SPT							
			18.5 / -16.5 / 19.0 / -17.0									
			19.40 19.5				CI-CH	Sandy CLAY; medium to high plasticity, brown, fine to coarse grained sand	MC>=PL			
			-17.5	SPT 2, 3, 4 N=7	SPT							

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BOREHOLE NO.

BOREHOLE ENGINEERING LOG

B17-68167

SHEET : 6 OF 13

Client:	VicRoads	Date Commenced:	6/3/17
Project:	Mordialloc Bypass	Date Completed:	31/5/17
Borehole Location:	Waterways	Recorded By:	JL
Project Number:	2135645A	Log Checked By:	MDL

Drill Model/Mounting:	Comacchio Geo 305/ Track	Hole Angle:	-90°	Surface RL:	2.17 m AHD
Borehole Diameter:	100 mm	Bearing:	---	Co-ords:	E 335375.286 N 5790772.7 MGA94 55

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD) / DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (FB VS, VL S, L F, MD ST, D VST, VD H)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
WB	Nil		20.00				CI-CH	Sandy CLAY; medium to high plasticity, brown, fine to coarse grained sand.	MC>PL			
			-18.0									
			20.5									
			-18.5									
			20.70	SPT 3, 4, 9 N=13	SPT		SC	Clayey SAND; fine to coarse grained, grey, medium plasticity clay.	M			
			21.0									
			-19.0									
			21.5									
			-19.5									
			21.80				SM	Silty SAND; fine to medium grained, grey, green grey, trace fine to medium gravel.	MC>PL			TERTIARY BRIGHTON GROUP (BEAUMARIS SANDSTONE)
			22.0									
			-20.0	SPT 9, 11, 13 N=24	SPT							
			22.5									
			-20.5									
			23 23.0				SM	Silty SAND; fine to medium grained, dark grey, black.	MC>PL			
			-21.0									
			23.5									
			-21.5	SPT 3, 5, 8 N=13	SPT							

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BOREHOLE ENGINEERING LOG

BOREHOLE NO. **B17-68167**

SHEET : 7 OF 13

Client:	**VicRoads**	Date Commenced:	**6/3/17**
Project:	**Mordialloc Bypass**	Date Completed:	**31/5/17**
Borehole Location:	**Waterways**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**MDL**

Drill Model/Mounting:	**Comacchio Geo 305/ Track**	Hole Angle:	**-90°**	Surface RL:	**2.17 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 335375.286 N 5790772.7 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
WB	Nil		-22.0					SM	Silty SAND; fine to medium grained, dark grey, black.	MC>PL			TERTIARY BRIGHTON GROUP (BEAUMARIS SANDSTONE)
				24.5									
			-22.5										
				25.0									
			-23.0		SPT 5, 7, 9 N=16	SPT							
				25.45				CI	Sandy CLAY; medium plasticity, grey green with marine shells.				TERTIARY GELLIBRAND MARL (FORMERLY FYANSFORD FORMATION)
				25.5									
			-23.5										
				26.0									
			-24.0										
				26.5									
			-24.5		SPT 9, 12, 20 N=32	SPT							
				27.0									
			-25.0										
				27.5									
			-25.5										

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BOREHOLE ENGINEERING LOG

BOREHOLE NO. **B17-68167**

Client:	**VicRoads**	Date Commenced:	**6/3/17**
Project:	**Mordialloc Bypass**	Date Completed:	**31/5/17**
Borehole Location:	**Waterways**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**MDL**

Drill Model/Mounting:	**Comacchio Geo 305/ Track**	Hole Angle:	**-90°**	Surface RL:	**2.17 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 335375.286 N 5790772.7 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD) / DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
WB	Nil		-26.0 / 28.5	SPT 6, 13, 24 N=37	SPT		Cl	Sandy CLAY; medium plasticity, grey green with marine shells.				TERTIARY GELLIBRAND MARL (FORMERLY FYANSFORD FORMATION)
			-26.5 / 29.0									
			-27.0 / 29.5					Becoming grey				
			-27.5 / 30.0	SPT 5, 11, 19 N=30	SPT							
			-28.0 / 30.5									
			-28.5 / 31.0				Cl	Sandy silty CLAY; medium plasticity, grey mottled dark green, fine grained sand.				
			-29.0 / 31.5	SPT 7, 12, 20 N=32	SPT			Becoming green-grey, pale grey, slightly mottled dark green				
			-29.5									

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BOREHOLE ENGINEERING LOG

BOREHOLE NO. **B17-68167**

SHEET : 9 OF 13

Client:	**VicRoads**	Date Commenced:	**6/3/17**
Project:	**Mordialloc Bypass**	Date Completed:	**31/5/17**
Borehole Location:	**Waterways**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**MDL**

Drill Model/Mounting:	**Comacchio Geo 305/ Track**	Hole Angle:	**-90°**	Surface RL:	**2.17 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 335375.286 N 5790772.7 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD) / DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
WB	Nil		32.00				CI	Sandy silty CLAY; medium plasticity, green-grey, pale grey, slightly mottled dark green, fine grained sand.				TERTIARY GELLIBRAND MARL (FORMERLY FYANSFORD FORMATION)
			-30.0 / 32.5									
			-30.5 / 33.0	SPT 3, 6, 16 N=22	SPT							
			-31.0 / 33.5									
			-31.5 / 34.0					Pocket of marine shells				
			-32.0 / 34.5	SPT 6, 12, 28 N=40	SPT							
			-32.5 / 35.0									
			-33.0 / 35.5					Green between 35.5m to 36.5m				
			-33.5	SPT 6, 11, 18 N=29	SPT							

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BOREHOLE NO.

BOREHOLE ENGINEERING LOG

B17-68167

SHEET : 10 OF 13

Client:	**VicRoads**	Date Commenced:	**6/3/17**
Project:	**Mordialloc Bypass**	Date Completed:	**31/5/17**
Borehole Location:	**Waterways**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**MDL**

Drill Model/Mounting:	**Comacchio Geo 305/ Track**	Hole Angle:	**-90°**	Surface RL:	**2.17 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 335375.286 N 5790772.7 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD) / DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
WB	Nil		36.00 / 0.0				CI	Sandy silty CLAY; medium plasticity, grey-green, fine grained sand.				TERTIARY GELLIBRAND MARL (FORMERLY FYANSFORD FORMATION)
			-34.0 / 36.5									
			-34.5 / 37.0	SPT 5, 9, 15 N=24	SPT			Becoming grey				
			-35.0 / 37.5									
			-35.5 / 38.0					Becoming grey-green				
			-36.0 / 38.5									
			-36.5 / 39.0		U63						550 >600	
			-37.0 / 39.5									
			-37.5									

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BOREHOLE ENGINEERING LOG

BOREHOLE NO.

B17-68167

SHEET : 11 OF 13

Client:	**VicRoads**	Date Commenced:	**6/3/17**
Project:	**Mordialloc Bypass**	Date Completed:	**31/5/17**
Borehole Location:	**Waterways**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**MDL**

Drill Model/Mounting:	**Comacchio Geo 305/ Track**	Hole Angle:	**-90°**	Surface RL:	**2.17 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 335375.286 N 5790772.7 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD) / DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS FB, S VL, F L, ST MD, VST D, H VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
WB	Nil		40.00				ML / CI	Sandy silty CLAY/Sandy clayey SILT; medium plasticity, grey, fine grained sand.				RESIDUAL SOIL (SILURIAN MELBOURNE FORMATION)
			-38.0	SPT 3, 6, 8 N=14	SPT							
			40.5									
			-38.5									
			41.0									
			-39.0									
			41.5									
			-39.5	SPT 6, 12, 18 N=30	SPT							
			42.0									
			-40.0									
			42.5									
			-40.5									
			43.0									
			-41.0	SPT 3, 4, 7 N=11	SPT							
			43.5									
			-41.5									

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This Borehole log should be read in conjunction with WSP's accompanying standard notes.

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BOREHOLE ENGINEERING LOG

BOREHOLE NO.

B17-68167

Client:	**VicRoads**	Date Commenced:	**6/3/17**
Project:	**Mordialloc Bypass**	Date Completed:	**31/5/17**
Borehole Location:	**Waterways**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**MDL**

Drill Model/Mounting:	**Comacchio Geo 305/ Track**	Hole Angle:	**-90°**	Surface RL:	**2.17 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 335375.286 N 5790772.7 MGA94 55**

Borehole Information | **Field Material Description**

METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS FB, S VL, F L, ST MD, VST D, H VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
WB	Nil		44.00					MH	Sandy silty CLAY/Sandy clayey SILT; high plasticity, grey, fine grained sand.				
			-42.0	44.5									
			-42.5			U63							
				45.0									
			-43.0										
				45.5									
			-43.5										
				46.0									
			-44.0		SPT 6, 9, 13 N=22	SPT							
				46.5									
			-44.5										
				47.0									
			-45.0										
				47.5									
			-45.5		SPT 3, 6, 12 N=18	SPT							

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This Borehole log should be read in conjunction with WSP's accompanying standard notes.

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BOREHOLE NO.

BOREHOLE ENGINEERING LOG

B17-68167

SHEET : 13 OF 13

Client:	**VicRoads**	Date Commenced:	**6/3/17**
Project:	**Mordialloc Bypass**	Date Completed:	**31/5/17**
Borehole Location:	**Waterways**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**MDL**

Drill Model/Mounting:	**Comacchio Geo 305/ Track**	Hole Angle:	**-90°**	Surface RL:	**2.17 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 335375.286 N 5790772.7 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD) / DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
WB	Nil		-46.0 / 48.5				MH	Sandy silty CLAY/Sandy clayey SILT; high plasticity, grey, fine grained sand.				
			-46.5 / 49.0									
			-47.0	SPT 6, 10, 16 N=26	SPT							
			-47.5					END OF BOREHOLE AT 49.45 m Target depth achieved				
			-48.0									
			-48.5									
			-49.0									
			-49.5									

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This Borehole log should be read in conjunction with WSP's accompanying standard notes.

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BOREHOLE ENGINEERING LOG

BOREHOLE NO. **B17-68170**

SHEET : 1 OF 7

Client:	**VicRoads**	Date Commenced:	**1/3/17**
Project:	**Mordialloc Bypass**	Date Completed:	**2/3/17**
Borehole Location:	**Waterways**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**MDL**

Drill Model/Mounting:	**Comacchio Geo 305/ Track**	Hole Angle:	**-90°**	Surface RL:	**1.72 m AHD**
Borehole Diameter:	**115 mm**	Bearing:	**---**	Co-ords:	**E 335229.495 N 5791160.8 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
AS	Nil		1.72	0.10					TOPSOIL: Silty CLAY; high plasticity, dark grey	D			TOPSOIL
			1.5					CH	Silty CLAY; high plasticity, dark grey mottled brown	MC<PL			QUATERNARY ALLUVIUM
			0.5	0.5						MC>=PL			
			1.0	1.0									
			0.5										
			1.0	1.5	SPT 0, 1, 2 N=3	SPT							
			0.0										
			2.0										
			-0.5										
WB	C	01/03/17	2.5			U63							
			-1.0										
			2.90					CH	Silty CLAY; high plasticity, grey, trace fine to medium grained sand.			45 - 50	
			3.0										
			-1.5										
			3.5										
			-2.0										
			3.80					CH	Sandy CLAY; high plasticity, pale grey-pale brown, yellow-brown, fine to medium grained sand.	MC>=PL			TERTIARY BRIGHTON GROUP (RED BLUFF FORMATION)

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This Borehole log should be read in conjunction with WSP's accompanying standard notes.

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BOREHOLE NO.

BOREHOLE ENGINEERING LOG

B17-68170

SHEET : 2 OF 7

Client:	**VicRoads**	Date Commenced:	**1/3/17**
Project:	**Mordialloc Bypass**	Date Completed:	**2/3/17**
Borehole Location:	**Waterways**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**MDL**

Drill Model/Mounting:	**Comacchio Geo 305/ Track**	Hole Angle:	**-90°**	Surface RL:	**1.72 m AHD**
Borehole Diameter:	**115 mm**	Bearing:	**---**	Co-ords:	**E 335229.495 N 5791160.8 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
WB	C		-2.5	4.5		U63		CH	Sandy CLAY; high plasticity, pale grey-pale brown, yellow-brown, fine to medium grained sand.	MC>=PL			
			-3.0	5.0					4.34 m: trace fine to medium grained angular gravel			60 - 70	
			-3.5	5.5	SPT 3, 3, 5 N=8	SPT							
			-4.0	6.0									
			-4.5	6.5									
			-5.0	7.0									
			-5.5	7.5		U63						320 - 380	
			-6.0										

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BOREHOLE ENGINEERING LOG

BOREHOLE NO. **B17-68170**

SHEET : 3 OF 7

Client:	**VicRoads**	Date Commenced:	**1/3/17**
Project:	**Mordialloc Bypass**	Date Completed:	**2/3/17**
Borehole Location:	**Waterways**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**MDL**

Drill Model/Mounting:	**Comacchio Geo 305/ Track**	Hole Angle:	**-90°**	Surface RL:	**1.72 m AHD**
Borehole Diameter:	**115 mm**	Bearing:	**---**	Co-ords:	**E 335229.495 N 5791160.8 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS FB, S VL, F L, ST MD, VST D, H VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
WB	C		8.00					CH	Sandy CLAY; high plasticity, pale grey-pale brown, yellow-brown, trace fine to medium grained angular gravel.	MC>PL			
			-6.5	8.5									
			-7.0		SPT 3, 5, 8 N=13	SPT							
			9.00	9.0				SP	SAND; fine grained, pale grey-brown, pale brown, with occasional very thin medium to high plasticity clay bands, trace fine grained gravel.	M			
			-7.5										
				9.5									
			-8.0										
				10.0									
			-8.5		SPT 15, 22, 10/50mm N=R	SPT							
				10.5									
			-9.0										
			10.80					CH	Sandy CLAY; high plasticity, pale grey, pale brown.	MC>PL			
				11.0									
			-9.5										
				11.5									
			-10.0		SPT 2, 8, 14 N=22	SPT							

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BOREHOLE ENGINEERING LOG

BOREHOLE NO. **B17-68170**

Client:	**VicRoads**	Date Commenced:	**1/3/17**
Project:	**Mordialloc Bypass**	Date Completed:	**2/3/17**
Borehole Location:	**Waterways**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**MDL**

Drill Model/Mounting:	**Comacchio Geo 305/ Track**	Hole Angle:	**-90°**	Surface RL:	**1.72 m AHD**
Borehole Diameter:	**115 mm**	Bearing:	**---**	Co-ords:	**E 335229.495 N 5791160.8 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
WB	C		-10.5	12.5				CH	Sandy CLAY; high plasticity, pale grey, pale brown.	MC>=PL			
			-11.0										
				13.0									
			-11.5		SPT 4, 5, 12 N=17	SPT							
				13.5									
			-12.0										
				14 14.0				SP	SAND; fine to coarse grained, pale grey, pale brown, brown, trace thin high plasticity clay bands.	M			
			-12.5										
				14.5									
			-13.0		SPT 10, 12, 13 N=25	SPT							
				15.0									
			-13.5										
				15.5									
			-14.0										
				15.80				CH	Silty CLAY; high plasticity, pale brown-grey, trace sand.				

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BOREHOLE ENGINEERING LOG

BOREHOLE NO. **B17-68170**

Client:	**VicRoads**	Date Commenced:	**1/3/17**
Project:	**Mordialloc Bypass**	Date Completed:	**2/3/17**
Borehole Location:	**Waterways**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**MDL**

Drill Model/Mounting:	**Comacchio Geo 305/ Track**	Hole Angle:	**-90°**	Surface RL:	**1.72 m AHD**
Borehole Diameter:	**115 mm**	Bearing:	**---**	Co-ords:	**E 335229.495 N 5791160.8 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD) / DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS FB, S VL, F L, ST MD, VST D, H VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
WB	C		16.00				CH	Silty CLAY; high plasticity, pale brown-grey, trace sand.	MC>=PL			
			-14.5	SPT 2, 2, 3 N=5	SPT							
			16.5									
			-15.0									
			17.0									
			-15.5									
			17.5		U63							
			-16.0									
			18.0								150 - 160	
			-16.5					18.2 m: tracel thin sand bands				
			18.5									
			-17.0									
			19.0									
			-17.5	SPT 9, 3, 11 N=14	SPT							
			19.5									
			-18.0									

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BOREHOLE ENGINEERING LOG

BOREHOLE NO. **B17-68170**

SHEET : 6 OF 7

Client:	**VicRoads**	Date Commenced:	**1/3/17**
Project:	**Mordialloc Bypass**	Date Completed:	**2/3/17**
Borehole Location:	**Waterways**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**MDL**

Drill Model/Mounting:	**Comacchio Geo 305/ Track**	Hole Angle:	**-90°**	Surface RL:	**1.72 m AHD**
Borehole Diameter:	**115 mm**	Bearing:	**---**	Co-ords:	**E 335229.495 N 5791160.8 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD) / DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (FB VL L MD D VD / VS S F ST VST H)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
WB	C		-18.5				CH	Silty CLAY; high plasticity, pale brown-grey, trace sand.	MC>=PL			
			20 20.5				SM	Silty SAND; fine to medium grained, dark grey - grey. 20.5 m: becoming grey, dark grey	M			TERTIARY BRIGHTON GROUP (BEAUMARIS SANDSTONE)
			-19.0	SPT 13, 25, 24 N=49	SPT							
			21.0									
			-19.5									
			21.5									
			-20.0									
			22.0					22.0 m: cemented layers observed				
			-20.5	SPT 18, 33/150mm N=R	SPT							
			22.5									
			-21.0									
			23.0									
			-21.5									
			23 23.5				CL / SC	Sandy CLAY/Clayey SAND, low plasticity, fine grained sand, trace marine shells.				TERTIARY GELLIBRAND MARL (FORMERLY FYANSFORD FORMATION)
			-22.0	SPT 10, 18, 23 N=41	SPT							

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BOREHOLE ENGINEERING LOG

BOREHOLE NO. **B17-68170**

SHEET : 7 OF 7

Client:	**VicRoads**	Date Commenced:	**1/3/17**
Project:	**Mordialloc Bypass**	Date Completed:	**2/3/17**
Borehole Location:	**Waterways**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**MDL**

Drill Model/Mounting:	**Comacchio Geo 305/ Track**	Hole Angle:	**-90°**	Surface RL:	**1.72 m AHD**
Borehole Diameter:	**115 mm**	Bearing:	**---**	Co-ords:	**E 335229.495 N 5791160.8 MGA94 55**

Borehole Information							Field Material Description					
METHOD	SUPPORT	WATER	RL (m AHD) / DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
WB	C		-22.5				CL / SC	Sandy CLAY/Clayey SAND, low plasticity, fine grained sand, trace marine shells.	M			
			24.5									
			-23.0									
			25.0	SPT 10/80mm N=R	SPT			LIMESTONE				
			-23.5					END OF BOREHOLE AT 25.08 m Refusal on inferred limestone band				SPT refusal @ 25.08 on inferred limestone band
			-24.0									
			-24.5									
			-25.0									
			-25.5									
			-26.0									

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BOREHOLE ENGINEERING LOG

BOREHOLE NO. **B17-68388**

SHEET : 1 OF 3

Client:	**VicRoads**	Date Commenced:	**30/8/17**
Project:	**Mordialloc Bypass**	Date Completed:	**31/8/17**
Borehole Location:	**Dingley Village**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**TS**

Drill Model/Mounting:	**Comacchio Geo 305/ Track**	Hole Angle:	**-90°**	Surface RL:	**25.19 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 334602.631 N 5796354.08 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
AS	Nil		25.0	0.30		ES			FILL: Sandy GRAVEL; fine to coarse grained, brown grey, yellow brown, fine to coarse grained sand.	M			FILL
				0.5		ES		SP	FILL: Gravelly SAND; fine grained, black, organic odour				PID_0.4m = 0.4 ppm
			24.5	0.70		U63		SC	SAND; fine grained, pale brown, grey, with organic odour.				QUATERNARY ALLUVIUM
				1.0	SPT 2, 4, 7 N=11	ES			Clayey SAND; fine to medium grained, red brown, orange brown, pale grey-brown, low to medium plasticity clay.	M			TERTIARY BRIGHTON GROUP (RED BLUFF FORMATION)
			24.0			SPT							Bulk sample 0.8 - 1.2m
				1.5									PID_1.0m = 0.1 ppm
			23.5										
				2.0									
			23.0										
				2.5									
			22.5	2.70	SPT 10, 16, 23 N=39	SPT		SP	SAND; fine to medium grained, orange brown, pale brown, with some clay.				
				3.0									
			22.0										
				3.5									
			21.5										

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This Borehole log should be read in conjunction with WSP's accompanying standard notes.

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BOREHOLE ENGINEERING LOG

BOREHOLE NO.

B17-68388

SHEET : 2 OF 3

Client:	**VicRoads**	Date Commenced:	**30/8/17**
Project:	**Mordialloc Bypass**	Date Completed:	**31/8/17**
Borehole Location:	**Dingley Village**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**TS**

Drill Model/Mounting:	**Comacchio Geo 305/ Track**	Hole Angle:	**-90°**	Surface RL:	**25.19 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 334602.631 N 5796354.08 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (FB VL L MD D VD / VS S F ST VST H)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
AS	Nil	30/08/17 ▽	21.0	4.5	SPT 15, 10/40mm HB N=R	SPT		SP	SAND; fine to medium grained, orange brown, pale brown, with some clay.	M			
									becoming orange brown, red brown, pale brown				
			20.5						becoming pale brown, white, orange-brown				
				5.0						W			
			20.0										
				5.5									
			19.5		SPT 9, 14, 16 N=30	SPT							
				6.0									
			19.0										
				6.5									
			18.5										
				7.0									
			18.0	7.20	SPT 7, 13, 8 N=21	SPT		SP	SAND; fine to medium grained, dark brown-grey, trace clay.				TERTIARY BRIGHTON GROUP (INFERRED BEAUMARIS SANDSTONE)
				7.5									
			17.5										

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BOREHOLE ENGINEERING LOG

BOREHOLE NO. **B17-68388**

SHEET : 3 OF 3

Client:	**VicRoads**	Date Commenced:	**30/8/17**
Project:	**Mordialloc Bypass**	Date Completed:	**31/8/17**
Borehole Location:	**Dingley Village**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**TS**

Drill Model/Mounting:	**Comacchio Geo 305/ Track**	Hole Angle:	**-90°**	Surface RL:	**25.19 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 334602.631 N 5796354.08 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
AS	Nil		17.0					SP	SAND; fine to medium grained, dark brown-grey, trace clay.	W			**Well details** 0-4m: solid casing 4-7m: slotted screen with filter sock 7-10m: solid PVC **Backfill** 0-0.45m: Gatic and concrete 0.45-3.3m: Bentonite 3.3-10m: natural sand pack
				8.5									
			16.5		SPT 5, 5, 8 N=13	SPT			becoming dark grey, with some clay pockets				
				9.0									
			16.0										
				9.5									
			15.5										
				10.0									
			15.0		SPT 5, 15, 16 N=31	SPT							
									END OF BOREHOLE AT 10.45 m Target depth achieved				
			14.5										
			14.0										
			13.5										

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This Borehole log should be read in conjunction with WSP's accompanying standard notes.

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BOREHOLE NO.

BOREHOLE ENGINEERING LOG

B17-68397

SHEET : 1 OF 4

Client:	**VicRoads**	Date Commenced:	**10/5/17**
Project:	**Mordialloc Bypass**	Date Completed:	**10/5/17**
Borehole Location:	**Dingley Village**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**NS**

Drill Model/Mounting:	**Explora 50/ Truck**	Hole Angle:	**-90°**	Surface RL:	**29.89 m AHD**
Borehole Diameter:	**105 mm**	Bearing:	**---**	Co-ords:	**E 334677.336 N 5796695.39 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
AS	C	NFGWE	29.5	0.20					FILL: GRAVEL; medium to coarse grained, sub-angular to angular, grey.	D / M			FILL
				0.40					FILL: Red brick.				
				0.5					FILL: GRAVEL; medium to coarse grained, sub-angular to angular, grey, trace clay.				
			29.0	1.0					FILL: Gravelly CLAY; medium to high plasticity, dark brown, with angular gravel, with red brick.	M			FILL - CAPPING LAYER
			28.5	1.5	SPT 3, 9, 4 N=13	D							
			28.0	2.0									
			27.5	2.5					FILL: Landfill waste including broken glass, aluminium, car parts and plastic in a high plasticity, dark brown, clay matrix.				FILL Stratum has highly variable consistency.
			27.0	3.0									
			26.5	3.5									
			26.0										

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This Borehole log should be read in conjunction with WSP's accompanying standard notes.

WSP Australia Pty Ltd. V00 8.30.002 PB_LIB_7.5_WN_NEW_LOGO.GLB Log PB NON-CORED LOG SITE 26 - MORDIALLOC LOGS.GPJ <<DrawingFile>> 10/11/2017 14:03 Developed by Datgel Pty Ltd

BOREHOLE NO.

BOREHOLE ENGINEERING LOG

B17-68397

SHEET : 2 OF 4

Client:	**VicRoads**	Date Commenced:	**10/5/17**
Project:	**Mordialloc Bypass**	Date Completed:	**10/5/17**
Borehole Location:	**Dingley Village**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**NS**

Drill Model/Mounting:	**Explora 50/ Truck**	Hole Angle:	**-90°**	Surface RL:	**29.89 m AHD**
Borehole Diameter:	**105 mm**	Bearing:	**---**	Co-ords:	**E 334677.336 N 5796695.39 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
AS	C	NFGWE	25.5	4.5					FILL: Landfill waste including broken glass, aluminium, car parts and plastic in a high plasticity, dark brown, clay matrix. 4.0m: carpet scraps, plastic bags.	M			
			25.0	5.0					5.0m: organic matter present.	W			
WB	Nil		24.5	5.5									Complete water loss during washboring, unable to advance casing.
			24.0	6.0									
			23.5	6.5					6.3-7.5m: presence of metal.				6.3-7.5m: Extremely hard, extremely slow advance of drill rods.
			23.0	7.0									
			22.5	7.5									
			22.0										

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This Borehole log should be read in conjunction with WSP's accompanying standard notes.

WSP Australia Pty Ltd. V00 8.30.002 PB_LIB_7.5_WN_NEW_LOGO.GLB Log PB NON-CORED LOG SITE 26 - MORDIALLOC LOGS.GPJ <<DrawingFile>> 10/11/2017 14:03 Developed by Datgel Pty Ltd

BOREHOLE ENGINEERING LOG

BOREHOLE NO. **B17-68397**

SHEET : 3 OF 4

Client:	**VicRoads**	Date Commenced:	**10/5/17**
Project:	**Mordialloc Bypass**	Date Completed:	**10/5/17**
Borehole Location:	**Dingley Village**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**NS**

Drill Model/Mounting:	**Explora 50/ Truck**	Hole Angle:	**-90°**	Surface RL:	**29.89 m AHD**
Borehole Diameter:	**105 mm**	Bearing:	**---**	Co-ords:	**E 334677.336 N 5796695.39 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD) / DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
WB	Nil	NFGWE	8.00				SP	SAND; fine to medium grained, brown grey, with weakly cemented sand gravel, fine to coarse grained, angular.	W			TERTIARY BRIGHTON GROUP (RED BLUFF FORMATION)
			21.5 / 8.5	SPT 13/90mm HB N=R								
			21.0 / 9.0					9.0-9.5m: CLAY layer; high plasticity, dark brown, trace sand.				9.0-9.5m: Slow rod advancement, blocked up drill bit with clay at 9.9m.
			20.5 / 9.5									
			20.0 / 10.0				SC	SAND: fine to coarse grained, grey-brown, trace clay.				
			19.5 / 10.5	SPT 9, 25, 35 N=60	D							
			19.0 / 11.0									
			18.5 / 11.5					11.7m: medium to coarse grained.				
			18.0	SPT 11, 21, 26 N=47	D							

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This Borehole log should be read in conjunction with WSP's accompanying standard notes.

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BOREHOLE NO.

BOREHOLE ENGINEERING LOG

B17-68397

SHEET : 4 OF 4

Client:	**VicRoads**	Date Commenced:	**10/5/17**
Project:	**Mordialloc Bypass**	Date Completed:	**10/5/17**
Borehole Location:	**Dingley Village**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**NS**

Drill Model/Mounting:	**Explora 50/ Truck**	Hole Angle:	**-90°**	Surface RL:	**29.89 m AHD**
Borehole Diameter:	**105 mm**	Bearing:	**---**	Co-ords:	**E 334677.336 N 5796695.39 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST FB VL L MD D VD H)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
WB	Nil	NFGWE	17.5	12.5	SPT 11, 21, 26 N=47	D		SC	SAND: fine to coarse grained, grey-brown, trace clay.	W			TERTIARY BRIGHTON GROUP (RED BLUFF FORMATION)
			17.0	13.0									
			13.20						Clayey SAND; fine, dark brown, medium plasticity fines.				
			16.5	13.5	SPT 7, 21, 19 N=40	D							
									END OF BOREHOLE AT 13.65 m Target depth achieved				
			16.0										
			15.5										
			15.0										
			14.5										
			14.0										

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This Borehole log should be read in conjunction with WSP's accompanying standard notes.

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BOREHOLE NO.

BOREHOLE ENGINEERING LOG

B17-68399

SHEET : 1 OF 2

Client:	**VicRoads**	Date Commenced:	**22/8/17**
Project:	**Mordialloc Bypass**	Date Completed:	**22/8/17**
Borehole Location:	**Dingley Village**	Recorded By:	**PP**
Project Number:	**2135645A**	Log Checked By:	**TS**

Drill Model/Mounting:	**Comacchio Geo 305/ Track**	Hole Angle:	**-90°**	Surface RL:	**26.80 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 334709.244 N 5796859.89 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS FB, S VL, F L, ST MD, VST D, H VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADV	Nil	NFGWE	26.5	0.30		ES			FILL: Clayey sandy GRAVEL; fine grained, angular, basalt, sandstone and brick.	M			FILL (CRUSHED ROCK CAR PARK)
				0.40					FILL: Clayey SAND; fine to coarse grained, dark yellow, low plasticity fines.	M			PID=0.0ppm
				0.5		ES		CH	CLAY; high plasticity, pale grey orange dark yellow and grey, trace fine grained sandy pockets.	M			TERTIARY BRIGHTON GROUP (RED BLUFF FORMATION)
			26.0			B							PID=0.0ppm
				1.0	SPT 2, 2, 3 N=5	SPT							
			25.5										
				1.5					trace fine grained angular ferruginous gravel.				
			25.0										
				2.0									
			24.5										
				2.5									
					SPT 6, 9, 6 N=15	SPT			band of ferruginous gravel, 200mm thick				
			24.0										
				3.0									
			23.5										
				3.5					becoming sandy, fine grained.				
			23.0										

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This Borehole log should be read in conjunction with WSP's accompanying standard notes.

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BOREHOLE NO.

BOREHOLE ENGINEERING LOG

B17-68399

SHEET : 2 OF 2

Client:	**VicRoads**	Date Commenced:	**22/8/17**
Project:	**Mordialloc Bypass**	Date Completed:	**22/8/17**
Borehole Location:	**Dingley Village**	Recorded By:	**PP**
Project Number:	**2135645A**	Log Checked By:	**TS**

Drill Model/Mounting:	**Comacchio Geo 305/ Track**	Hole Angle:	**-90°**	Surface RL:	**26.80 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 334709.244 N 5796859.89 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADV	Nil	NFGWE	22.5	4.20	SPT 7, 12, 16 N=28	SPT		CH	CLAY; high plasticity, pale grey orange dark yellow and grey, trace fine grained sandy pockets.	M			
				4.5					Clayey SAND; fine to coarse grained, pale grey, high plasticity clay.	M			
			22.0	5.0				SC	Clayey SAND; fine to coarse grained, pale grey, with dark red orange, pale brown, and dark yellow, high plasticity clay.				
			21.5	5.5									
				5.70	SPT 10, 6, 4 N=10	SPT		CH	Silty CLAY; high plasticity, pale grey with dark grey, organic material.	M			
			21.0						END OF BOREHOLE AT 5.95 m Target depth achieved				
			20.5										
			20.0										
			19.5										
			19.0										

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This Borehole log should be read in conjunction with WSP's accompanying standard notes.

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BOREHOLE ENGINEERING LOG

BOREHOLE NO. **B17-68379**

SHEET : 1 OF 3

Client:	**VicRoads**	Date Commenced:	**15/8/17**
Project:	**Mordialloc Bypass**	Date Completed:	**15/8/17**
Borehole Location:	**Dingley Village**	Recorded By:	**PP**
Project Number:	**2135645A**	Log Checked By:	**TS**

Drill Model/Mounting:	**Comacchio Geo 305/ Track**	Hole Angle:	**-90°**	Surface RL:	**19.73 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 334540.065 N 5795993.88 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST FB VL L MD D VD H)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
AS	Nil		19.5	0.5		ES		SC	Clayey SAND; fine to coarse grianed, dark brown, low plasticity fines.	M			QUATERNARY ALLUVIUM
			19.0	0.80		ES		CH	Sandy CLAY; high plasticity, dark brown, orange pockets, sand pockets, sand lenses, fine to coarse grained sand.	MC=PL			
			18.5	1.0	SPT 7, 7, 7 N=14	SPT							
			18.0	1.5				CH	CLAY; high plasticity, grey mottled brown, trace fine grained sand.	MC>PL - MC=PL			TERTIARY BRIGHTON GROUP (RED BLUFF FORMATION)
			17.5	2.0									
			17.0	2.5	SPT 0, 0, 1 N=1	SPT							
			16.5	3.0									
			16.0	3.5				CH	Sandy CLAY; high plasticity, pale grey, grey, fine to medium grained sand.				

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This Borehole log should be read in conjunction with WSP's accompanying standard notes.

WSP Australia Pty Ltd. V00 8.30.002 PB_LIB_7.5_WN_NEW_LOGO.GLB Log PB NON-CORED LOG SITE 26 - MORDIALLOC LOGS.GPJ <<DrawingFile>> 10/11/2017 14:01 Developed by Datgel Pty Ltd

BOREHOLE ENGINEERING LOG

BOREHOLE NO. **B17-68379**

Client:	**VicRoads**	Date Commenced:	**15/8/17**
Project:	**Mordialloc Bypass**	Date Completed:	**15/8/17**
Borehole Location:	**Dingley Village**	Recorded By:	**PP**
Project Number:	**2135645A**	Log Checked By:	**TS**

Drill Model/Mounting:	**Comacchio Geo 305/ Track**	Hole Angle:	**-90°**	Surface RL:	**19.73 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 334540.065 N 5795993.88 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD) / DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS FB, S VL, F L, ST MD, VST D, H VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
AS	Nil	15/08/17 ▽	15.5 / 4.40	SPT 2, 3, 4 N=7	SPT		CH	Sandy CLAY; high plasticity, pale grey, grey, fine to medium grained sand.	MC>PL - MC=PL			TERTIARY BRIGHTON GROUP (RED BLUFF FORMATION)
			15.0 / 4.5				SC	Clayey SAND; fine to coarse grained, pale grey, high plasticity clay.	M			
			14.5 / 5.0						M			
			14.0 / 5.40				GP	Sandy GRAVEL; fine grained rounded quartz, pale grey, fine to coarse grained sand, with clay.	M			
			13.5 / 5.5	SPT 15, 23, 11 N=34	SPT							
			13.0 / 5.90				SC	Clayey SAND; fine to coarse grained, brown, dark yellow, high plasticity claye with bands of sandy clay.	M			
			12.5 / 6.0									
			12.0 / 6.5									
			11.5 / 7.0									
			11.0 / 7.5	SPT 2, 4, 12 N=16	SPT			band of ferruginous gravel				

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This Borehole log should be read in conjunction with WSP's accompanying standard notes.

WSP Australia Pty Ltd. V00 8.30.002 PB_LIB_7.5_WN_NEW_LOGO.GLB Log PB NON-CORED LOG SITE 26 - MORDIALLOC LOGS.GPJ <<DrawingFile>> 10/11/2017 14:01 Developed by Datgel Pty Ltd

BOREHOLE ENGINEERING LOG

BOREHOLE NO. **B17-68379**

SHEET : 3 OF 3

Client:	**VicRoads**	Date Commenced:	**15/8/17**
Project:	**Mordialloc Bypass**	Date Completed:	**15/8/17**
Borehole Location:	**Dingley Village**	Recorded By:	**PP**
Project Number:	**2135645A**	Log Checked By:	**TS**

Drill Model/Mounting:	**Comacchio Geo 305/ Track**	Hole Angle:	**-90°**	Surface RL:	**19.73 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 334540.065 N 5795993.88 MGA94 55**

Borehole Information							Field Material Description							
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F FB VL L MD D VD ST VST H)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
AS	Nil		11.5	8.5				SC	Clayey SAND; fine to coarse grained, brown, dark yellow, high plasticity claye with bands of sandy clay. becoming dark grey-green with clayey pockets	M			TERTIARY BRIGHTON GROUP (RED BLUFF FORMATION)
			11.0		SPT 5, 11, 7 N=18	SPT		SC	Clayey SAND; fine to medium grained, dark grey-green, low plasticity clay.	M			TERTIARY GELLIBRAND MARL (FORMERLY FYANSFORD FORMATION)
			10.5	9.0				CL	Sandy CLAY; low plasticity, dark grey-green, fine to coarse grained sand, trace fine grained rounded gravel.	M			
			9.5										
			10.0		SPT 3, 5, 7 N=12	SPT							
				10.0					END OF BOREHOLE AT 10.00 m Target depth achieved				
			9.5										
			9.0										
			8.5										
			8.0										

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This Borehole log should be read in conjunction with WSP's accompanying standard notes.

WSP Australia Pty Ltd. V00 8.30.002 PB_LIB_7.5_WN_NEW_LOGO.GLB Log PB NON-CORED LOG SITE 26 - MORDIALLOC LOGS.GPJ <<DrawingFile>> 10/11/2017 14:01 Developed by Datgel Pty Ltd

BOREHOLE ENGINEERING LOG

BOREHOLE NO. **B17-68382**

SHEET : 1 OF 3

Client:	**VicRoads**	Date Commenced:	**17/8/17**
Project:	**Mordialloc Bypass**	Date Completed:	**17/8/17**
Borehole Location:	**Dingley Village**	Recorded By:	**PP**
Project Number:	**2135645A**	Log Checked By:	**TS**

Drill Model/Mounting:	**Comacchio Geo 305/ Track**	Hole Angle:	**-90°**	Surface RL:	**22.29 m AHD**
Borehole Diameter:		Bearing:	**---**	Co-ords:	**E 334566.24 N 5796114.96 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS FB S VL F L ST MD VST D H VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
AS	Nil	NFGWE	22.0	0.5		ES			FILL: Clayey SAND; fine to coarse grained, brown, angular basalt gravel, high plasticity fines, brick fragments.	D - M			FILL PID=0.0ppm
				0.60		ES		CH	Sandy CLAY; high plasticity, brown, fine to coarse grained sand, trace brick and basalt gravel.	M			PID=0.0ppm
			21.5	1.0					becoming dark grey				
			21.0	1.5	SPT 1, 1, 2 N=3	SPT			with pockets of black organic material	MC>PL - MC=PL			PID=0.0ppm, environmental sample taken
			20.5	2.0		ES							
			20.0	2.5		U50						120	PID=0.0ppm
			19.5	3.0	SPT 2, 2, 1 N=3	SPT				MC>PL			
			19.0	3.30				CH	Sandy CLAY; high plasticity, pale grey dark yellow red brown, fine to coarse grained sand.	MC>PL			TERTIARY BRIGHTON GROUP (RED BLUFF FORMATION)
			18.5	3.90				SM	Silty SAND; fine to coarse grained, pale grey, yellow-brown.				

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This Borehole log should be read in conjunction with WSP's accompanying standard notes.

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BOREHOLE ENGINEERING LOG

BOREHOLE NO. **B17-68382**

Client:	**VicRoads**	Date Commenced:	**17/8/17**
Project:	**Mordialloc Bypass**	Date Completed:	**17/8/17**
Borehole Location:	**Dingley Village**	Recorded By:	**PP**
Project Number:	**2135645A**	Log Checked By:	**TS**

Drill Model/Mounting:	**Comacchio Geo 305/ Track**	Hole Angle:	**-90°**	Surface RL:	**22.29 m AHD**
Borehole Diameter:		Bearing:	**---**	Co-ords:	**E 334566.24 N 5796114.96 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
AS	Nil	NFGWE	18.0	4.5	SPT 18, 24, 16 N=40	SPT		SM	Silty SAND; fine to coarse grained, pale grey, yellow-brown.	MC>PL			U63 refusal
			17.5	5.0					becoming pale grey-white, fine to medium grained sand				
			17.0	5.5	SPT 7, 10, 11 N=21	SPT							
			16.5	6.0									
			16.0	6.5									
			15.5	7.0									
			15.0	7.5	SPT 5, 11, 17 N=28	SPT			becoming fine to coarse grained sand, trace fine grained rounded quartz gravel.				
			14.5										

DRAFT

This Borehole log should be read in conjunction with WSP's accompanying standard notes.

WSP Australia Pty Ltd. V00 8.30.002 PB_LIB_7.5_WN_NEW_LOGO.GLB Log PB NON-CORED LOG SITE 26 - MORDIALLOC LOGS.GPJ <<DrawingFile>> 10/11/2017 14:01 Developed by Datgel Pty Ltd

BOREHOLE ENGINEERING LOG

BOREHOLE NO. **B17-68382**

SHEET : 3 OF 3

Client:	**VicRoads**	Date Commenced:	**17/8/17**
Project:	**Mordialloc Bypass**	Date Completed:	**17/8/17**
Borehole Location:	**Dingley Village**	Recorded By:	**PP**
Project Number:	**2135645A**	Log Checked By:	**TS**

Drill Model/Mounting:	**Comacchio Geo 305/ Track**	Hole Angle:	**-90°**	Surface RL:	**22.29 m AHD**
Borehole Diameter:		Bearing:	**---**	Co-ords:	**E 334566.24 N 5796114.96 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
AS	Nil	NFGWE	14.0	8.5				SM	Silty SAND; fine to coarse grained, pale grey, yellow-brown. 8.3-8.4m: band of dark grey.	MC>PL			
				8.60	SPT 9, 20, 17 N=37	SPT		GP	Sandy GRAVEL; fine grained sub-rounded quartz, pale grey, fine to coarse grained sand.	M			
			13.5	9.0									
				9.20				CI	Sandy CLAY; low plasticity, dark grey-green, fine grained sand, with bands of clayey SAND.	M			TERTIARY GELLIBRAND MARL (FORMERLY FYANSFORD FORMATION)
			13.0										
				9.5									
			12.5										
				10.0	SPT 5, 12, 15 N=27	SPT							
			12.0						END OF BOREHOLE AT 10.45 m Target depth achieved				
			11.5										
			11.0										
			10.5										

DRAFT

This Borehole log should be read in conjunction with WSP's accompanying standard notes.

WSP Australia Pty Ltd. V00 8.30.002 PB_LIB_7.5_WN_NEW_LOGO.GLB Log PB NON-CORED LOG SITE 26 - MORDIALLOC LOGS.GPJ <<DrawingFile>> 10/11/2017 14:01 Developed by Datgel Pty Ltd

BOREHOLE ENGINEERING LOG

BOREHOLE NO.

B17-68386

SHEET : 1 OF 3

Client:	**VicRoads**	Date Commenced:	**16/8/17**
Project:	**Mordialloc Bypass**	Date Completed:	**16/8/17**
Borehole Location:	**Dingley Village**	Recorded By:	**PP**
Project Number:	**2135645A**	Log Checked By:	**TS**

Drill Model/Mounting:	**Comacchio Geo 305/ Track**	Hole Angle:	**-90°**	Surface RL:	**23.30 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 334593.998 N 5796283.15 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
			23.0	0.40		ES		CH	Sandy CLAY; high plasticity, orange-brown, fine to coarse grained sand.	MC>PL			TERTIARY BRIGHTON GROUP (RED BLUFF FORMATION) PID=0.0ppm
				0.5				SM	Silty SAND; fine to coarse grained, yellow-brown, low plasticity silt.	M			
			22.5			ES							PID=0.0ppm
				1.0	SPT 10, 18, 19 N=37	SPT							
			22.0										
				1.5									
			21.5										
				2.0									
			21.0	2.30				CH	Sandy CLAY; high plasticity, pale grey, red brown and orange, fine to coarse grained sand.				
				2.5				SM	Silty SAND; fine to coarse grained, pale grey, low plasticity silt.				
			20.5		SPT 9, 23, 26 N=49	SPT							
				3.0									
			20.0										
				3.5					becoming yellow - brown				
			19.5										

DRAFT

This Borehole log should be read in conjunction with WSP's accompanying standard notes.

WSP Australia Pty Ltd. V00 8.30.002 PB_LIB_7.5_WN_NEW_LOGO.GLB Log PB NON-CORED LOG SITE 26 - MORDIALLOC LOGS.GPJ <<DrawingFile>> 10/11/2017 14:01 Developed by Datgel Pty Ltd

BOREHOLE ENGINEERING LOG

BOREHOLE NO.

B17-68386

Client:	**VicRoads**	Date Commenced:	**16/8/17**
Project:	**Mordialloc Bypass**	Date Completed:	**16/8/17**
Borehole Location:	**Dingley Village**	Recorded By:	**PP**
Project Number:	**2135645A**	Log Checked By:	**TS**

Drill Model/Mounting:	**Comacchio Geo 305/ Track**	Hole Angle:	**-90°**	Surface RL:	**23.30 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 334593.998 N 5796283.15 MGA94 55**

Borehole Information							Field Material Description					
METHOD	SUPPORT	WATER	RL (m AHD) / DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
			4.00				SM	Silty SAND; fine to coarse grained, yellow brown, low plasticity silt.	M			
			19.0	SPT 14, 25, 25/100mm N=R	SPT							
			4.5									
			18.5									
			5.0									
			18.0					becoming grey				
		16/08/17	5.5									
			17.5	SPT 11, 20, 26 N=46	SPT							
			6.0									
			17.0									
			6.5									
			16.5									
			7.0									
			16.0	SPT 8, 7, 5 N=12	SPT			becoming dark grey	M			TERTIARY BRIGHTON GROUP (INFERRED BEAUMARIS SANDSTONE)
			7.5									
			15.5									

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This Borehole log should be read in conjunction with WSP's accompanying standard notes.

WSP Australia Pty Ltd. V00 8.30.002 PB_LIB_7.5_WN_NEW_LOGO.GLB Log PB NON-CORED LOG SITE 26 - MORDIALLOC LOGS.GPJ <<DrawingFile>> 10/11/2017 14:01 Developed by Datgel Pty Ltd

BOREHOLE ENGINEERING LOG

BOREHOLE NO. **B17-68386**

Client:	**VicRoads**	Date Commenced:	**16/8/17**
Project:	**Mordialloc Bypass**	Date Completed:	**16/8/17**
Borehole Location:	**Dingley Village**	Recorded By:	**PP**
Project Number:	**2135645A**	Log Checked By:	**TS**

Drill Model/Mounting:	**Comacchio Geo 305/ Track**	Hole Angle:	**-90°**	Surface RL:	**23.30 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 334593.998 N 5796283.15 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD) / DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
			8.00				SM	Silty SAND; fine to coarse grained, dark grey, low plasticity silt.	M			
			15.0									
			8.5									
				SPT 8, 12, 16 N=28	SPT							
			14.5									
			9.0									
			14.0									
			9.5									
			13.5									
			10.0									
				SPT 6, 6, 7 N=13	SPT							
			13.0									
								END OF BOREHOLE AT 10.45 m Target depth achieved				
			12.5									
			12.0									
			11.5									

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This Borehole log should be read in conjunction with WSP's accompanying standard notes.

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BOREHOLE NO.

BOREHOLE ENGINEERING LOG

B17-68389

SHEET : 1 OF 3

Client:	**VicRoads**	Date Commenced:	**30/8/17**
Project:	**Mordialloc Bypass**	Date Completed:	**30/8/17**
Borehole Location:	**Dingley Village**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**TS**

Drill Model/Mounting:	**Comacchio Geo 305/ Track**	Hole Angle:	**-90°**	Surface RL:	**26.30 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 334597.048 N 5796414.37 MGA94 55**

Borehole Information

METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE
HA	Nil		26.0	0.20		ES
				0.5		ES
		30/08/17	25.5			
				1.0		ES
AS				1.10	SPT 2, 3, 3 N=6	SPT
			25.0			
				1.5		
			24.5	1.80		
				2.0		
			24.0			
				2.5		
					SPT 8, 13, 17 N=30	SPT
			23.5			
				3.0		
			23.0			
				3.5		
			22.5			

Field Material Description

GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS FB, S VL, F L, ST MD, VST D, H VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
		FILL: Sandy GRAVEL; fine to coarse grained, grey brown, fine to medium grained sand.	M			FILL
	SP	SAND; fine grained, grey, with organic odour.				QUATERNARY SANDS QUATERNARY ALLUVIUM PID_0.2m = 0.1 ppm
		becoming pale grey				PID_0.5m = 0.5 ppm
		becoming brown	W			PID_1.0m = =0.0 ppm
	CI / CH	Sandy CLAY; medium to high plasticity, grey, orange - brown, red brown, with fine to medium grained sand.	M			TERTIARY BRIGHTON GROUP (RED BLUFF FORMATION)
	SC	Clayey SAND; fine to medium grained, orange brown, red brown, pale grey, low plasticity clay.				
	SP	SAND; fine grained, orange, brown, pale brown.				

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This Borehole log should be read in conjunction with WSP's accompanying standard notes.

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BOREHOLE NO.

BOREHOLE ENGINEERING LOG

B17-68389

SHEET : 2 OF 3

Client:	**VicRoads**	Date Commenced:	**30/8/17**
Project:	**Mordialloc Bypass**	Date Completed:	**30/8/17**
Borehole Location:	**Dingley Village**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**TS**

Drill Model/Mounting:	**Comacchio Geo 305/ Track**	Hole Angle:	**-90°**	Surface RL:	**26.30 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 334597.048 N 5796414.37 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS FB, S VL, F L, ST MD, VST D, H VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
AS	Nil		22.0	4.5	SPT 14, 20/100mm HB N=R	SPT		SP	SAND; fine grained, orange, brown, pale brown.	M			
			21.5	5.0						W			
			21.0	5.5	SPT 21, 10/40mm HB N=R	SPT							
			20.5	6.0									
			20.0	6.5									
			19.5	7.0									
			19.0	7.5	SPT 5, 14, 24 N=38	SPT			becoming pale brown, grey				
			18.5										

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This Borehole log should be read in conjunction with WSP's accompanying standard notes.

WSP Australia Pty Ltd. V00 8.30.002 PB_LIB_7.5_WN_NEW_LOGO.GLB Log PB NON-CORED LOG SITE 26 - MORDIALLOC LOGS.GPJ <<DrawingFile>> 10/11/2017 14:02 Developed by Datgel Pty Ltd

BOREHOLE ENGINEERING LOG

BOREHOLE NO. **B17-68389**

SHEET : 3 OF 3

Client:	**VicRoads**	Date Commenced:	**30/8/17**
Project:	**Mordialloc Bypass**	Date Completed:	**30/8/17**
Borehole Location:	**Dingley Village**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**TS**

Drill Model/Mounting:	**Comacchio Geo 305/ Track**	Hole Angle:	**-90°**	Surface RL:	**26.30 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 334597.048 N 5796414.37 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (FB VS VL S F L ST MD VST D VD H)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
AS	Nil		18.0	8.5	SPT 6, 11, 11 N=22	SPT		SP	SAND; fine grained, orange, brown, pale brown.	W			
			17.5	8.80				SP	SAND; fine to medium grained, dark brown, trace of sandy clay pockets.	W			TERTIARY GELLIBRAND MARL (FORMERLY FYANSFORD FORMATION)
			17.0	9.0									
			16.5	9.5									
			16.0	10.0	SPT 13, 17, 21 N=38	SPT			END OF BOREHOLE AT 10.45 m Target depth achieved				
			15.5										
			15.0										
			14.5										

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This Borehole log should be read in conjunction with WSP's accompanying standard notes.

WSP Australia Pty Ltd. V00 8.30.002 PB_LIB_7.5_WN_NEW_LOGO.GLB Log PB NON-CORED LOG SITE 26 - MORDIALLOC LOGS.GPJ <<DrawingFile>> 10/11/2017 14:02 Developed by Datgel Pty Ltd

BOREHOLE ENGINEERING LOG

BOREHOLE NO.

B17-68391

SHEET : 1 OF 6

Client:	**VicRoads**	Date Commenced:	**28/8/17**
Project:	**Mordialloc Bypass**	Date Completed:	**29/8/17**
Borehole Location:	**Dingley Village**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**TS**

Drill Model/Mounting:	**Comacchio Geo 305/ Track**	Hole Angle:	**-90°**	Surface RL:	**28.34 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 334630.23 N 5796527.77 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS FB, S VL, F L, ST MD, VST D, H VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
AS	Nil		28.34	0.00					FILL: Sandy GRAVEL; fine to coarse grained, grey, fine to coarse grained sand.	D			FILL
			28.24	0.10					SAND: fine grained, dark grey.	M			QUATERNARY ALLUVIUM
			28.0	0.5		ES			becoming pale brown				PID_0.5m = 2.6ppm
			27.64	0.70				MH	SILT; high plasticity, orange-brown, grey, red-brown, trace fine to medium grained gravel.	M			TERTIARY BRIGHTON GROUP (RED BLUFF FORMATION)
			27.5	1.0		ES U63							PID_1.0m = 1.5ppm
			27.0	1.5		ES			becoming red brown, pale grey, trace fine grained sand			>600	PID_1.5m = 2.2ppm
			26.04	2.30				CI	CLAY; medium plasticity, orange brown, grey, red-brown, trace fine to medium grained gravel.				
			26.0	2.5	SPT 14/100mm HB N=R	SPT			with fine to medium grained sand				
			25.34	3.00				SC	Clayey SAND; fine to medium grained, orange brown, medium plasticity clay.				
			25.0	3.5									
			24.5										

This Borehole log should be read in conjunction with WSP's accompanying standard notes.

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WSP Australia Pty Ltd. V00 8.30.002 PB_LIB_7.5_WN_NEW_LOGO.GLB Log PB NON-CORED LOG SITE 26 - MORDIALLOC LOGS.GPJ <<DrawingFile>> 10/11/2017 14:02 Developed by Datgel Pty Ltd

BOREHOLE NO.

BOREHOLE ENGINEERING LOG

B17-68391

SHEET : 2 OF 6

Client:	**VicRoads**	Date Commenced:	**28/8/17**
Project:	**Mordialloc Bypass**	Date Completed:	**29/8/17**
Borehole Location:	**Dingley Village**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**TS**

Drill Model/Mounting:	**Comacchio Geo 305/ Track**	Hole Angle:	**-90°**	Surface RL:	**28.34 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 334630.23 N 5796527.77 MGA94 55**

Borehole Information | **Field Material Description**

METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
WB	Nil	28/08/17	4.10					SC		M			
			24.0	4.5	SPT 14, 24, 31 N=55	SPT		SC	Clayey SAND; fine to coarse grained, pale brown, orange-brown, low plasticity clay.				
			23.5	5.0									
			23.0	5.5	SPT 16, 27, 32 N=59	SPT			becoming red brown, orange brown, pale brown				
			22.5	6.0									
			22.0	6.5									
			21.5	7.0	SPT 12, 17, 25 N=42	SPT			becoming pale brown	W			
			21.0	7.5									
			20.5										

DRAFT

This Borehole log should be read in conjunction with WSP's accompanying standard notes.

WSP Australia Pty Ltd. V00 8.30.002 PB_LIB_7.5_WN_NEW_LOGO.GLB Log PB NON-CORED LOG SITE 26 - MORDIALLOC LOGS.GPJ <<DrawingFile>> 10/11/2017 14:02 Developed by Datgel Pty Ltd

BOREHOLE NO.

BOREHOLE ENGINEERING LOG

B17-68391

SHEET : 3 OF 6

Client:	**VicRoads**	Date Commenced:	**28/8/17**
Project:	**Mordialloc Bypass**	Date Completed:	**29/8/17**
Borehole Location:	**Dingley Village**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**TS**

Drill Model/Mounting:	**Comacchio Geo 305/ Track**	Hole Angle:	**-90°**	Surface RL:	**28.34 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 334630.23 N 5796527.77 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS FB, S VL, F L, ST MD, VST D, H VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
WB	Nil		20.0	8.5	SPT 10, 9, 12 N=21	SPT		SC	Clayey SAND; fine to coarse grained, pale brown, orange-brown, low plasticity clay.	W			
									becoming coarse grained sand				
				8.60				SM	Silty SAND; fine grained, dark brown. low plasticity silt.				
			19.5	9.0									
			19.0	9.5									
			18.5	10.0	SPT 6, 20, 7/30mm HB N=R	SPT			becoming fine to medium grained				
			18.0	10.5									
			17.5	11.0									
			17.0	11.5	SPT 10/50mm HB N=R								
			16.5										

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This Borehole log should be read in conjunction with WSP's accompanying standard notes.

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BOREHOLE NO.

BOREHOLE ENGINEERING LOG

B17-68391

SHEET : 4 OF 6

Client:	**VicRoads**	Date Commenced:	**28/8/17**
Project:	**Mordialloc Bypass**	Date Completed:	**29/8/17**
Borehole Location:	**Dingley Village**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**TS**

Drill Model/Mounting:	**Comacchio Geo 305/ Track**	Hole Angle:	**-90°**	Surface RL:	**28.34 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 334630.23 N 5796527.77 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS FB, S VL, F L, ST MD, VST D, H VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
WB	Nil		16.0	12.5				SM	Silty SAND; fine grained, dark brown. low plasticity silt.	M			
			15.5	13.0	SPT 18, 12, 11 N=23	SPT		CI	Sandy CLAY; medium plasticity, dark grey brown, with fine grained sand.	MC>PL			
			15.0	13.5									
			14.5	14.0				CI	Silty CLAY; medium plasticity, dark grey-brown, with some bands of clayey sand.				
			14.0	14.5	SPT 0, 2, 3 N=5	SPT							
			13.5	15.0									
			13.0	15.5									
			12.5		SPT 2, 3, 3 N=6	SPT			trace of gravel				

DRAFT

This Borehole log should be read in conjunction with WSP's accompanying standard notes.

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BOREHOLE ENGINEERING LOG

BOREHOLE NO. **B17-68391**

SHEET : 5 OF 6

Client:	**VicRoads**	Date Commenced:	**28/8/17**
Project:	**Mordialloc Bypass**	Date Completed:	**29/8/17**
Borehole Location:	**Dingley Village**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**TS**

Drill Model/Mounting:	**Comacchio Geo 305/ Track**	Hole Angle:	**-90°**	Surface RL:	**28.34 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 334630.23 N 5796527.77 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
WB	Nil		12.0	16.5	SPT 2, 3, 3 N=6	SPT		CI	Silty CLAY; medium plasticity, dark grey-brown, with some bands of clayey sand.	MC>PL			
			11.5	17.0				SM	Silty SAND; fine to coarse grained, dark grey - brown.	M			
			11.0	17.5	SPT 5, 9, 6 N=15	SPT							
			10.5	18.0									
			10.0	18.5									
			9.5	18.80				CI	Silty CLAY; medium plasticity, pale grey-white, greenish grey, with fine to coarse grained sand.	MC>PL			TERTIARY GELLIBRAND MARL (FORMERLY FYANSFORD FORMATION)
			9.0	19.0	SPT 0, 1, 2 N=3	SPT							
			8.5	19.5									

DRAFT

This Borehole log should be read in conjunction with WSP's accompanying standard notes.

WSP Australia Pty Ltd. V00 8.30.002 PB_LIB_7.5_WN_NEW_LOGO.GLB Log PB NON-CORED LOG SITE 26 - MORDIALLOC LOGS.GPJ <<DrawingFile>> 10/11/2017 14:02 Developed by Datgel Pty Ltd

BOREHOLE ENGINEERING LOG

BOREHOLE NO. **B17-68391**

Client:	**VicRoads**	Date Commenced:	**28/8/17**
Project:	**Mordialloc Bypass**	Date Completed:	**29/8/17**
Borehole Location:	**Dingley Village**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**TS**

Drill Model/Mounting:	**Comacchio Geo 305/ Track**	Hole Angle:	**-90°**	Surface RL:	**28.34 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 334630.23 N 5796527.77 MGA94 55**

Borehole Information							Field Material Description					
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
WB	Nil		8.0	20.5		U63		Cl	Silty CLAY; medium plasticity, pale grey-white, greenish grey, with fine to coarse grained sand.	M			
									becoming dark green-grey, mottled orange brown			150 - 300	
			7.5	21.0									
			7.0	21.5									
			6.5	22.0	SPT 2, 5, 7 N=12	SPT			with fine grained sand, trace of fine grained gravel				
			6.0	22.5									
			5.5	23.0									
			5.0	23.5	SPT 1, 2, 3 N=5	SPT			with bands of fine to medium grained sand				
			4.5						END OF BOREHOLE AT 23.75 m Target depth achieved				

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This Borehole log should be read in conjunction with WSP's accompanying standard notes.

WSP Australia Pty Ltd. V00 8.30.002 PB_LIB_7.5_WN_NEW_LOGO.GLB Log PB NON-CORED LOG SITE 26 - MORDIALLOC LOGS.GPJ <<DrawingFile>> 10/11/2017 14:02 Developed by Datgel Pty Ltd

BOREHOLE NO.

BOREHOLE ENGINEERING LOG

B17-68395

SHEET : 1 OF 6

Client:	**VicRoads**	Date Commenced:	**22/8/17**
Project:	**Mordialloc Bypass**	Date Completed:	**23/8/17**
Borehole Location:	**Dingley Village**	Recorded By:	**AH**
Project Number:	**2135645A**	Log Checked By:	**TS**

Drill Model/Mounting:	**Comacchio Geo 305/ Track**	Hole Angle:	**-90°**	Surface RL:	**26.18 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 334682.436 N 5796739.91 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS FB, S VL, F L, ST MD, VST D, H VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
AS	Nil		26.0	0.5		ES			FILL: Silty SAND; fine to coarse grained, grey.	M			FILL PID = 0.0 ppm
			25.5	1.0		ES			FILL: Sandy CLAY; high plasticity, pale grey-dark yellow, fine to coarse grained sand.				PID = 0.0 ppm
			25.0	1.5	SPT 5, 5, 5 N=10	SPT		SC	Sandy CLAY; medium to high plasticity, orange brown, grey, fine grained sand.	M			TERTIARY BRIGHTON GROUP (RED BLUFF FORMATION)
			24.5	2.0									
			24.0	2.5									
			23.5	2.80	SPT 7, 14, 18 N=32	SPT		SP	SAND; fine grained, pale grey, orange brown.				
			23.0	3.0									
			22.5	3.5						W			
		22/08/17											

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This Borehole log should be read in conjunction with WSP's accompanying standard notes.

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BOREHOLE ENGINEERING LOG

BOREHOLE NO. **B17-68395**

SHEET : 2 OF 6

Client:	**VicRoads**	Date Commenced:	**22/8/17**
Project:	**Mordialloc Bypass**	Date Completed:	**23/8/17**
Borehole Location:	**Dingley Village**	Recorded By:	**AH**
Project Number:	**2135645A**	Log Checked By:	**TS**

Drill Model/Mounting:	**Comacchio Geo 305/ Track**	Hole Angle:	**-90°**	Surface RL:	**26.18 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 334682.436 N 5796739.91 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
AS	Nil		22.0	4.00	SPT 2, 3, 4 N=7	SPT		CH	Silty CLAY; high plasticity, pale grey, orange brown, with lenses of fine grained sand.	MC=PL	VS FB S VL F L ST MD VST D H VD		
			21.5	4.5									
			21.0	5.0				SP	SAND; fine grained, grey.	W			
			20.5	5.5	SPT 13, 20, 11/60mm HB N=R	SPT							
			20.0	6.0									
			19.5	6.5									
WB			19.0	7.0	SPT 10, 12/80mm HB N=R	SPT			becoming brown-grey, fine to coarse grained sand				
			18.5	7.5									

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This Borehole log should be read in conjunction with WSP's accompanying standard notes.

WSP Australia Pty Ltd. V00 8.30.002 PB_LIB_7.5_WN_NEW_LOGO.GLB Log PB NON-CORED LOG SITE 26 - MORDIALLOC LOGS.GPJ <<DrawingFile>> 10/11/2017 14:02 Developed by Datgel Pty Ltd

BOREHOLE NO.

BOREHOLE ENGINEERING LOG

B17-68395

SHEET : 3 OF 6

Client:	**VicRoads**	Date Commenced:	**22/8/17**
Project:	**Mordialloc Bypass**	Date Completed:	**23/8/17**
Borehole Location:	**Dingley Village**	Recorded By:	**AH**
Project Number:	**2135645A**	Log Checked By:	**TS**

Drill Model/Mounting:	**Comacchio Geo 305/ Track**	Hole Angle:	**-90°**	Surface RL:	**26.18 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 334682.436 N 5796739.91 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS FB, S VL, F L, ST MD, VST D, H VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
WB	Nil		18.0					SP	SAND; fine grained, grey.	W			
				8.5					with trace of sandy clay lenses				
			17.5		SPT 10, 16, 13 N=29	SPT							
				9.0									
			17.0										
				9.5									
			16.5										
				10.0									SPT not undertaken test due to cave in
			16.0										
				10.5									
			15.5										
				11.0				SC	Clayey Silty SAND; fine grained, dark grey, low plasticity clay clay.	W			
			15.0										
				11.5	SPT 3, 4, 5 N=9	SPT							
			14.5										

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This Borehole log should be read in conjunction with WSP's accompanying standard notes.

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BOREHOLE ENGINEERING LOG

BOREHOLE NO. **B17-68395**

Client:	**VicRoads**	Date Commenced:	**22/8/17**
Project:	**Mordialloc Bypass**	Date Completed:	**23/8/17**
Borehole Location:	**Dingley Village**	Recorded By:	**AH**
Project Number:	**2135645A**	Log Checked By:	**TS**

Drill Model/Mounting:	**Comacchio Geo 305/ Track**	Hole Angle:	**-90°**	Surface RL:	**26.18 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 334682.436 N 5796739.91 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS FB, S VL, F L, ST MD, VST D, H VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
WB	Nil		14.0					SC	Clayey Silty SAND; fine grained, dark grey, low plasticity clay clay. becoming dark grey-brown some fine to coarse grained sand bands	W			
			13.5	12.5									
			13.0	13.0	SPT 5, 6, 3 N=9	SPT							
			12.5	13.5									
			12.0	14.0									
			11.5	14.5	SPT 6, 4, 4 N=8	SPT							
			11.0	15.0									
			10.5	15.5				SM	Silty SAND; fine grained, dark greenish grey.				TERTIARY BRIGHTON GROUP (BEAUMARIS SANDSTONE)
					SPT 4, 6, 4 N=10	SPT							

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This Borehole log should be read in conjunction with WSP's accompanying standard notes.

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BOREHOLE ENGINEERING LOG

BOREHOLE NO.

B17-68395

Client:	**VicRoads**	Date Commenced:	**22/8/17**
Project:	**Mordialloc Bypass**	Date Completed:	**23/8/17**
Borehole Location:	**Dingley Village**	Recorded By:	**AH**
Project Number:	**2135645A**	Log Checked By:	**TS**

Drill Model/Mounting:	**Comacchio Geo 305/ Track**	Hole Angle:	**-90°**	Surface RL:	**26.18 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 334682.436 N 5796739.91 MGA94 55**

Borehole Information | **Field Material Description**

METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS FB, S VL, F L, ST MD, VST D, H VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
WB	Nil		10.0	16.5	SPT 4, 6, 4 N=10	SPT		SM	Silty SAND; fine grained, dark greenish grey.	W			
			9.5	17.0									
			9.0	17.5	SPT 3, 1, 4 N=5	SPT							Sample in SPT spoon appear to be caved in material.
			8.5	18.0									
			8.0	18.5									
			7.5	18.90				CI	Silty CLAY; medium plasticity, brown-grey.	M			
			7.0	19.0	SPT 1, 2, 1 N=3	SPT							
			6.5	19.5									

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BOREHOLE ENGINEERING LOG

BOREHOLE NO. **B17-68395**

SHEET : 6 OF 6

Client:	**VicRoads**	Date Commenced:	**22/8/17**
Project:	**Mordialloc Bypass**	Date Completed:	**23/8/17**
Borehole Location:	**Dingley Village**	Recorded By:	**AH**
Project Number:	**2135645A**	Log Checked By:	**TS**

Drill Model/Mounting:	**Comacchio Geo 305/ Track**	Hole Angle:	**-90°**	Surface RL:	**26.18 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 334682.436 N 5796739.91 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
WB	Nil		6.0	20				CI	Silty CLAY; medium plasticity, brown-grey.	M			
				20.5	SPT 1, 2, 10 N=12	SPT		SC	Silty Clayey SAND; fine grained, green-brown.				TERTIARY GELLIBRAND MARL (FORMERLY FYANSFORD FORMATION)
			5.5										
				21.0									
			5.0										
				21.5									
				21.60				CI	Sandy CLAY; medium plasticity, brown grey, fine to medium grained sand.				
			4.5										
				22.0	SPT 1, 1, 5 N=6	SPT			becoming dark grey				
			4.0										
				22.5									
			3.5										
				23.0									
			3.0										
				23.5	SPT 4, 6, 9 N=15	SPT							
			2.5						END OF BOREHOLE AT 23.75 m Target depth achieved				

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This Borehole log should be read in conjunction with WSP's accompanying standard notes.

WSP Australia Pty Ltd. V00 8.30.002 PB_LIB_7.5_WN_NEW_LOGO.GLB Log PB NON-CORED LOG SITE 26 - MORDIALLOC LOGS.GPJ <<DrawingFile>> 10/11/2017 14:03 Developed by Datgel Pty Ltd

BOREHOLE ENGINEERING LOG

BOREHOLE NO. **B17-68396**

SHEET : 1 OF 4

Client:	**VicRoads**	Date Commenced:	**21/8/17**
Project:	**Mordialloc Bypass**	Date Completed:	**21/8/17**
Borehole Location:	**Dingley Village**	Recorded By:	**PP**
Project Number:	**2135645A**	Log Checked By:	**TS**

Drill Model/Mounting:	**Comacchio Geo 305/**	Hole Angle:	**-90°**	Surface RL:	**28.56 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 334689.137 N 5796777.21 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD) / DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (FB VS, VL S, L F, MD ST, D VST, VD H)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
AS	Nil		28.5 / 0.00		ES			FILL: SAND; fine to coarse grained, grey.	D - M			FILL PID=0.0ppm
			0.40					FILL: Clayey SAND; fine to coarse grained, pale grey mottled yellow, high plasticity clay.	M			
			28.0 / 0.5		ES							PID=0.0ppm
					ES							
			27.5 / 1.0	SPT 1, 2, 2 N=4	SPT							PID=0.0ppm
			1.5 / 27.0					FILL: CLAY; high plasticity, dark grey, with orange and pale grey, with sandy zones.	MC>PL			
					ES							PID=0.0ppm
			26.5 / 2.0									
			2.20		U63			FILL: Sandy CLAY; high plasticity, brown pale grey and dark grey, fine to coarse grained sand, trace brick pieces.	MC>PL			
					ES						120	
			2.5 / 26.0									PID=0.0ppm
			2.60	SPT 3, 3, 2 N=5	SPT		SC	Clayey SAND; fine to coarse grained, grey-brown, medium plasticity clay.	M			INFERRED QUATERNARY ALLUVIUM
			3.0 / 25.5									
					ES							PID=0.0ppm
			3.5 / 25.0									
			3.60				SC	Clayey SAND; fine to coarse grained, pale grey, dark yellow, medium plasticity clay.				TERTIARY BRIGHTON GROUP (RED BLUFF FORMATION)

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This Borehole log should be read in conjunction with WSP's accompanying standard notes.

WSP Australia Pty Ltd. V00 8.30.002 PB_LIB_7.5_WN_NEW_LOGO.GLB Log PB NON-CORED LOG SITE 26 - MORDIALLOC LOGS.GPJ <<DrawingFile>> 10/11/2017 14:03 Developed by Datgel Pty Ltd

BOREHOLE NO.

BOREHOLE ENGINEERING LOG

B17-68396

SHEET : 2 OF 4

Client:	**VicRoads**	Date Commenced:	**21/8/17**
Project:	**Mordialloc Bypass**	Date Completed:	**21/8/17**
Borehole Location:	**Dingley Village**	Recorded By:	**PP**
Project Number:	**2135645A**	Log Checked By:	**TS**

Drill Model/Mounting:	**Comacchio Geo 305/**	Hole Angle:	**-90°**	Surface RL:	**28.56 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 334689.137 N 5796777.21 MGA94 55**

Borehole Information							Field Material Description					
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS FB, S VL, F L, ST MD, VST D, H VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
AS	Nil		24.5	4.00	SPT 3, 4, 7 N=11	SPT		SC	Clayey SAND; fine to coarse grained, pale grey, medium plasticity clay.	M			
			24.0	4.5									
			23.5	5.0									
			23.0	5.5	SPT 3, 5, 9 N=14	SPT		CH	Sandy CLAY; high plasticity, pale grey, mottled yellow, fine grained sand.	MC>PL			
			22.5	6.0		U63			becoming fine to coarse grained sand			>600	
		21/08/17	22.0	6.5									
			21.5	6.80	SPT 9, 12, 14 N=26	SPT		SM	Silty SAND; fine to coarse grained, pale grey.				
			21.0	7.0									
				7.5									

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This Borehole log should be read in conjunction with WSP's accompanying standard notes.

WSP Australia Pty Ltd. V00 8.30.002 PB_LIB_7.5_WN_NEW_LOGO.GLB Log PB NON-CORED LOG SITE 26 - MORDIALLOC LOGS.GPJ <<DrawingFile>> 10/11/2017 14:03 Developed by Datgel Pty Ltd

BOREHOLE NO.

BOREHOLE ENGINEERING LOG

B17-68396

SHEET : 3 OF 4

Client:	**VicRoads**	Date Commenced:	**21/8/17**
Project:	**Mordialloc Bypass**	Date Completed:	**21/8/17**
Borehole Location:	**Dingley Village**	Recorded By:	**PP**
Project Number:	**2135645A**	Log Checked By:	**TS**

Drill Model/Mounting:	**Comacchio Geo 305/**	Hole Angle:	**-90°**	Surface RL:	**28.56 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 334689.137 N 5796777.21 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS FB, S VL, F L, ST MD, VST D, H VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
AS	Nil		20.5					SM	Silty SAND; fine to coarse grained, pale grey. becoming dark grey-brown	M			
				8.5									
			20.0		SPT 6, 24, 26/130mm HB N=R	SPT							
				9.0									
			19.5										
				9.5									
			19.0										
				10.0				SP	SAND; fine to coarse grained, grey-brown, trace fine grained rounded quartz gravel.				
			18.5		SPT 20, 30/110mm N=R	SPT							
				10.5					becoming gravelly				
			18.0										
				11.0				CL	Silty sandy CLAY; low plasticity, dark grey-brown, fine to medium grained sand, with lenses of clayey sand.	MC>PL			TERTIARY BRIGHTON GROUP (BEAUMARIS SANDSTONE)
			17.5										
				11.5									
			17.0		SPT 7, 7, 5 N=12	SPT							

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This Borehole log should be read in conjunction with WSP's accompanying standard notes.

WSP Australia Pty Ltd. V00 8.30.002 PB_LIB_7.5_WN_NEW_LOGO.GLB Log PB NON-CORED LOG SITE 26 - MORDIALLOC LOGS.GPJ <<DrawingFile>> 10/11/2017 14:03 Developed by Datgel Pty Ltd

BOREHOLE ENGINEERING LOG

BOREHOLE NO. **B17-68396**

Client:	**VicRoads**	Date Commenced:	**21/8/17**
Project:	**Mordialloc Bypass**	Date Completed:	**21/8/17**
Borehole Location:	**Dingley Village**	Recorded By:	**PP**
Project Number:	**2135645A**	Log Checked By:	**TS**

Drill Model/Mounting:	**Comacchio Geo 305/**	Hole Angle:	**-90°**	Surface RL:	**28.56 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 334689.137 N 5796777.21 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
AS	Nil		16.5					CL	Silty sandy CLAY; low plasticity, dark grey-brown, fine to medium grained sand, with lenses of clayey sand.	M			TERTIARY BRIGHTON GROUP (BEAUMARIS SANDSTONE)
			16.0	12.5					Clayey silty SAND; fine grained, low plasticity fines, dark grey, with bands of silty sandy CLAY.				TERTIARY GELLIBRAND MARL (FORMERLY FYANSFORD FORMATION)
			15.5	13.0	SPT 5, 9, 8 N=17	SPT							
			15.0	13.5									
			14.5	14.0									
			14.0	14.5	SPT 4, 6, 6 N=12	SPT							
			13.5						END OF BOREHOLE AT 14.95 m Target depth achieved				
			13.0										

12.60

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This Borehole log should be read in conjunction with WSP's accompanying standard notes.

WSP Australia Pty Ltd. V00 8.30.002 PB_LIB_7.5_WN_NEW_LOGO.GLB Log PB NON-CORED LOG SITE 26 - MORDIALLOC LOGS.GPJ <<DrawingFile>> 10/11/2017 14:03 Developed by Datgel Pty Ltd

BOREHOLE ENGINEERING LOG

BOREHOLE NO. **B17-68417**

Client:	**VicRoads**	Date Commenced:	**6/10/17**
Project:	**Mordialloc Bypass**	Date Completed:	**6/10/17**
Borehole Location:	**Dingley Village**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**JC**

Drill Model/Mounting:	**Comacchio Geo 205/ Track**	Hole Angle:	**-90°**	Surface RL:	**29.19 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 334630.237 N 5796561.03 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
AS			29.0	0.30					FILL: Sandy GRAVEL; fine to medium grained, brown-grey, some brick.	D			FILL
						ES		SP	SAND; fine grained, dark brown, trace fine grained gravel.	M			QUATERNARY ALLUVIUM
				0.5					trace hydrocarbon odour				PID_0.4m = 6.3ppm
			28.5			ES			becoming brown				PID_0.9m = 2.0ppm
				1.0				SP	SAND; fine grained, yellow brown, brown, trace fine to coarse grained ferruginous gravel.	M			TERTIARY BRIGHTON GROUP (RED BLUFF FORMATION)
			28.0		SPT 1, 2, 4 N=6	SPT							
				1.5									
			27.5										
				2.0				CL-CI	Silty CLAY; low to medium plasticity, orange-brown, red-brown, grey, some fine to medium grained sand.	M			
			27.0										
				2.40				SP	SAND; fine to medium grained, orange - brown, red-brown, some medium plasticity clay.	M			
				2.5	SPT 10/50mm HB N=R	SPT							
			26.5						layers of fine to coarse grained ferruginous gravel				difficult to auger from 2.8m
				3.0									
			26.0										
				3.5									
			25.5										
				3.80				SP	SAND; fine grained, orange - brown, grey.	M / W			

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This Borehole log should be read in conjunction with WSP's accompanying standard notes.

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BOREHOLE ENGINEERING LOG

BOREHOLE NO.

B17-68417

Client:	**VicRoads**	Date Commenced:	**6/10/17**
Project:	**Mordialloc Bypass**	Date Completed:	**6/10/17**
Borehole Location:	**Dingley Village**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**JC**

Drill Model/Mounting:	**Comacchio Geo 205/ Track**	Hole Angle:	**-90°**	Surface RL:	**29.19 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 334630.237 N 5796561.03 MGA94 55**

Borehole Information | **Field Material Description**

METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS FB, S VL, F L, ST MD, VST D, H VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
AS			25.0	4.5	SPT 22, 10/50mm HB N=R	SPT		SP	SAND; fine grained, orange - brown, grey.	M / W			
			24.5						becoming fine to medium grained sand				
			24.0	5.0					becoming fine grained sand, yellow-brown				
			23.5	5.5	SPT 18, 24, 28 N=52	SPT				W			
			23.0	6.0									
			22.5	6.5									
			22.0	7.0	SPT 7, 12, 15 N=27	SPT			becoming pale brown, grey, yellow-brown				
			21.5	7.5									

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This Borehole log should be read in conjunction with WSP's accompanying standard notes.

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BOREHOLE NO.

BOREHOLE ENGINEERING LOG

B17-68417

SHEET : 3 OF 3

Client:	**VicRoads**	Date Commenced:	**6/10/17**
Project:	**Mordialloc Bypass**	Date Completed:	**6/10/17**
Borehole Location:	**Dingley Village**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**JC**

Drill Model/Mounting:	**Comacchio Geo 205/ Track**	Hole Angle:	**-90°**	Surface RL:	**29.19 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 334630.237 N 5796561.03 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD) / DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
AS			8.00 (21.0)				SP	SAND; fine grained, pale brown, grey, yellow brown	W			
			8.5 (20.5)	SPT 16, 32/150mm HB N=R	SPT			becoming pale, brown, grey, trace of organic odour				
			9.0 (20.0)									
			9.5 (19.5)									
			10.0 (19.0)	SPT 19, 15/40mm HB N=R	SPT			END OF BOREHOLE AT 10.19 m Target depth achieved				
			(18.5)									
			(18.0)									
			(17.5)									

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BOREHOLE NO.

BOREHOLE ENGINEERING LOG

B17-68418

SHEET : 1 OF 5

Client:	**VicRoads**	Date Commenced:	**4/10/17**
Project:	**Mordialloc Bypass**	Date Completed:	**4/10/17**
Borehole Location:	**Dingley Village**	Recorded By:	**PP**
Project Number:	**2135645A**	Log Checked By:	**JC**

Drill Model/Mounting:	**Comacchio Geo 205/ Track**	Hole Angle:	**-90°**	Surface RL:	**29.33 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 334622.565 N 5796588.32 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADV	C		29.33	0.00					FILL: Sandy GRAVEL; fine grained, angular, basalt, grey, with fine to coarse grained sand.	D			FILL
			29.0	0.15					FILL: Sandy CLAY; low plasticity, pale brown, fine angular gravel, brick pieces, wood fragments, porcelian.	M			FILL - CAPPING LAYER
			28.5	0.5		ES							PID_0.7m = 0.9ppm
				1.0	SPT 6, 9, 18 N=27	SPT			0.8m to 1.1m: band of fine to coarse grained clayey sand, dark grey, high organic content, with roots, with wood fragments				
			28.0	1.40					FILL: Silty SAND; fine to coarse grained, pale grey, with fine grained, angular basalt gravel.	D - M			FILL High resistance drilling
			27.5	1.5									
			27.0	2.00					LANDFILL WASTE: Clayey SAND/mixed material/Sandy CLAY ; low plasticity clay, dark grey, fine to coarse grained sand, with wood fragments, domestic refuse including brick pieces, porcelain, plastic, metal strips, rubber straps, comprises about 20% waste mass	M			
				2.5	SPT 13/30mm HB N=R	SPT				W			No sample recovery in SPT RR refused change to HQ, very high resistance drilling 2.7-3.2m. probable metal.
			26.5	3.0									Hard and soft bands 3.2 - 4.5m
			26.0	3.5									
			25.5										

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BOREHOLE ENGINEERING LOG

BOREHOLE NO. **B17-68418**

Client:	**VicRoads**	Date Commenced:	**4/10/17**
Project:	**Mordialloc Bypass**	Date Completed:	**4/10/17**
Borehole Location:	**Dingley Village**	Recorded By:	**PP**
Project Number:	**2135645A**	Log Checked By:	**JC**

Drill Model/Mounting:	**Comacchio Geo 205/ Track**	Hole Angle:	**-90°**	Surface RL:	**29.33 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 334622.565 N 5796588.32 MGA94 55**

Borehole Information | **Field Material Description**

METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADV	C		25.0	4.5					LANDFILL WASTE: Clayey SAND/mixed material/Sandy CLAY ; low plasticity clay, dark grey, fine to coarse grained sand, with wood fragments, domestic refuse including brick pieces, porcelain, plastic, metal strips, rubber straps, comprises about 20% waste mass becoming very soft/wet with pieces of rubber hose, cloth, metal	W			
			24.5	5.0									
			24.0	5.5									BH collapse at 5.5m to 4.0m
WB			23.5	6.0	SPT 4, 3, 3 N=6								hard bands between 6.0 - 6.5m
			23.0	6.5					FILL: Silty Clayey SAND, fine to medium grained, dark grey, black, trace shells.	W			
			22.5	7.0									low resistance drilling 7.0 - 8.0m, no rubbish
			22.0	7.5	SPT 1, 2, 2 N=4	SPT							
			21.5										

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BOREHOLE NO.

BOREHOLE ENGINEERING LOG

B17-68418

SHEET : 3 OF 5

Client:	**VicRoads**	Date Commenced:	**4/10/17**
Project:	**Mordialloc Bypass**	Date Completed:	**4/10/17**
Borehole Location:	**Dingley Village**	Recorded By:	**PP**
Project Number:	**2135645A**	Log Checked By:	**JC**

Drill Model/Mounting:	**Comacchio Geo 205/ Track**	Hole Angle:	**-90°**	Surface RL:	**29.33 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 334622.565 N 5796588.32 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
WB	C		8.00					SW	SAND; fine to coarse grained, grey.	M			TERTIARY BRIGHTON GROUP (RED BLUFF FORMATION)
									becoming pale grey				
			21.0	8.5	SPT 11, 40/160mm HB N=R	SPT							
			20.5	9.0									
			20.0	9.5									
			19.5	10.0									BH collapse at 10.0m
			19.0	10.5									
			18.5	11.0	SPT 5, 20, 28 N=48	SPT							
			18.0	11.5									
			17.5										

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BOREHOLE NO.

BOREHOLE ENGINEERING LOG

B17-68418

SHEET : 4 OF 5

Client:	**VicRoads**	Date Commenced:	**4/10/17**
Project:	**Mordialloc Bypass**	Date Completed:	**4/10/17**
Borehole Location:	**Dingley Village**	Recorded By:	**PP**
Project Number:	**2135645A**	Log Checked By:	**JC**

Drill Model/Mounting:	**Comacchio Geo 205/ Track**	Hole Angle:	**-90°**	Surface RL:	**29.33 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 334622.565 N 5796588.32 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST FB VL L MD D VD H)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
WB	C		17.0	12.5	SPT 9, 35/110mm HB N=R	SPT		SW	SAND; fine to coarse grained, grey.	M			BH collapse to 10.5m - case off
			16.5	13.0				SM	Silty Clayey SAND; fine grained, dark brown, trace organic material, low plasticity fines.	M			TERTIARY BRIGHTON GROUP (INFERRED BEAUMARIS SANDSTONE)
			16.0	13.5	SPT 7, 7, 9 N=16	SPT							
			15.5	14.0									
			15.0	14.5									
			14.5	15.0	SPT 7, 9, 8 N=17	SPT							
			14.0	15.5									
			13.5										

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BOREHOLE NO.

BOREHOLE ENGINEERING LOG

B17-68418

SHEET : 5 OF 5

Client:	**VicRoads**	Date Commenced:	**4/10/17**
Project:	**Mordialloc Bypass**	Date Completed:	**4/10/17**
Borehole Location:	**Dingley Village**	Recorded By:	**PP**
Project Number:	**2135645A**	Log Checked By:	**JC**

Drill Model/Mounting:	**Comacchio Geo 205/ Track**	Hole Angle:	**-90°**	Surface RL:	**29.33 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 334622.565 N 5796588.32 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD) / DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
WB	C		13.0				SM	Silty Clayey SAND; fine grained, dark brown, trace organic material, low plasticity fines.	M			
			16.5					END OF BOREHOLE AT 16.50 m Target depth achieved				
			12.5									
			12.0									
			11.5									
			11.0									
			10.5									
			10.0									
			9.5									

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BOREHOLE ENGINEERING LOG

BOREHOLE NO. **B17-68419**

SHEET : 1 OF 5

Client:	**VicRoads**	Date Commenced:	**12/10/17**
Project:	**Mordialloc Bypass**	Date Completed:	**12/10/17**
Borehole Location:	**Dingley Village**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**JC**

Drill Model/Mounting:	**Comacchio Geo 205/ Track**	Hole Angle:	**-90°**	Surface RL:	**30.00 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 334626.817 N 5796632.09 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
AS	Nil	NFGWE	29.85	0.15					FILL: Sandy GRAVEL; fine to coarse grained gravel, brown.	M			FILL
									FILL: Sandy CLAY; medium plasticity, brown-grey, trace fine to coarse grained gravel, brick fragments.	M			FILL - CAPPING LAYER
			29.5	0.5		ES							PID_0.7m = 0.0ppm
			29.0	1.0	SPT 7, 10, 7 N=17	SPT							
			28.5	1.5									
			28.40	1.60					FILL: Silty CLAY; medium plasticity, brown-grey, dark brown, trace fine to coarse grained gravel, trace brick fragments.	M			
			28.0	2.0									
			27.5	2.5	SPT 3, 2, 6 N=8	SPT							
WB	Nil								metals and brick				
			27.00	3.00 3.0					LANDFILL WASTE: dark grey, brown	M			FILL
			26.5	3.5									

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This Borehole log should be read in conjunction with WSP's accompanying standard notes.

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BOREHOLE NO.

BOREHOLE ENGINEERING LOG

B17-68419

SHEET : 2 OF 5

Client:	**VicRoads**	Date Commenced:	**12/10/17**
Project:	**Mordialloc Bypass**	Date Completed:	**12/10/17**
Borehole Location:	**Dingley Village**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**JC**

Drill Model/Mounting:	**Comacchio Geo 205/ Track**	Hole Angle:	**-90°**	Surface RL:	**30.00 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 334626.817 N 5796632.09 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST / FB VL L MD D VD H)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
WB	Nil	NFGWE							LANDFILL WASTE: dark grey, brown	M			
									with plastic material				
			25.5	4.5	SPT 3, 7, 7 N=14	SPT							
													No water return
			25.0	5.0									
			24.5	5.5									
									with fine to coarse grained sand and wood material				
			24.0	6.0	SPT 3, 4, 3 N=7	SPT							
			23.5	6.5									grinding through metal with washbore bit
			23.0	7.0									
				7.20					FILL: Silty CLAY; medium plasticity, pale brown, pale grey, trace fine to medium grained sand.	MC>PL			
			22.5	7.5	SPT 0, 0, 0 N=0	SPT							SPT sunk under hammer weight PID_7.4m = 0.5ppm

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BOREHOLE ENGINEERING LOG

BOREHOLE NO. **B17-68419**

Client:	**VicRoads**	Date Commenced:	**12/10/17**
Project:	**Mordialloc Bypass**	Date Completed:	**12/10/17**
Borehole Location:	**Dingley Village**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**JC**

Drill Model/Mounting:	**Comacchio Geo 205/ Track**	Hole Angle:	**-90°**	Surface RL:	**30.00 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 334626.817 N 5796632.09 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS FB, S VL, F L, ST MD, VST D, H VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
WB	Nil	NFGWE							FILL: Silty CLAY; medium plasticity, pale brown, pale grey, trace fine to medium grained sand.	MC>PL			
			8.40					SP	SAND; fine to medium grained, pale brown, grey, trace of medium to coarse grained gravel.	W			TERTIARY BRIGHTON GROUP (RED BLUFF FORMATION)
			21.5	8.5									
			21.0	9.0	SPT 1, 8, 14 N=22	SPT							
			20.5	9.5									
			20.0	10.0									
			19.5	10.5	SPT 23, 10/30mm HB N=R	SPT			becoming pale brown-white, fine grained sand				
			19.0	11.0									
			18.5	11.5									
						SPT			becoming brown, dark brown, fine to medium grained sand				

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BOREHOLE ENGINEERING LOG

BOREHOLE NO.

B17-68419

Client:	**VicRoads**	Date Commenced:	**12/10/17**
Project:	**Mordialloc Bypass**	Date Completed:	**12/10/17**
Borehole Location:	**Dingley Village**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**JC**

Drill Model/Mounting:	**Comacchio Geo 205/ Track**	Hole Angle:	**-90°**	Surface RL:	**30.00 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 334626.817 N 5796632.09 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
WB	Nil	NFGWE	17.5	12.5	SPT 24, 34/150mm HB N=R	SPT		SP	SAND; fine to medium grained, pale brown, grey, trace of medium to coarse grained gravel.	W			
			17.0	13.0									
			13.20					SC / CI	Clayey SAND / Sandy CLAY; dark brown, medium plasticity, fine grained sand.	W			INFERRED TERTIARY BRIGHTON GROUP (BEAUMARIS SANDSTONE)
			16.5	13.5	SPT 2, 1, 1 N=2	SPT							
			16.0	14.0									
			15.51	14.5				CI	Silty CLAY; medium plasticity, dark green-grey.	W			TERTIARY GELLIBRAND MARL (FORMERLY FYANSFORD FORMATION)
			15.0	15.0	SPT 3, 2, 2 N=4	SPT							
			14.5	15.5									

DRAFT

This Borehole log should be read in conjunction with WSP's accompanying standard notes.

WSP Australia Pty Ltd. V00 8.30.002 PB_LIB_7.5_WN_NEW_LOGO.GLB Log PB NON-CORED LOG SITE 26 - MORDIALLOC LOGS.GPJ <<DrawingFile>> 10/11/2017 14:03 Developed by Datgel Pty Ltd

BOREHOLE ENGINEERING LOG

BOREHOLE NO. **B17-68419**

SHEET : 5 OF 5

Client:	**VicRoads**	Date Commenced:	**12/10/17**
Project:	**Mordialloc Bypass**	Date Completed:	**12/10/17**
Borehole Location:	**Dingley Village**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**JC**

Drill Model/Mounting:	**Comacchio Geo 205/ Track**	Hole Angle:	**-90°**	Surface RL:	**30.00 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 334626.817 N 5796632.09 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST FB VL L MD D VD H)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
WB	Nil	NFGWE	13.5	16.5	SPT 1, 3, 7 N=10	SPT		CI	Silty CLAY; medium plasticity, dark green-grey.	W			SPT sample not recovered. Only caved in sand recovered.
			13.0	17.0									
			12.5	17.5									
			17.60					ML	Sandy SILT; low plasticity, dark green-grey, fine grained sand, with clay.	W			
			12.0	18.0	SPT 5, 6, 3 N=9	SPT							
									END OF BOREHOLE AT 18.35 m Target depth achieved				
			11.5										
			11.0										
			10.5										

DRAFT

This Borehole log should be read in conjunction with WSP's accompanying standard notes.

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BOREHOLE NO.

BOREHOLE ENGINEERING LOG

B17-68420

SHEET : 1 OF 1

Client:	**VicRoads**	Date Commenced:	**11/10/17**
Project:	**Mordialloc Bypass**	Date Completed:	**11/10/17**
Borehole Location:	**Dingley Village**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**JC**

Drill Model/Mounting:	**Hand Auger/**	Hole Angle:	**-90°**	Surface RL:	**29.61 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 334626.771 N 5796664.59 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD) / DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST / FB VL L MD D VD H)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
HQ	Nil		29.5					CONCRETE SLAB: 150mm				FILL
AS	Nil		0.15					FILL: GRAVEL; fine to coarse grained, brown-grey, with brick fragments.	W			
			0.30									
HA	Nil							FILL: Gravelly CLAY; medium to high plasticity, pale brown, grey, dark grey, fine to coarse grained gravel, trace brick fragmens, fine to coarse grained sand, some mulch 0.7-0.9m.				
			0.5									
			29.0		ES							PID_0.7m = 0.1ppm
								END OF BOREHOLE AT 0.90 m Hand auger refusal, 4th attempts unable to penetrate 1m				
			28.5									
			28.0									
			27.5									
			27.0									
			26.5									
			26.0									

DRAFT

This Borehole log should be read in conjunction with WSP's accompanying standard notes.

WSP Australia Pty Ltd. V00 8.30.002 PB_LIB_7.5_WN_NEW_LOGO.GLB Log PB NON-CORED LOG SITE 26 - MORDIALLOC LOGS.GPJ <<DrawingFile>> 10/11/2017 14:03 Developed by Datgel Pty Ltd

BOREHOLE ENGINEERING LOG

BOREHOLE NO. **B17-68421**

SHEET : 1 OF 4

Client:	**VicRoads**	Date Commenced:	**10/10/17**
Project:	**Mordialloc Bypass**	Date Completed:	**10/10/17**
Borehole Location:	**Dingley Village**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**JC**

Drill Model/Mounting:	**Comacchio Geo 205/ Track**	Hole Angle:	**-90°**	Surface RL:	**29.54 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 334644.89 N 5796702.86 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD) / DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
AS			29.5					FILL: Gravelly SAND; fine to coarse grained, brown, grey, fine to coarse grained gravel, trace of cobble and brick fragments.	M			FILL
								with bricks				use crowbar to remove bricks
			0.5 / 29.0					FILL: CLAY; medium plasticity, dark grey, brown, yellow brown, grey, with fine to coarse grained gravel.				FILL - CAPPING LAYER
					ES			becoming dark grey, brown, with some trace roots, wood chips	M / W			PID_0.8 = 0.6ppm
			28.5 (1.0)					becoming grey				
			28.0 (1.5)									
			27.5 (2.0)									
			2.30 / 27.0 (2.5)					LANDFILL WASTE: dark grey, black, including steel cables, plastics, etc.				LANDFILL WASTE
WB												2.6m: difficult to penetrate
			26.5 (3.0)									
			3.5 / 26.0				CI	Silty CLAY; medium plasticity, brown.	M			FILL

DRAFT

This Borehole log should be read in conjunction with WSP's accompanying standard notes.

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BOREHOLE NO.

BOREHOLE ENGINEERING LOG

B17-68421

SHEET : 2 OF 4

Client:	**VicRoads**	Date Commenced:	**10/10/17**
Project:	**Mordialloc Bypass**	Date Completed:	**10/10/17**
Borehole Location:	**Dingley Village**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**JC**

Drill Model/Mounting:	**Comacchio Geo 205/ Track**	Hole Angle:	**-90°**	Surface RL:	**29.54 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 334644.89 N 5796702.86 MGA94 55**

Borehole Information							Field Material Description							
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
WB			25.5					CI	Silty CLAY; medium plasticity, brown.	M			
				4.20									
			25.0	4.5	SPT 0, 3, 3 N=6	SPT		CI	Sandy CLAY; medium plasticity, dark brown-grey, fine to medium grained sand.	M			QUATERNARY ALLUVIUM
				5.0									
			24.5					CI / CH	CLAY; medium to high plasticity, yellow-brown, grey, with fine to medium grained sand, trace of fine grained gravel.	M			TERTIARY BRIGHTON GROUP (RED BLUFF FORMATION)
			24.0	5.5									
			23.5	6.0	SPT 0, 2, 3 N=5	SPT							
			23.0	6.5									
				7.0									
			22.5					SP	SAND; fine grained, grey, pale brown, grey.	W			
			22.0	7.5	SPT 6, 12, 18 N=28	SPT							

DRAFT

This Borehole log should be read in conjunction with WSP's accompanying standard notes.

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BOREHOLE ENGINEERING LOG

BOREHOLE NO. **B17-68421**

Client:	**VicRoads**	Date Commenced:	**10/10/17**
Project:	**Mordialloc Bypass**	Date Completed:	**10/10/17**
Borehole Location:	**Dingley Village**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**JC**

Drill Model/Mounting:	**Comacchio Geo 205/ Track**	Hole Angle:	**-90°**	Surface RL:	**29.54 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 334644.89 N 5796702.86 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
WB			21.5					SP	SAND; fine grained, grey, pale brown, grey.	W			
			21.0	8.5									
									with sandy clay layers				
			20.5	9.0	SPT 7, 12, 21 N=34	SPT							
			20.0	9.5									
			19.5	10.0									
			19.0	10.5	SPT 22, 20/100mm HB N=R	SPT							
			18.5	11.0									
			18.0	11.5					becoming dark brown				
					SPT 14, 26, 26 N=52								

DRAFT

This Borehole log should be read in conjunction with WSP's accompanying standard notes.

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BOREHOLE NO.

BOREHOLE ENGINEERING LOG

B17-68421

SHEET : 4 OF 4

Client:	**VicRoads**	Date Commenced:	**10/10/17**
Project:	**Mordialloc Bypass**	Date Completed:	**10/10/17**
Borehole Location:	**Dingley Village**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**JC**

Drill Model/Mounting:	**Comacchio Geo 205/ Track**	Hole Angle:	**-90°**	Surface RL:	**29.54 m AHD**
Borehole Diameter:	**100 mm**	Bearing:	**---**	Co-ords:	**E 334644.89 N 5796702.86 MGA94 55**

Borehole Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD) / DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
WB			17.5 (12.00) / 12.5	SPT 14, 26, 26 N=52			SP	SAND; fine grained, grey, dark brown	W			
			17.0 / 13.0 (13)				SM	Silty SAND; fine grained, dark grey.	W			TERTIARY BRIGHTON GROUP (BEAUMARIS SANDSTONE)
			16.5 / 13.5	SPT 2, 2, 6 N=8	SPT							
			16.0 / 14.0									
			15.5 / 14.5 (14)				CI	Sandy CLAY; medium plasticity, grey, dark brown, fine grained sand.	W			
			15.0 / 15.0	SPT 1, 1, 5 N=6	SPT							
			14.5					END OF BOREHOLE AT 15.25 m Target depth achieved				
			14.0									

DRAFT

This Borehole log should be read in conjunction with WSP's accompanying standard notes.

WSP Australia Pty Ltd. V00 8.30.002 PB_LIB_7.5_WN_NEW_LOGO.GLB Log PB NON-CORED LOG SITE 26 - MORDIALLOC LOGS.GPJ <<DrawingFile>> 10/11/2017 14:03 Developed by Datgel Pty Ltd

TEST PIT NO.

TEST PIT ENGINEERING LOG

TP17-26-03

SHEET : 1 OF 1

Client:	VicRoads	Date Commenced:	19/6/17
Project:	Mordialloc Bypass	Date Completed:	19/6/17
Test Pit Location:	Mornington Peninsula Freeway, Chelsea Heights	Recorded By:	AH
Project Number:	2135645A	Log Checked By:	NS

Excavation Method:	4WD LandCruiser / Ute Mounted	Hole Angle:	-90°	Surface RL:	3.13 m AHD
Dimensions:	0.10 m	Bearing:	---	Co-ords:	E 336576.91 N 5788873.12 MGA94 55

Test Pit Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST FB VL L MD D VD H)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
AS	Nil	NFGWE	3.0	0.0					FILL: Silty CLAY; medium plasticity, mottled brown, grey, with fine to coarse grained sand.	D			FILL
			2.5	0.5		ES							PID = 0.5ppm ES = Environmental Sample 0.6m - 0.7m
				0.90				CI-CH	Silty CLAY; medium to high plasticity, black, trace sand.	M			QUATERNARY ALLUVIUM
			2.0	1.0									
			1.5	1.5									DCP completed to 1.7m, stratum inferred to remain hard to 2.0m
				2.0					END OF TEST PIT AT 2.00 m Target depth achieved				
			1.0										
			0.5										
			0.0										
			-0.5										

This Test Pit log should be read in conjunction with WSP's accompanying standard notes.

WSP Australia Pty Ltd. V00 8.30.002 PB_LIB_7.5_WN_NEW_LOGO.GLB Log PB NON-CORED LOG SITE 26 - MORDIALLOC LOGS.GPJ <<DrawingFile>> 10/11/2017 14:10 Developed by Datgel Pty Ltd



TP17-26-03 - Excavation



TP17-26-03 – Excavated Spoil

drawn	PP		client: VICROADS	
approved	NW		project: MORDIALLOC BYPASS	
date	13 SEP 2017			
scale	NTS		title: TEST PIT PHOTOS	
original size	A4		project no: 2135645A	figure no: TP17 – 26 – 03

TEST PIT NO.

TEST PIT ENGINEERING LOG

TP17-26-05

SHEET : 1 OF 1

Client:	**VicRoads**	Date Commenced:	**18/6/17**
Project:	**Mordialloc Bypass**	Date Completed:	**18/6/17**
Test Pit Location:	**Mornington Peninsula Freeway, Chelsea Heights**	Recorded By:	**AH**
Project Number:	**2135645A**	Log Checked By:	**NS**

Excavation Method:	**4WD LandCruiser / Ute Mounted**	Hole Angle:	**-90°**	Surface RL:	**2.76 m AHD**
Dimensions:	**0.20 m**	Bearing:	**---**	Co-ords:	**E 336473.96 N 5789181.69 MGA94 55**

Test Pit Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST / FB VL L MD D VD H)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
AS	Nil	NFGWE	2.5	0.5		ES			FILL: Clayey SAND; fine to coarse grained, pale brown, low to medium plasticity clay.	D - M			FILL ES = Environmental Sample PID = 0.6m DCP refusal at 0.7m
			2.0	1.0				CI-CH	Silty CLAY; medium to high plasticity, black, trace sand.	D			QUATERNARY ALLUVIUM
			1.5	1.5		B							
			1.0	2.0					END OF TEST PIT AT 2.00 m Target depth achieved				
			0.5										
			0.0										
			-0.5										
			-1.0										

This Test Pit log should be read in conjunction with WSP's accompanying standard notes.

WSP Australia Pty Ltd. V00 8.30.002 PB_LIB_7.5_WN_NEW_LOGO.GLB Log PB NON-CORED LOG SITE 26 - MORDIALLOC LOGS.GPJ <<DrawingFile>> 10/11/2017 14:10 Developed by Datgel Pty Ltd



TP17-26-05 - Excavation



TP17-26-05 – Excavated Spoil

drawn	**PP**		client: **VICROADS**	
approved	**NW**		project: **MORDIALLOC BYPASS**	
date	**13 SEP 2017**			
scale	**NTS**		title: **TEST PIT PHOTOS**	
original size	**A4**		project no: **2135645A**	figure no: **TP17 – 26 – 05**

TEST PIT NO.

TEST PIT ENGINEERING LOG

TP17-26-07

SHEET : 1 OF 1

Client:	VicRoads	Date Commenced:	18/6/17
Project:	Mordialloc Bypass	Date Completed:	18/6/17
Test Pit Location:	Mornington Peninsula Freeway, Chelsea Heights	Recorded By:	AH
Project Number:	2135645A	Log Checked By:	NS

Excavation Method:	4WD LandCruiser / Ute Mounted	Hole Angle:	-90°	Surface RL:	1.56 m AHD
Dimensions:	0.10 m	Bearing:	---	Co-ords:	E 336343.9 N 5789467.98 MGA94 55

Test Pit Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD) / DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST FB VL L MD D VD H)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
AS	Nil	NFGWE	1.5 / 0.20					TOPSOIL: Silty CLAY; low to medium plasticity, dark brown, trace sand, trace rootlets.	D - M			TOPSOIL
			1.0 / 0.5		ES		CI	Silty CLAY; medium plasticity, black, trace sand.	D - M			QUATERNARY ALLUVIUM ES = Environmental Sample PID = 0ppm
			0.5 / 1.0									
			0.0 / 1.5									DCP completed to 1.7m, stratum inferred to remain very stiff to 2.0m
			-0.5 / 2.0					END OF TEST PIT AT 2.00 m Target depth achieved				
			-1.0									
			-1.5									
			-2.0									

This Test Pit log should be read in conjunction with WSP's accompanying standard notes.

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TP17-26-07 - Excavation



TP17-26-07 – Excavated Spoil

drawn	PP		client: VICROADS	
approved	NW		project: MORDIALLOC BYPASS	
date	13 SEP 2017			
scale	NTS		title: TEST PIT PHOTOS	
original size	A4		project no: 2135645A	figure no: TP17 – 26 – 07

TEST PIT NO.

TEST PIT ENGINEERING LOG

TP17-26-09

SHEET : 1 OF 1

Client:	VicRoads	Date Commenced:	1/6/17
Project:	Mordialloc Bypass	Date Completed:	1/6/17
Test Pit Location:	Springvale Road, Aspendale Gardens	Recorded By:	RM
Project Number:	2135645A	Log Checked By:	NS

Excavation Method:	Backhoe JCB 3CX	Hole Angle:	-90°	Surface RL:	3.03 m AHD
Dimensions:	0.50 m x 1.20 m	Bearing:	---	Co-ords:	E 336252.62 N 5789827.14 MGA94 55

Test Pit Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST / FB VL L MD D VD H)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	Nil	NFGWE	3.0	0.20					FILL: Sandy SILT; low plasticity, dark brown, fine to medium grained sand, trace fine grained gravel, trace organic matter (rootlets).	D			FILL
				0.45					FILL: Sandy GRAVEL; fine to coarse grained, angular, dark brown, fine to coarse grained sand, trace high plasticity fines, trace cobbles.	D			DCP refusal at 0.33m
			2.5	0.5					FILL: Sandy Gravelly CLAY; high plasticity, orange brown, grey, fine to coarse grained sand, fine to coarse grained angular gravel.				
				0.70				CI-CH	Silty CLAY; medium to high plasticity, dark grey, trace fine to medium grained sand.	M			QUATERNARY ALLUVIUM
			2.0	1.0		ES							
			1.5	1.5									
			1.0	2.0					END OF TEST PIT AT 2.00 m Target depth achieved				
			0.5										
			0.0										
			-0.5										

This Test Pit log should be read in conjunction with WSP's accompanying standard notes.

WSP Australia Pty Ltd. V00 8.30.002 PB_LIB_7.5_WN_NEW_LOGO.GLB Log PB NON-CORED LOG SITE 26 - MORDIALLOC LOGS.GPJ <<DrawingFile>> 10/11/2017 14:11 Developed by Datgel Pty Ltd



TP17-26-09 – Excavation



TP17-26-09 – Excavated Spoil

drawn	**HP**		client: **VICROADS**	
approved	**pp**		project: **MORDIALLOC BYPASS**	
date	**21 JUNE 2017**			
scale	**NTS**		title: **TEST PIT PHOTOS**	
original size	**A4**		project no: **2135645A**	figure no: **TP17 – 26 – 09**

TEST PIT NO.

TEST PIT ENGINEERING LOG

TP17-26-10

SHEET : 1 OF 1

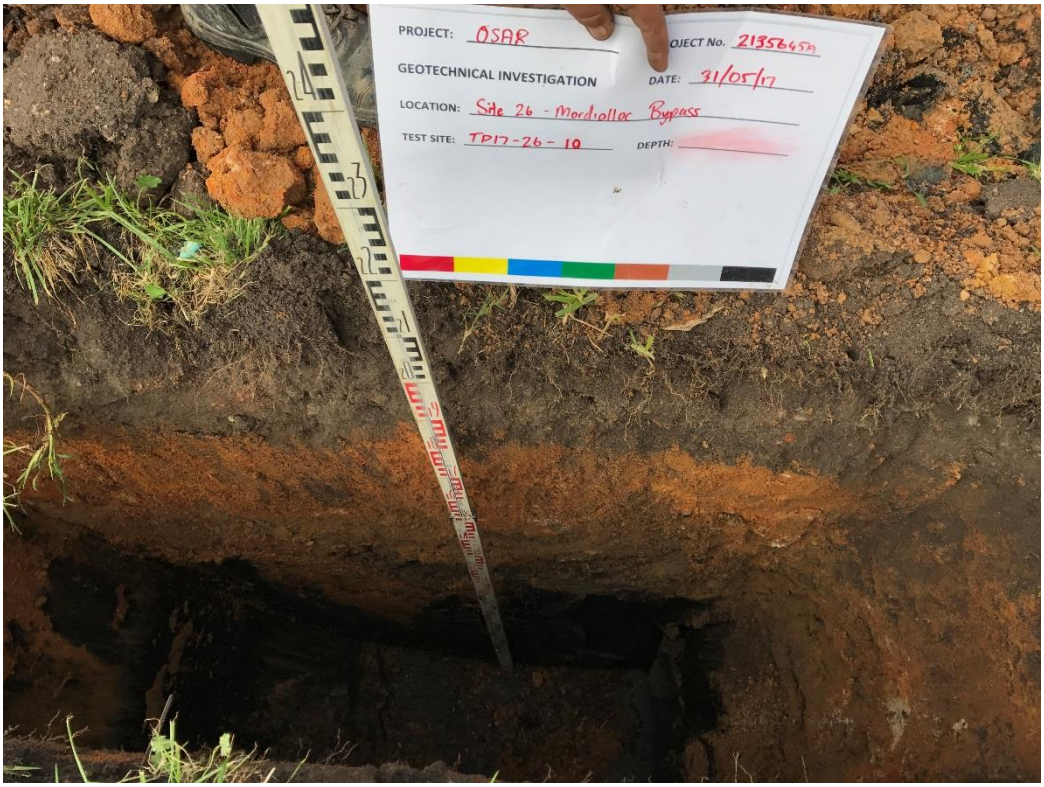
Client:	**VicRoads**	Date Commenced:	**31/5/17**
Project:	**Mordialloc Bypass**	Date Completed:	**31/5/17**
Test Pit Location:	**Springvale Road, Aspendale Gardens**	Recorded By:	**RM**
Project Number:	**2135645A**	Log Checked By:	**NS**

Excavation Method:	**Backhoe JCB 3CX**	Hole Angle:	**-90°**	Surface RL:	**3.17 m AHD**
Dimensions:	**0.50 m x 1.20 m**	Bearing:	**---**	Co-ords:	**E 336053.58 N 5789552.74 MGA94 55**

Test Pit Information							Field Material Description							
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST FB VL L MD D VD H)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	Nil	NFGWE	3.0	0.30					FILL: Sandy SILT; medium plasticity, dark bown-grey, fine to medium grained sand, trace organic matter (rootlets).	M			FILL
				0.5					FILL: Clayey SAND; medium plasticity, orange, pale brown, red-orange, grey.	D			
			2.5										
				1.0		D							
				1.10					FILL: Sandy Gravelly CLAY; high plasticity, grey, fine to coarse grained sand, fine grained angular gravel.	D			
			2.0	1.15				CI-CH	Silty CLAY; medium to high plasticity, black-dark brown, with fine to medium grained sand.	M			QUATERNARY ALLUVIUM
				1.5									
			1.5										
			2.0						END OF TEST PIT AT 2.00 m Target depth achieved				DCP completed to 2.1m
			1.0										
			0.5										
			0.0										
			-0.5										

This Test Pit log should be read in conjunction with WSP's accompanying standard notes.

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TP16-26-10 – Excavation



TP16-26-10 – Excavated Spoil

drawn	**HP**		client:	**VICROADS**
approved	**PP**		project:	**MORDIALLOC BYPASS**
date	**21 JUNE 2017**			
scale	**NTS**		title:	**TEST PIT PHOTOS**
original size	**A4**		project no: **2135645A**	figure no: **TP16 – 26 – 10**

TEST PIT NO.

TEST PIT ENGINEERING LOG

TP17-26-14

SHEET : 1 OF 1

Client:	**VicRoads**	Date Commenced:	**22/5/17**
Project:	**Mordialloc Bypass**	Date Completed:	**22/5/17**
Test Pit Location:	**Aspendale Gardens**	Recorded By:	**RM**
Project Number:	**2135645A**	Log Checked By:	**NS**

Excavation Method:	**Backhoe JCB 3CX**	Hole Angle:	**-90°**	Surface RL:	**2.02 m AHD**
Dimensions:	**0.50 m x 1.20 m**	Bearing:	**---**	Co-ords:	**E 336112.93 N 5789874.12 MGA94 55**

Test Pit Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST / FB VL L MD D VD H)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	Nil	NFGWE	2.0	0.30					TOPSOIL: Silty CLAY; medium plasticity, black-dark brown, with fine to coarse grained sand. trace organic matter (rootlets).	M			TOPSOIL
			1.5	0.5		ES		CI	Silty CLAY; medium plasticity, black-dark brown, with fine to coarse grained sand, trace organic matter (rootlets).	M			QUATERNARY ALLUVIUM ES=Environmental Sample
			1.0	0.90 1.0				CI	Sandy silty CLAY; medium plasticity, dark grey, mottled orange, fine grained sand.	M			
			0.5	1.5									
			0.0	2.0					END OF TEST PIT AT 2.00 m Target depth achieved				DCP completed to 2.3m
			-0.5										
			-1.0										
			-1.5										

This Test Pit log should be read in conjunction with WSP's accompanying standard notes.

WSP Australia Pty Ltd. V00 8.30.002 PB_LIB_7.5_WN_NEW_LOGO.GLB Log PB NON-CORED LOG SITE 26 - MORDIALLOC LOGS.GPJ <<DrawingFile>> 10/11/2017 14:11 Developed by Datgel Pty Ltd



TP17-26-14 – Excavation



TP17-26-14 – Excavated Spoil

drawn	**HP**		client: **VICROADS**	
approved	**PP**		project: **MORDIALLOC BYPASS**	
date	**21 JUNE 2017**			
scale	**NTS**		title: **TEST PIT PHOTOS**	
original size	**A4**		project no: **2135645A**	figure no: **TP17 – 26 – 14**

TEST PIT NO.

TEST PIT ENGINEERING LOG

TP17-26-16

SHEET : 1 OF 1

Client:	**VicRoads**	Date Commenced:	**22/5/17**
Project:	**Mordialloc Bypass**	Date Completed:	**22/5/17**
Test Pit Location:	**Aspendale Gardens**	Recorded By:	**RM**
Project Number:	**2135645A**	Log Checked By:	**NS**

Excavation Method:	**Backhoe JCB 3CX**	Hole Angle:	**-90°**	Surface RL:	**2.14 m AHD**
Dimensions:	**0.50 m x 1.20 m**	Bearing:	**---**	Co-ords:	**E 335890.68 N 5790062.01 MGA94 55**

Test Pit Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST FB VL L MD D VD H)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	Nil	NFGWE	2.0	0.30					TOPSOIL: Sandy silty CLAY; low plasticity, dark brown, fine to coarse grained sand, trace organic matter (rootlets).	M			TOPSOIL
				0.5				Cl	Silty CLAY; medium plasticity, dark brown mottled orange, with fine to coarse grained sand, trace fine grained sub-rounded gravel.	M			QUATERNARY ALLUVIUM
			1.5			D							PID=0ppm
			1.0	1.0					increasing sand content	M			
				1.5					interbedded with lenses of Silty SAND, fine to coarse grained, grey, low plasticity fines.				
			0.5										
				2.0									
			0.0						END OF TEST PIT AT 2.10 m Target depth achieved				DCP completed to 2.2m
			-0.5										
			-1.0										
			-1.5										

This Test Pit log should be read in conjunction with WSP's accompanying standard notes.

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TP17-26-16 – Excavation



TP17-26-16 – Excavated Spoil

drawn	**HP**		client: **VICROADS**	
approved	**PP**		project: **MORDIALLOC BYPASS**	
date	**21 JUNE 2017**			
scale	**NTS**		title: **TEST PIT PHOTOS**	
original size	**A4**		project no: **2135645A**	figure no: **TP17 – 26 – 16**

TEST PIT NO.

TEST PIT ENGINEERING LOG

TP17-26-18

SHEET : 1 OF 1

Client:	**VicRoads**	Date Commenced:	**31/5/17**
Project:	**Mordialloc Bypass**	Date Completed:	**31/5/17**
Test Pit Location:	**Aspendale Gardens**	Recorded By:	**RM**
Project Number:	**2135645A**	Log Checked By:	**NS**

Excavation Method:	**Backhoe JCB 3CX**	Hole Angle:	**-90°**	Surface RL:	**1.88 m AHD**
Dimensions:	**0.50 m x 1.20 m**	Bearing:	**---**	Co-ords:	**E 335710.99 N 5790261.03 MGA94 55**

Test Pit Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST / FB VL L MD D VD H)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	Nil	NFGWE	1.78	0.10					TOPSOIL: Sandy silty CLAY; medium plasticity, dark brown, fine to medium grained sand, trace organic matter (rootlets).	M			TOPSOIL
								CI	Sandy silty CLAY; medium plasticity, dark brown, fine to medium grained sand.	M			QUATERNARY ALLUVIUM
			1.5	0.5						M			
			1.0			B							
				1.0					Becoming dark brown-grey, mottled orange				PID=0ppm
			0.5	1.5									
			0.0										
				2.0					END OF TEST PIT AT 2.10 m Target depth achieved				DCP completed to 2.2m
			-0.5										
			-1.0										
			-1.5										
			-2.0										

This Test Pit log should be read in conjunction with WSP's accompanying standard notes.

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TP17-26-18 – Excavation



TP17-26-18 – Excavated Spoil

drawn	**HP**		client: **VICROADS**	
approved	**PP**		project: **MORDIALLOC BYPASS**	
date	**21 JUNE 2017**			
scale	**NTS**		title: **TEST PIT PHOTOS**	
original size	**A4**		project no: **2135645A**	figure no: **TP17 – 26 – 18**

TEST PIT NO.

TEST PIT ENGINEERING LOG

TP17-26-20

SHEET : 1 OF 1

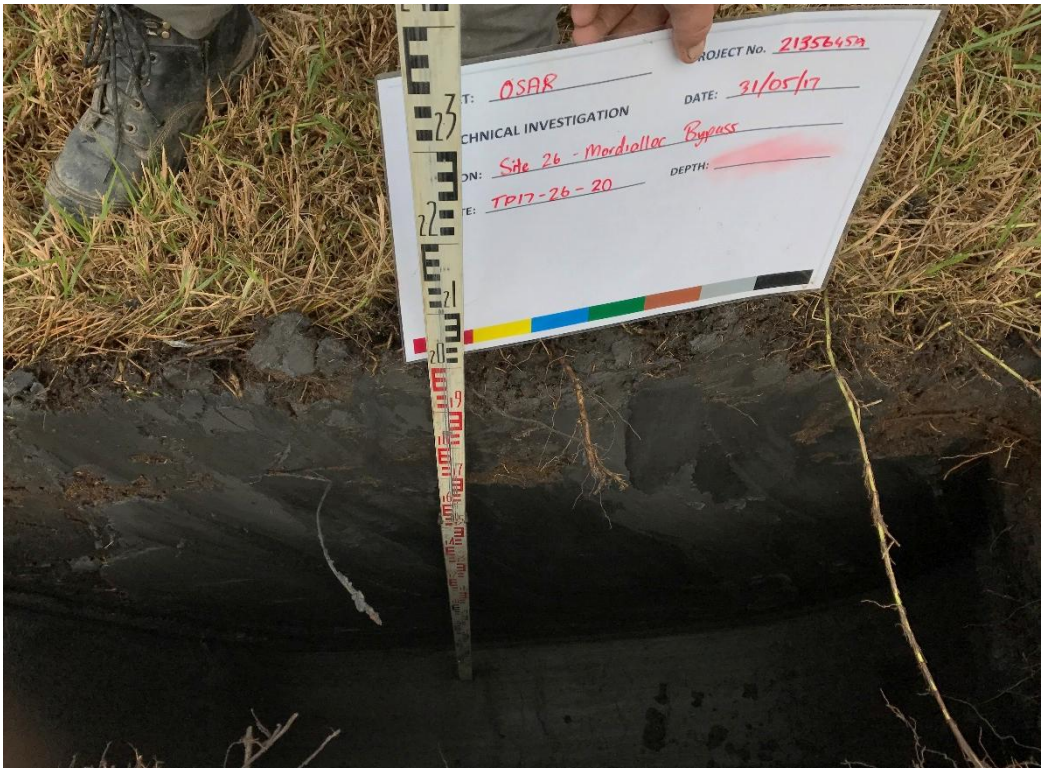
Client:	**VicRoads**	Date Commenced:	**31/5/17**
Project:	**Mordialloc Bypass**	Date Completed:	**31/5/17**
Test Pit Location:	**Governor Road, Braeside**	Recorded By:	**RM**
Project Number:	**2135645A**	Log Checked By:	**NS**

Excavation Method:	**Backhoe JCB 3CX**	Hole Angle:	**-90°**	Surface RL:	**1.95 m AHD**
Dimensions:	**0.50 m x 1.20 m**	Bearing:	**---**	Co-ords:	**E 335439.81 N 5791440.11 MGA94 55**

Test Pit Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	Nil	NFGWE	1.75	0.20					FILL: Silty CLAY; high plasticity, brown, black, trace organic matter (rootlets, grass), steel wire observed.	M			FILL
			1.5	0.5		B		CH	Silty CLAY; dark grey, trace fine to coarse grained sand, fissured.				QUATERNARY ALLUVIUM
			1.0	1.0									
			0.5	1.5									
			0.0	2.0									DCP completed to 2.0m
			-0.5						END OF TEST PIT AT 2.10 m Target depth achieved				
			-1.0										
			-1.5										
			-2.0										

This Test Pit log should be read in conjunction with WSP's accompanying standard notes.

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TP17-26-20 – Excavation



TP17-26-20 – Excavated Spoil

drawn	HP		client: VICROADS	
approved	PP		project: MORDIALLOC BYPASS	
date	21 JUNE 2017			
scale	NTS		title: TEST PIT PHOTOS	
original size	A4		project no: 2135645A	figure no: TP17 – 26 – 20

TEST PIT NO.

TEST PIT ENGINEERING LOG

TP17-26-23

SHEET : 1 OF 1

Client:	**VicRoads**	Date Commenced:	**31/5/17**
Project:	**Mordialloc Bypass**	Date Completed:	**31/5/17**
Test Pit Location:	**Governor Road, Braeside**	Recorded By:	**RM**
Project Number:	**2135645A**	Log Checked By:	**NS**

Excavation Method:	**Backhoe JCB 3CX**	Hole Angle:	**-90°**	Surface RL:	**2.35 m AHD**
Dimensions:	**0.50 m x 1.20 m**	Bearing:	**---**	Co-ords:	**E 334883.24 N 5791515.332 MGA94 55**

Test Pit Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST FB VL L MD D VD H)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	Nil		2.0	0.5					FILL: Silty CLAY; high plasticity, dark grey-brown, trace fine to coarse grained sand, trace organic matter (rootlets/grass). Steel wire and plastic fragments were observed.	M			FILL
				0.70				CH	Silty CLAY; high plasticity, dark grey-black, with fine to coarse grained sand, trace organic matter.				QUATERNARY ALLUVIUM PID=0ppm
		31/05/17	1.5 1.0 0.5	1.0 1.5		B							Water flow into test pit at 1.9m
			2.0	2.0					END OF TEST PIT AT 2.00 m Target depth achieved				DCP completed to 2.0m
			0.0 -0.5 -1.0 -1.5										

This Test Pit log should be read in conjunction with WSP's accompanying standard notes.

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TP17-26-23 – Excavation



TP17-26-23– Excavated Spoil

drawn	**HP**		client: **VICROADS**	
approved	**PP**		project: **MORDIALLOC BYPASS**	
date	**21 JUNE 2017**			
scale	**NTS**		title: **TEST PIT PHOTOS**	
original size	**A4**		project no: **2135645A**	figure no: **TP17 – 26 – 23**

TEST PIT NO.

TEST PIT ENGINEERING LOG

TP17-26-24

SHEET : 1 OF 1

Client:	**VicRoads**	Date Commenced:	**23/5/17**
Project:	**Mordialloc Bypass**	Date Completed:	**23/5/17**
Test Pit Location:	**Braeside**	Recorded By:	**RM**
Project Number:	**2135645A**	Log Checked By:	**NS**

Excavation Method:	**Backhoe JCB 3CX**	Hole Angle:	**-90°**	Surface RL:	**1.88 m AHD**
Dimensions:	**0.50 m x 1.20 m**	Bearing:	**---**	Co-ords:	**E 335142 N 5791506.01 MGA94 55**

Test Pit Information | **Field Material Description**

METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST / FB VL L MD D VD H)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	Nil		1.78	0.10					TOPSOIL: Silty CLAY; high plasticity, dark brown-grey, trace fine to coarse grained sand, trace organic matter (rootlets).	M			TOPSOIL
								CH	Silty CLAY; high plasticity, dark grey.	M - W			QUATERNARY ALLUVIUM
			1.5	0.5									
			1.0	1.0		ES							ES=Environmental Sample
			0.5	1.5									
		23/05/17	0.0	2.0									Water table encountered at 1.8m, slow flow into pit
			-0.5						END OF TEST PIT AT 2.10 m Target depth achieved				DCP completed to 2.2m
			-1.0										
			-1.5										
			-2.0										

This Test Pit log should be read in conjunction with WSP's accompanying standard notes.

WSP Australia Pty Ltd. V00 8.30.002 PB_LIB_7.5_WN_NEW_LOGO.GLB Log PB NON-CORED LOG SITE 26 - MORDIALLOC LOGS.GPJ <<DrawingFile>> 10/11/2017 14:11 Developed by Datgel Pty Ltd



TP17-26-24 – Excavation



TP17-26-24– Excavated Spoil

drawn	**HP**		client: **VICROADS**	
approved	**PP**		project: **MORDIALLOC BYPASS**	
date	**21 JUNE 2017**			
scale	**NTS**		title: **TEST PIT PHOTOS**	
original size	**A4**		project no: **2135645A**	figure no: **TP17 – 26 – 24**

TEST PIT NO.

TEST PIT ENGINEERING LOG

TP17-26-25

SHEET : 1 OF 1

Client:	**VicRoads**	Date Commenced:	**23/5/17**
Project:	**Mordialloc Bypass**	Date Completed:	**23/5/17**
Test Pit Location:	**Braeside**	Recorded By:	**RM**
Project Number:	**2135645A**	Log Checked By:	**NS**

Excavation Method:	**Backhoe JCB 3CX**	Hole Angle:	**-90°**	Surface RL:	**2.10 m AHD**
Dimensions:	**0.50 m x 1.20 m**	Bearing:	**---**	Co-ords:	**E 335171.44 N 5791641.68 MGA94 55**

Test Pit Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST / FB VL L MD D VD H)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	Nil		2.0	0.10					TOPSOIL: Silty CLAY; high plasticity, dark grey, trace organic matter (rootlets).	M			TOPSOIL
				0.5				CH	Silty CLAY; high plasticity, dark grey.	M - W			QUATERNARY ALLUVIUM
			1.5			ES							ES=Environmental Sample PID=0ppm
				1.0									
			1.0										
				1.5									
			0.5										
		23/05/17		2.0									Slow water inflow into pit at 1.95m
			0.0						END OF TEST PIT AT 2.00 m Target depth achieved				DCP completed to 2.3m
			-0.5										
			-1.0										
			-1.5										

This Test Pit log should be read in conjunction with WSP's accompanying standard notes.

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TP17-26-25 – Excavation



TP17-26-25– Excavated Spoil

drawn	**HP**		client: **VICROADS**	
approved	**PP**		project: **MORDIALLOC BYPASS**	
date	**21 JUNE 2017**			
scale	**NTS**		title: **TEST PIT PHOTOS**	
original size	**A4**		project no: **2135645A**	figure no: **TP17 – 26 – 25**

TEST PIT NO.

TEST PIT ENGINEERING LOG

TP17-26-27

SHEET : 1 OF 1

Client:	**VicRoads**	Date Commenced:	**23/5/17**
Project:	**Mordialloc Bypass**	Date Completed:	**23/5/17**
Test Pit Location:	**Braeside**	Recorded By:	**RM**
Project Number:	**2135645A**	Log Checked By:	**NS**

Excavation Method:	**Backhoe JCB 3CX**	Hole Angle:	**-90°**	Surface RL:	**2.20 m AHD**
Dimensions:	**0.50 m x 1.20 m**	Bearing:	**---**	Co-ords:	**E 335188.14 N 5792089.04 MGA94 55**

Test Pit Information | **Field Material Description**

METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST / FB VL L MD D VD H)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	Nil		2.0						FILL: Silty CLAY; low to high plasticity, brown, with fine to coarse grained sand, with fine to medium grained angular to sub-angular gravel, trace organic matter (rootlets).	M			FILL
				0.40				CH	Silty CLAY; high plasticity, dark grey, with fine to coarse grained sand, trace fine grained angular to sub-angular gravel.	M			QUATERNARY ALLUVIUM
			1.5	0.5		ES							ES=Environmental Sample PID=0ppm
			1.0	1.0					Becoming grey, brown, mottled orange.				
		23/05/17	0.5	1.5						W			Water flow into pit at 1.9m
			2.0										
			0.0						END OF TEST PIT AT 2.10 m Target depth achieved				DCP completed to 2.2m
			-0.5										
			-1.0										
			-1.5										

This Test Pit log should be read in conjunction with WSP's accompanying standard notes.

WSP Australia Pty Ltd. V00 8.30.002 PB_LIB_7.5_WN_NEW_LOGO.GLB Log PB NON-CORED LOG SITE 26 - MORDIALLOC LOGS.GPJ <<DrawingFile>> 10/11/2017 14:11 Developed by Datgel Pty Ltd



TP17-26-27 – Excavation



TP17-26-27– Excavated Spoil

drawn	**HP**	wsp / vicroads	client:	**VICROADS**
approved	**PP**		project:	**MORDIALLOC BYPASS**
date	**26 JUNE 2017**		title:	**TEST PIT PHOTOS**
scale	**NTS**		project no: **2135645A**	figure no: **TP17 – 26 – 27**
original size	**A4**			

TEST PIT NO.

TEST PIT ENGINEERING LOG

TP17-26-29

SHEET : 1 OF 1

Client:	VicRoads	Date Commenced:	22/5/17
Project:	Mordialloc Bypass	Date Completed:	22/5/17
Test Pit Location:	Braeside	Recorded By:	RM
Project Number:	2135645A	Log Checked By:	NS

Excavation Method:	Backhoe JCB 3CX	Hole Angle:	-90°	Surface RL:	3.17 m AHD
Dimensions:	0.50 m x 1.20 m	Bearing:	---	Co-ords:	E 335241.05 N 5792409.94 MGA94 55

Test Pit Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST / FB VL L MD D VD H)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	Nil	NFGWE	3.0	0.0				CH	Silty CLAY; high plasticity, dark brown, pale grey, with fine to coarse grained sand, trace fine grained gravel, trace organic matter (rootlets).	M			QUATERNARY ALLUVIUM
						ES							ES - Environmental Sample
			2.5	0.50 0.5				SC	Clayey SAND; fine to coarse grained, brown, trace fine to medium grained angular to sub-rounded gravel.				
				0.80				CH	Silty CLAY; high plasticity, dark grey, with fine to coarse grained sand, trace fine grained gravel.				
			2.0	1.0 1.20				CH	Sandy Silty CLAY; high plasticity, dark grey, mottled pale grey, orange, fine to medium grained sand.				
			1.5	1.5									
			1.5										
				2.0					END OF TEST PIT AT 2.00 m Target depth achieved				DCP completed to 2.3.m
			1.0										
			0.5										
			0.0										
			-0.5										

This Test Pit log should be read in conjunction with WSP's accompanying standard notes.

WSP Australia Pty Ltd. V00 8.30.002 PB_LIB_7.5_WN_NEW_LOGO.GLB Log PB NON-CORED LOG SITE 26 - MORDIALLOC LOGS.GPJ <<DrawingFile>> 10/11/2017 14:11 Developed by Datgel Pty Ltd



TP17-26-29 – Excavation



TP17-26-29– Excavated Spoil

drawn	HP		client: VICROADS	
approved	PP		project: MORDIALLOC BYPASS	
date	26 JUNE 2017			
scale	NTS		title: TEST PIT PHOTOS	
original size	A4		project no: 2135645A	figure no: TP17 – 26 – 29

TEST PIT NO.

TEST PIT ENGINEERING LOG

TP17-26-31

SHEET : 1 OF 1

Client:	VicRoads	Date Commenced:	23/5/17
Project:	Mordialloc Bypass	Date Completed:	23/5/17
Test Pit Location:	Braeside	Recorded By:	RM
Project Number:	2135645A	Log Checked By:	NS

Excavation Method:	Backhoe JCB 3CX	Hole Angle:	-90°	Surface RL:	3.84 m AHD
Dimensions:	0.50 m x 1.20 m	Bearing:	---	Co-ords:	E 335197.14 N 5792723.09 MGA94 55

Test Pit Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	Nil	NFGWE	3.5	0.30				CI-CH	TOPSOIL; Sandy silty CLAY; medium to high plasticity, brown, fine grained sand, trace organic matter (rootlets).	M			TOPSOIL
			3.5	0.5				CH	Silty CLAY; high plasticity, dark grey-brown, with fine to coarse grained sand, trace fine grained gravel.	M			QUATERNARY ALLUVIUM
									becoming gravelly				
			3.0	1.0		ES							ES=Environmental Sample PID=0.0ppm
			2.5	1.5					Becoming grey, dark grey-brown, mottled orange brown.				
			2.0	2.0					END OF TEST PIT AT 2.00 m Target depth achieved				DCP completed to 2.2m
			1.5										
			1.0										
			0.5										
			0.0										

RELATIVE DENSITY / CONSISTENCY: VS S F ST VST | VL L MD D VD H

This Test Pit log should be read in conjunction with WSP's accompanying standard notes.

WSP Australia Pty Ltd. V00 8.30.002 PB_LIB_7.5_WN_NEW_LOGO.GLB Log PB NON-CORED LOG SITE 26 - MORDIALLOC LOGS.GPJ <<DrawingFile>> 10/11/2017 14:12 Developed by Datgel Pty Ltd



TP17-26-31 – Excavation



TP17-26-31– Excavated Spoil

drawn	**HP**		client: **VICROADS**	
approved	**PP**		project: **MORDIALLOC BYPASS**	
date	**26 JUNE 2017**			
scale	**NTS**		title: **TEST PIT PHOTOS**	
original size	**A4**		project no: **2135645A**	figure no: **TP17 – 26 – 31**

TEST PIT ENGINEERING LOG

TEST PIT NO.

TP17-26-33

SHEET : 1 OF 1

Client:	VicRoads	Date Commenced:	24/5/17
Project:	Mordialloc Bypass	Date Completed:	24/5/17
Test Pit Location:	Braeside	Recorded By:	PP
Project Number:	2135645A	Log Checked By:	NS

Excavation Method:	Backhoe JCB 3CX	Hole Angle:	-90°	Surface RL:	5.65 m AHD
Dimensions:	0.50 m x 1.20 m	Bearing:	---	Co-ords:	E 335113.02 N 5793007.28 MGA94 55

Test Pit Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST / FB VL L MD D VD H)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	Nil	NFGWE	5.5	0.30					TOPSOIL: Silty Clayey SAND; fine to medium grained, dark grey, with fine rootlets.	D - M			TOPSOIL
				0.5		ES		CH	Silty CLAY; high plasticity, dark grey, with fine to coarse grained sub-angular quartz and sandstone gravel, with white calcareous nodules up to 20mm in diameter.	M			QUATERNARY ALLUVIUM ES=Environmental Sample
			5.0	1.0									
			4.5	1.20				CI-CH	Sandy CLAY; medium to high plasticity, pale grey with orange, dark red, dark yellow bands and pockets, fine to medium grained sand.	M			
				1.5									
			4.0										
				2.0					END OF TEST PIT AT 2.00 m Target depth achieved				DCP completed to 2.0m
			3.5										
			3.0										
			2.5										
			2.0										

This Test Pit log should be read in conjunction with WSP's accompanying standard notes.

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TP17-26-33 – Excavation



TP17-26-33– Excavated Spoil

drawn	**HP**		client: **VICROADS**	
approved	**PP**		project: **MORDIALLOC BYPASS**	
date	**30 JUNE 2017**			
scale	**NTS**		title: **TEST PIT PHOTOS**	
original size	**A4**		project no: **2135645A**	figure no: **TP17 – 26 – 33**

TEST PIT NO.

TEST PIT ENGINEERING LOG

TP17-26-35

SHEET : 1 OF 1

Client:	VicRoads	Date Commenced:	24/5/17
Project:	Mordialloc Bypass	Date Completed:	24/5/17
Test Pit Location:	Braeside	Recorded By:	PP
Project Number:	2135645A	Log Checked By:	NS

Excavation Method:	Backhoe JCB 3CX	Hole Angle:	-90°	Surface RL:	6.40 m AHD
Dimensions:	0.50 m x 1.20 m	Bearing:	---	Co-ords:	E 334937.05 N 5793438.13 MGA94 55

Test Pit Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD) / DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST / FB VL L MD D VD H)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	Nil	NFGWE	6.0 (0.20)					TOPSOIL: Clayey SAND; fine to coarse grained, pale grey, with low plasticity fines.	D			TOPSOIL
			5.5 (0.5)		ES		CH	Sandy CLAY; high plasticity, dark grey, fine to coarse grained sand.	M			QUATERNARY ALLUVIUM ES=Environmental Sample PID=0ppm
			5.0 (1.40)				CH	Silty CLAY; high plasticity, pale grey with orange and dark grey, with some pockets of Sandy CLAY, trace fine grained rounded quartz gravel.	M			
			4.5 (2.0)					END OF TEST PIT AT 2.00 m Target depth achieved				DCP complete to 2.0m
			4.0									
			3.5									
			3.0									
			2.5									

This Test Pit log should be read in conjunction with WSP's accompanying standard notes.

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TP17-26-35 – Excavation



TP17-26-35– Excavated Spoil

drawn	**HP**		client: **VICROADS**	
approved	**PP**		project: **MORDIALLOC BYPASS**	
date	**30 JUNE 2017**			
scale	**NTS**		title: **TEST PIT PHOTOS**	
original size	**A4**		project no: **2135645A**	figure no: **TP17 – 26 – 35**

TEST PIT NO.

TEST PIT ENGINEERING LOG

TP17-26-37

SHEET : 1 OF 1

Client:	VicRoads	Date Commenced:	24/5/17
Project:	Mordialloc Bypass	Date Completed:	24/5/17
Test Pit Location:	Braeside	Recorded By:	RM
Project Number:	2135645A	Log Checked By:	NS

Excavation Method:	Backhoe JCB 3CX	Hole Angle:	-90°	Surface RL:	8.42 m AHD
Dimensions:	0.50 m x 1.20 m	Bearing:	---	Co-ords:	E 334871.92 N 5793651.84 MGA94 55

Test Pit Information							Field Material Description							
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST / VL L MD D VD H)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	Nil	NFGWE	8.42	0.00					FILL: Gravelly SAND; fine to coarse grained, orange brown, fine to coarse grained angular to sub-rounded gravel, trace organic matter (rootlets).	M			FILL
			8.12	0.30					FILL; Silty SAND; fine grained orange, low plasticity fines, with trace concrete gravel and cobbles.	M			ES=Environmental Sample PID=0.0ppm DCP refusal at 0.68m in fill
			8.0	0.5		ES							
			7.5	1.0				CH	Sandy Silty CLAY; high plasticity, dark grey, grey-white, fine to coarse grained sand, trace fine grained gravel.	M			QUATERNARY ALLUVIUM
			7.0	1.5									
			6.5	2.0					END OF TEST PIT AT 2.00 m Target depth achieved				
			6.0										
			5.5										
			5.0										
			4.5										

This Test Pit log should be read in conjunction with WSP's accompanying standard notes.

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TP17-26-37 – Excavation



TP17-26-37– Excavated Spoil

drawn	HP		client: VICROADS	
approved	PP		project: MORDIALLOC BYPASS	
date	26 JUNE 2017			
scale	NTS		title: TEST PIT PHOTOS	
original size	A4		project no: 2135645A	figure no: TP17 – 26 – 37

TEST PIT NO.

TEST PIT ENGINEERING LOG

TP17-26-41

SHEET : 1 OF 1

Client:	**VicRoads**	Date Commenced:	**25/5/17**
Project:	**Mordialloc Bypass**	Date Completed:	**25/5/17**
Test Pit Location:	**Dingley Village**	Recorded By:	**RM**
Project Number:	**2135645A**	Log Checked By:	**NS**

Excavation Method:	**Backhoe JCB 3CX**	Hole Angle:	**-90°**	Surface RL:	**9.41 m AHD**
Dimensions:	**0.50 m x 1.20 m**	Bearing:	**---**	Co-ords:	**E 334721.95 N 5794037.16 MGA94 55**

Test Pit Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST / FB VL L MD D VD H)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	Nil	NFGWE	9.0	0.5		D			FILL: Sandy silty CLAY; low plasticity, brown, fine to coarse grained sand, fragments of brick, concrete and wood, trace organic matter (rootlets).	D			FILL DCP refusal at 0.78m in fill PID=0ppm
			8.5	1.0 (1.0)				CH	Sandy silty CLAY; high plasticity, brown grey, fine to coarse grained sand.	M			QUATERNARY ALLUVIUM
			8.0	1.5									
			7.5	2.0					END OF TEST PIT AT 2.20 m Target depth achieved				
			7.0										
			6.5										
			6.0										
			5.5										

This Test Pit log should be read in conjunction with WSP's accompanying standard notes.

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TP17-26-41 – Excavation



TP17-26-41– Excavated Spoil

drawn	**HP**		client: **VICROADS**	
approved	**PP**		project: **MORDIALLOC BYPASS**	
date	**26 JUNE 2017**			
scale	**NTS**		title: **TEST PIT PHOTOS**	
original size	**A4**		project no: **2135645A**	figure no: **TP17 – 26 – 41**

TEST PIT NO.

TEST PIT ENGINEERING LOG

TP17-26-43

SHEET : 1 OF 1

Client:	**VicRoads**	Date Commenced:	**25/5/17**
Project:	**Mordialloc Bypass**	Date Completed:	**25/5/17**
Test Pit Location:	**Dingley Village**	Recorded By:	**RM**
Project Number:	**2135645A**	Log Checked By:	**NS**

Excavation Method:	**Backhoe JCB 3CX**	Hole Angle:	**-90°**	Surface RL:	**9.61 m AHD**
Dimensions:	**0.50 m x 1.20 m**	Bearing:	**---**	Co-ords:	**E 334602.09 N 5794313.94 MGA94 55**

Test Pit Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST / FB VL L MD D VD H)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	Nil	NFGWE	9.5	0.40				SM	Silty SAND; fine to coarse grained, brown-grey, low plasticity fines.	M			QUATERNARY ALLUVIUM
			9.0	0.5		B		CH	Sandy CLAY; high plasticity, brown-grey, mottled orange, fine to coarse grained sand.				INFERRED BRIGHTON GROUP PID=0ppm
			8.5	1.0									
			8.0	1.5									
			7.5	2.0					END OF TEST PIT AT 2.00 m Target depth achieved				DCP completed to 2.3m
			7.0										
			6.5										
			6.0										

This Test Pit log should be read in conjunction with WSP's accompanying standard notes.

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TP17-26-43 – Excavation



TP17-26-43– Excavated Spoil

drawn	**HP**		client: **VICROADS**	
approved	**PP**		project: **MORDIALLOC BYPASS**	
date	**26 JUNE 2017**			
scale	**NTS**		title: **TEST PIT PHOTOS**	
original size	**A4**		project no: **2135645A**	figure no: **TP17 – 26 – 43**

TEST PIT NO.

TEST PIT ENGINEERING LOG

TP17-26-45

SHEET : 1 OF 1

Client:	VicRoads	Date Commenced:	25/5/17
Project:	Mordialloc Bypass	Date Completed:	25/5/17
Test Pit Location:	Dingley Village	Recorded By:	RM
Project Number:	2135645A	Log Checked By:	NS

Excavation Method:	Backhoe JCB 3CX	Hole Angle:	-90°	Surface RL:	12.00 m AHD
Dimensions:	0.50 m x 1.20 m	Bearing:	---	Co-ords:	E 334526.93 N 5794621.01 MGA94 55

Test Pit Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST / FB VL L MD D VD H)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	Nil	NFGWE	12.00	0.10					FILL: Silty SAND; fine to coarse grained, brown, with fine to coase grained gravel, trace organic matter (rootlets).	M			FILL INFERRED RE-WORKED QUATERNARY ALLUVIUM
									FILL: Silty SAND; fine to coarse grained, grey-brown, trace fine to coarse grained gravel.				
			11.5	0.5 0.5					Silty SAND; fine to coarse grained, grey brown, trace low plasticity clay. Plastic observed at 0.5m				INFERRED BRIGHTON GROUP PID=0ppm DCP refusal at 0.55m
			11.0	1.0									
									strong sewage odour				
			10.5	1.5									PID=0ppm
			10.0	2.0					END OF TEST PIT AT 2.00 m Target depth achieved				
			9.5										
			9.0										
			8.5										

This Test Pit log should be read in conjunction with WSP's accompanying standard notes.

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TP17-26-45 – Excavation



TP17-26-45– Excavated Spoil

drawn	**HP**		client: **VICROADS**	
approved	**PP**		project: **MORDIALLOC BYPASS**	
date	**30 JUNE 2017**			
scale	**NTS**		title: **TEST PIT PHOTOS**	
original size	**A4**		project no: **2135645A**	figure no: **TP17 – 26 – 45**

TEST PIT NO.

TEST PIT ENGINEERING LOG

TP17-26-47

SHEET : 1 OF 1

Client:	**VicRoads**	Date Commenced:	**1/6/17**
Project:	**Mordialloc Bypass**	Date Completed:	**1/6/17**
Test Pit Location:	**Dingley Village**	Recorded By:	**RM**
Project Number:	**2135645A**	Log Checked By:	**NS**

Excavation Method:	**Backhoe JCB 3CX**	Hole Angle:	**-90°**	Surface RL:	**13.25 m AHD**
Dimensions:	**0.50 m x 1.20 m**	Bearing:	**---**	Co-ords:	**E 334486.98 N 5794974.99 MGA94 55**

Test Pit Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD) / DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	Nil	NFGWE	13.0 / 0.5				SM	Silty SAND; fine to coarse grained, brown-grey, low plasticity fines, trace organic matter (rootlets).	M			QUATERNARY ALLUVIUM PID=0ppm
			0.70 / 12.5		B		CH	Sandy CLAY; high plasticity, grey-brown, mottled orange, fine to coarse grained sand.	M			BRIGHTON GROUP DCP refusal at 0.95m
			1.0 / 12.0									
			1.5 / 11.5									
			2.0 / 11.0					END OF TEST PIT AT 2.00 m Target depth achieved				
			10.5									
			10.0									
			9.5									

This Test Pit log should be read in conjunction with WSP's accompanying standard notes.

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TP17-26-47 – Excavation



TP17-26-47– Excavated Spoil

drawn	**HP**		client: **VICROADS**	
approved	**PP**		project: **MORDIALLOC BYPASS**	
date	**30 JUNE 2017**			
scale	**NTS**		title: **TEST PIT PHOTOS**	
original size	**A4**		project no: **2135645A**	figure no: **TP17 – 26 – 47**

TEST PIT NO.

TEST PIT ENGINEERING LOG

TP17-26-49

SHEET : 1 OF 1

Client:	**VicRoads**	Date Commenced:	**1/6/17**
Project:	**Mordialloc Bypass**	Date Completed:	**1/6/17**
Test Pit Location:	**Dingley Village**	Recorded By:	**RM**
Project Number:	**2135645A**	Log Checked By:	**NS**

Excavation Method:	**Backhoe JCB 3CX**	Hole Angle:	**-90°**	Surface RL:	**14.99 m AHD**
Dimensions:	**0.50 m x 1.20 m**	Bearing:	**---**	Co-ords:	**E 334479.03 N 5795218.9 MGA94 55**

Test Pit Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	Nil	NFGWE	14.5	0.5		D		SM	Silty SAND; fine to coarse grained, brown-grey, low plasticity fines, trace fine grained rounded gravels, trace organic matter (rootlets).	D			QUATERNARY ALLUVIUM PID=0ppm
			14.0	1.0 (1.0)				CH	Sandy CLAY; high plasticity, grey, mottled orange-red, fine to coarse grained sand.	M			BRIGHTON GROUP DCP refusal at 1.21m, stratum inferred to remain hard to 1.6m
			13.5	1.5					END OF TEST PIT AT 1.60 m Refusal on inferred iron cemented band.				
			13.0										
			12.5										
			12.0										
			11.5										

This Test Pit log should be read in conjunction with WSP's accompanying standard notes.

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TP17-26-49 – Excavation



TP17-26-49– Excavated Spoil

drawn	HP		client: VICROADS	
approved	PP		project: MORDIALLOC BYPASS	
date	30 JUNE 2017			
scale	NTS		title: TEST PIT PHOTOS	
original size	A4		project no: 2135645A	figure no: TP17 – 26 – 49

TEST PIT NO.

TEST PIT ENGINEERING LOG

TP17-26-52

SHEET : 1 OF 1

Client:	VicRoads	Date Commenced:	14/6/17
Project:	Mordialloc Bypass	Date Completed:	14/6/17
Test Pit Location:	Centre Dandenong Rd, Dingley Village	Recorded By:	AH
Project Number:	2135645A	Log Checked By:	NS

Excavation Method:	4WD LandCruiser / Ute Mounted	Hole Angle:	-90°	Surface RL:	15.95 m AHD
Dimensions:	0.20 m	Bearing:	---	Co-ords:	E 334618.94 N 5795498.04 MGA94 55

Test Pit Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST / FB VL L MD D VD H)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
AS	Nil	NFGWE	15.5	0.5				SM	Silty SAND; fine grained, dark brown, low plasticity fines, trace rootlets.	D			QUATERNARY ALLUVIUM
				0.60		ES		CI	Sandy CLAY; medium plasticity, pale brown, fine to medium grained sand.	M			BRIGHTON GROUP BRIGHTON GROUP ES=Environmental Sample PID = 0.6ppm
				0.80				CH	Sandy CLAY; high plasticity, pale grey, mottled orange, fine to coarse grained sand.	M			
			15.0	1.0									
			14.5	1.5						M			DCP completed to 1.7m
			14.0	2.0					END OF TEST PIT AT 2.00 m Target depth achieved				
			13.5										
			13.0										
			12.5										
			12.0										

This Test Pit log should be read in conjunction with WSP's accompanying standard notes.

WSP Australia Pty Ltd. V00 8.30.002 PB_LIB_7.5_WN_NEW_LOGO.GLB Log PB NON-CORED LOG SITE 26 - MORDIALLOC LOGS.GPJ <<DrawingFile>> 10/11/2017 14:12 Developed by Datgel Pty Ltd



TP17-26-52 – Auger Hole



TP17-26-52– Auger Spoil

drawn	**HP**		client: **VICROADS**	
approved	**PP**		project: **MORDIALLOC BYPASS**	
date	**30 JUNE 2017**			
scale	**NTS**		title: **TEST PIT PHOTOS**	
original size	**A4**		project no: **2135645A**	figure no: **TP17 – 26 – 52**

TEST PIT NO.

TEST PIT ENGINEERING LOG

TP17-26-53

SHEET : 1 OF 1

Client:	VicRoads	Date Commenced:	14/6/17
Project:	Mordialloc Bypass	Date Completed:	14/6/14
Test Pit Location:	Centre Dandenong Rd, Dingley Village	Recorded By:	AH
Project Number:	2135645A	Log Checked By:	NS

Excavation Method:	4WD LandCruiser / Ute Mounted	Hole Angle:	-90°	Surface RL:	16.72 m AHD
Dimensions:	0.20 m	Bearing:	---	Co-ords:	E 334303.95 N 5795540.01 MGA94 55

Test Pit Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (FB VS VL S L F ST MD VST D H VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
AS	Nil	NFGWE	16.5	0.5		ES		SM	Silty SAND; fine to medium grained, pale brown, low plasticity fines.	M			QUATERNARY ALLUVIUM ES=Environmental Sample PID = 0.4ppm
			16.0	1.0		D							
				1.10				CI	Sandy CLAY; medium plasticity, brown, fine to medium grained sand.	M			BRIGHTON GROUP
				1.5				SC	Clayey SAND; fine to coarse grained, pale orange-brown, medium plasticity clay.	M			DCP refusal at 1.5m
			15.5	1.5									
			15.0	2.0					END OF TEST PIT AT 2.00 m Target depth achieved				
			14.5										
			14.0										
			13.5										
			13.0										

This Test Pit log should be read in conjunction with WSP's accompanying standard notes.

WSP Australia Pty Ltd. V00 8.30.002 PB_LIB_7.5_WN_NEW_LOGO.GLB Log PB NON-CORED LOG SITE 26 - MORDIALLOC LOGS.GPJ <<DrawingFile>> 10/11/2017 14:12 Developed by Datgel Pty Ltd



TP17-26-53 – Auger Hole



TP17-26-53– Auger Spoil

drawn	**HP**		client: **VICROADS**	
approved	**PP**		project: **MORDIALLOC BYPASS**	
date	**30 JUNE 2017**			
scale	**NTS**		title: **TEST PIT PHOTOS**	
original size	**A4**		project no: **2135645A**	figure no: **TP17 – 26 – 53**

TEST PIT NO.

TEST PIT ENGINEERING LOG

TP17-26-55

SHEET : 1 OF 1

Client:	VicRoads	Date Commenced:	14/6/17
Project:	Mordialloc Bypass	Date Completed:	14/6/17
Test Pit Location:	Dingley Village	Recorded By:	AH
Project Number:	2135645A	Log Checked By:	NS

Excavation Method:	4WD LandCruiser / Ute Mounted	Hole Angle:	-90°	Surface RL:	15.67 m AHD
Dimensions:	0.20 m	Bearing:	---	Co-ords:	E 334468.64 N 5795573.23 MGA94 55

Test Pit Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST FB VL L MD D VD H)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
AS	Nil	NFGWE	15.5	0.40				SM	Silty SAND; fine to medium grained, brown, low plasticity fines.	D			QUATERNARY ALLUVIUM
			15.0	0.5		ES		CH	Sandy CLAY; high plasticity, grey mottled orange-brown, fine to coarse grained sand.	M			BRIGHTON GROUP ES=Environmental Sample
			14.5	1.0					becoming pale grey mottled orange	M			
			14.0	1.5									DCP completed to 1.7m, stratum inferred to remain hard to 2.0m
			13.5	2.0					END OF TEST PIT AT 2.00 m Target depth achieved				
			13.0										
			12.5										
			12.0										

This Test Pit log should be read in conjunction with WSP's accompanying standard notes.

WSP Australia Pty Ltd. V00 8.30.002 PB_LIB_7.5_WN_NEW_LOGO.GLB Log PB NON-CORED LOG SITE 26 - MORDIALLOC LOGS.GPJ <<DrawingFile>> 10/11/2017 14:13 Developed by Datgel Pty Ltd



TP17-26-55 – Auger Hole



TP17-26-55– Auger Spoil

drawn	**HP**		client:	**VICROADS**
approved	**PP**		project:	**MORDIALLOC BYPASS**
date	**30 JUNE 2017**			
scale	**NTS**		title:	**TEST PIT PHOTOS**
original size	**A4**		project no: **2135645A**	figure no: **TP17 – 26 – 55**

TEST PIT ENGINEERING LOG

TEST PIT NO.

TP17-26-56

SHEET : 1 OF 1

Client:	VicRoads	Date Commenced:	14/6/17
Project:	Mordialloc Bypass	Date Completed:	14/6/17
Test Pit Location:	Dingley Village	Recorded By:	AH
Project Number:	2135645A	Log Checked By:	NS

Excavation Method:	4WD LandCruiser / Ute Mounted	Hole Angle:	-90°	Surface RL:	16.17 m AHD
Dimensions:	0.20 m	Bearing:	---	Co-ords:	E 334497.6 N 5795681.63 MGA94 55

Test Pit Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD) / DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST FB VL L MD D VD H)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
AS	Nil	NFGWE	16.0 / 0.40				SM	Silty SAND; fine grained, low plasticity fines.	D			QUATERNARY ALLUVIUM
			15.5 / 0.80		ES		CL	Sandy CLAY; low plasticity, brown, fine to coarse grained sand.				BRIGHTON GROUP ES=Environmental Sample PID = 0.4ppm
			15.0 / 1.0				CI	Sandy CLAY; medium plasticity, pale blue-grey, mottled orange, fine to coarse grained sand.				DCP compatible to 1.7m, stratum inferred to remain very stiff to 2.0m
			14.5 / 1.5									
			14.0 / 2.0					END OF TEST PIT AT 2.00 m Target depth achieved				
			13.5									
			13.0									
			12.5									

This Test Pit log should be read in conjunction with WSP's accompanying standard notes.

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TP17-26-56 – Auger Hole



TP17-26-56– Auger Spoil

drawn	**HP**		client: **VICROADS**	
approved	**PP**		project: **MORDIALLOC BYPASS**	
date	**30 JUNE 2017**			
scale	**NTS**		title: **TEST PIT PHOTOS**	
original size	**A4**		project no: **2135645A**	figure no: **TP17 – 26 – 56**

TEST PIT NO.

TEST PIT ENGINEERING LOG

TP17-26-58

SHEET : 1 OF 1

Client:	VicRoads	Date Commenced:	14/6/17
Project:	Mordialloc Bypass	Date Completed:	14/6/17
Test Pit Location:	Dingley Village	Recorded By:	AH
Project Number:	2135645A	Log Checked By:	NS

Excavation Method:	4WD LandCruiser / Ute Mounted	Hole Angle:	-90°	Surface RL:	17.85 m AHD
Dimensions:	0.20 m	Bearing:	---	Co-ords:	E 334528.66 N 5795877.29 MGA94 55

Test Pit Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD) / DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST FB VL L MD D VD H)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
AS	Nil	NFGWE	17.5 (0.30)					FILL: Gravelly SAND; fine to coarse grained, dark brown, fine to coarse grained angular gravel, trace clay, trace rootlets.	M			FILL
			0.5					FILL: Sandy CLAY; low to medium plasticity, fine to coarse grained sand, trace gravel.	M			
			17.0 (0.70)		ES							ES=Environmental Sample PID = 2.3ppm
			1.0				CI	Sandy CLAY; medium plasticity, pale brown, fine to medium grained sand.	M			INFERRED QUATERNARY ALLUVIUM
			16.5 (1.0)				CI	Sandy CLAY; medium plasticity, pale grey, mottled orange, fine grained sand.	M			INFERRED BRIGHTON GROUP
			1.5									DCP completed to 1.7m, stratum inferred to remain hard to 2.0m
			16.0									
			2.0					END OF TEST PIT AT 2.00 m Target depth achieved				
			15.5									
			15.0									
			14.5									
			14.0									

This Test Pit log should be read in conjunction with WSP's accompanying standard notes.

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TP17-26-58 – Auger Hole



TP17-26-58– Auger Spoil

drawn	HP		client: VICROADS	
approved	PP		project: MORDIALLOC BYPASS	
date	30 JUNE 2017			
scale	NTS		title: TEST PIT PHOTOS	
original size	A4		project no: 2135645A	figure no: TP17 – 26 – 58

TEST PIT ENGINEERING LOG

TEST PIT NO.

TP17-26-60

SHEET : 1 OF 1

Client:	**VicRoads**	Date Commenced:	**15/6/17**
Project:	**Mordialloc Bypass**	Date Completed:	**15/6/17**
Test Pit Location:	**Dingley Bypass, Dingley Village**	Recorded By:	**AH**
Project Number:	**2135645A**	Log Checked By:	**NS**

Excavation Method:	**4WD LandCruiser / Ute Mounted**	Hole Angle:	**-90°**	Surface RL:	**26.54 m AHD**
Dimensions:	**0.20 m**	Bearing:	**---**	Co-ords:	**E 334749.93 N 5796891.07 MGA94 55**

Test Pit Information | **Field Material Description**

METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST / FB VL L MD D VD H)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
AS	Nil	NFGWE	26.5	0.20					FILL: Clayey SAND; fine to coarse grained, brown, low to medium plasticity clay, trace rootlets.	M			FILL
				0.40				CI	Sandy CLAY; medium plasticity, grey-brown, fine to coarse grained sand.	M			QUATERNARY ALLUVIUM
			26.0	0.5		D		CI	Sandy CLAY; medium plasticity, grey mottled orange, fine to coarse grained sand.	M			INFERRED BRIGHTON GROUP PID = 0.5ppm
			25.5	1.0		D		CI	Silty CLAY; medium plasticity, grey, mottled orange, trace sand.	M			
			25.0	1.5									DCP completed to 1.7m
				1.80				CH	Sandy CLAY; high plasticity, orange brown, mottled grey, fine to coarse grained sand.	M			
				2.0					END OF TEST PIT AT 2.00 m Target depth achieved				
			24.5										
			24.0										
			23.5										
			23.0										

This Test Pit log should be read in conjunction with WSP's accompanying standard notes.

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TP17-26-60 – Auger Hole



TP17-26-60– Auger Spoil

drawn	**HP**		client: **VICROADS**	
approved	**PP**		project: **MORDIALLOC BYPASS**	
date	**30 JUNE 2017**			
scale	**NTS**		title: **TEST PIT PHOTOS**	
original size	**A4**		project no: **2135645A**	figure no: **TP17 – 26 – 60**

TEST PIT ENGINEERING LOG

TEST PIT NO.

TP17-26-62

SHEET : 1 OF 1

Client:	**VicRoads**	Date Commenced:	**15/6/17**
Project:	**Mordialloc Bypass**	Date Completed:	**15/6/17**
Test Pit Location:	**Dingley Bypass, Dingley Village**	Recorded By:	**AH**
Project Number:	**2135645A**	Log Checked By:	**NS**

Excavation Method:	**4WD LandCruiser / Ute Mounted**	Hole Angle:	**-90°**	Surface RL:	**27.96 m AHD**
Dimensions:	**0.20 m**	Bearing:	**---**	Co-ords:	**E 334965.99 N 5796870.11 MGA94 55**

Test Pit Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
AS	Nil	NFGWE	27.5	0.45					FILL: Clayey SAND; fine to coarse grained, brown, low to medium plasticity clay.	M			FILL
				0.5					FILL: Sandy CLAY; medium plasticity, brown, fine to coarse grained sand.	M			
				0.60		ES		CI-CH	Silty CLAY; medium to high plasticity, dark grey, trace fine to coarse grained sand.	M			QUATERNARY ALLUVIUM ES=Environmental Sample PID = 0.4ppm
			27.0	1.0		B			becoming grey				
			26.5	1.5					becoming medium plasticity	M			DCP completed to 1.7m
			26.0	2.0					END OF TEST PIT AT 2.00 m Target depth achieved				
			25.5										
			25.0										
			24.5										
			24.0										

RELATIVE DENSITY / CONSISTENCY: VS S F ST VST H; FB VL L MD D VD

This Test Pit log should be read in conjunction with WSP's accompanying standard notes.

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TP17-26-62 – Auger Hole



TP17-26-62– Auger Spoil

drawn	**HP**		client: **VICROADS**	
approved	**PP**		project: **MORDIALLOC BYPASS**	
date	**30 JUNE 2017**			
scale	**NTS**		title: **TEST PIT PHOTOS**	
original size	**A4**		project no: **2135645A**	figure no: **TP17 – 26 – 62**

TEST PIT NO.

TEST PIT ENGINEERING LOG

TP17-26-63

SHEET : 1 OF 1

Client:	VicRoads	Date Commenced:	15/6/17
Project:	Mordialloc Bypass	Date Completed:	15/6/17
Test Pit Location:	Dingley Bypass, Dingley Village	Recorded By:	AH
Project Number:	2135645A	Log Checked By:	NS

Excavation Method:	4WD LandCruiser / Ute Mounted	Hole Angle:	-90°	Surface RL:	26.78 m AHD
Dimensions:	0.20 m	Bearing:	---	Co-ords:	E 334474.96 N 5796960.99 MGA94 55

Test Pit Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST / L MD D VD H)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
AS	Nil	NFGWE	26.5	0.5		ES			FILL: Silty CLAY; medium plasticity, dark brown, with fine to coarse grained sand, trace rootlets.	D - M			FILL ES=Environmental Sample PID = 0.2ppm
			26.0	0.70 1.0					FILL: Sandy CLAY; medium plasticity, black, fine to coarse grained sand, trace silt.				
				1.10				SM	Silty SAND; fine to medium grained, pale brown, low plasticity fines.				INFERRED QUATERNARY ALLUVIUM
			25.5	1.20 1.5		B		CH	Sandy CLAY; high plasticity, grey-brown mottled orange, fine to coarse grained sand. Becoming orange grey				INFERRED BRIGHTON GROUP DCP refusal at 1.2m
			25.0	2.0					END OF TEST PIT AT 2.00 m Target depth achieved				
			24.5										
			24.0										
			23.5										
			23.0										

This Test Pit log should be read in conjunction with WSP's accompanying standard notes.

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TP17-26-63 – Auger Hole

drawn	**HP**		client: **VICROADS**	
approved	**PP**		project: **MORDIALLOC BYPASS**	
date	**30 JUNE 2017**			
scale	**NTS**		title: **TEST PIT PHOTOS**	
original size	**A4**		project no: **2135645A**	figure no: **TP17 – 26 – 63**

TEST PIT NO.

TEST PIT ENGINEERING LOG

TP17-26-64

SHEET : 1 OF 1

Client:	**VicRoads**	Date Commenced:	**24/5/17**
Project:	**Mordialloc Bypass**	Date Completed:	**24/5/17**
Test Pit Location:	**Braeside**	Recorded By:	**RM**
Project Number:	**2135645A**	Log Checked By:	**NS**

Excavation Method:	**Backhoe JCB 3CX**	Hole Angle:	**-90°**	Surface RL:	**8.15 m AHD**
Dimensions:	**0.50 m x 1.20 m**	Bearing:	**---**	Co-ords:	**E 334864.83 N 5793490.02 MGA94 55**

Test Pit Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD) / DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	Nil	NFGWE	8.0 (0.10)					TOPSOIL: Silty SAND; fine to coarse grained, brown-grey, low plasticity fines, trace organic matter (rootlets).	M			TOPSOIL
			0.5		ES		SM	Silty SAND; fine to medium grained, pale grey, low plasticity fines.	M			INFERRED QUATERNARY ALLUVIUM ES=Environmental Sample PID=0ppm
			7.5 (0.60)				SM	Gravelly Silty SAND; fine to coarse grained, orange-brown, fine to medium grained angular to sub-rounded gravel, low plasticity fines.	M			DCP refusal at 0.74m
			1.0									
			7.0									
			1.5 (1.5)				CH	Sandy CLAY; high plasticity, grey-brown mottled orange, fine to coarse grianed sand, with fine grained gravel.	M			INFERRED BRIGHTON GROUP
			6.5									
			2.0									
			6.0									
			2.5					END OF TEST PIT AT 2.50 m Target depth achieved				
			5.5									
			5.0									
			4.5									

This Test Pit log should be read in conjunction with WSP's accompanying standard notes.

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TP17-26-64 – Excavation



TP17-26-64– Excavated Spoil

drawn	HP		client: VICROADS	
approved	pp		project: MORDIALLOC BYPASS	
date	30 JUNE 2017			
scale	NTS		title: TEST PIT PHOTOS	
original size	A4		project no: 2135645A	figure no: TP17 – 26 – 64

TEST PIT NO.

TEST PIT ENGINEERING LOG

TP17-26-68

SHEET : 1 OF 1

Client:	**VicRoads**	Date Commenced:	**26/5/17**
Project:	**Mordialloc Bypass**	Date Completed:	**26/5/17**
Test Pit Location:	**Dingley Village**	Recorded By:	**RM**
Project Number:	**2135645A**	Log Checked By:	**NS**

Excavation Method:	**Backhoe JCB 3CX**	Hole Angle:	**-90°**	Surface RL:	**9.28 m AHD**
Dimensions:	**0.50 m x 1.20 m**	Bearing:	**---**	Co-ords:	**E 334624.59 N 5794042.6 MGA94 55**

Test Pit Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST FB VL L MD D VD H)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	Nil	NFGWE	9.0	0.5		ES		SM	Silty SAND; fine to coarse grained, grey-brown, low plasticity fines.	M			QUATERNARY ALLUVIUM DCP refusal at 0.48m. ES=Environmental Sample PID=0ppm
			8.5	0.80				CH	Sandy CLAY; high plasticity, grey-brown, mottled orange, fine to coarse grained sand.	M			BRIGHTON GROUP
			8.0	1.0									
			7.5	1.5									
				2.0					END OF TEST PIT AT 2.00 m Target depth achieved				
			7.0										
			6.5										
			6.0										
			5.5										

This Test Pit log should be read in conjunction with WSP's accompanying standard notes.

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TP17-26-68 – Excavation



TP17-26-68– Excavated Spoil

drawn	**HP**		client: **VICROADS**	
approved	**PP**		project: **MORDIALLOC BYPASS**	
date	**30 JUNE 2017**			
scale	**NTS**		title: **TEST PIT PHOTOS**	
original size	**A4**		project no: **2135645A**	figure no: **TP16 – 26 – 68**

TEST PIT NO.

TEST PIT ENGINEERING LOG

TP17-26-69

SHEET : 1 OF 1

Client:	**VicRoads**	Date Commenced:	**12/5/17**
Project:	**Mordialloc Bypass**	Date Completed:	**12/5/17**
Test Pit Location:	**Woodlands Drive, Braeside**	Recorded By:	**AH**
Project Number:	**2135645A**	Log Checked By:	**NS**

Excavation Method:	**4WD LandCruiser / Ute Mounted**	Hole Angle:	**-90°**	Surface RL:	**8.16 m AHD**
Dimensions:	**0.20 m**	Bearing:	**---**	Co-ords:	**E 334689.07 N 5793773.1 MGA94 55**

Test Pit Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST / FB VL L MD D VD H)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
AS	Nil	NFGWE	8.0	0.5		ES			FILL: Sandy CLAY; low to medium plasticity, brown, fine to medium grained sand, trace silt, trace rootlets.	D			FILL ES=Environmental Sample PID=0.1ppm
			7.5	0.70				CI	Silty CLAY; medium plasticity, brown, fine grained sand, trace rootlets.	MC=PL			QUATERNARY ALLUVIUM
				1.0 1.0				CH	Silty CLAY; high plasticity, dark brown, trace sand, trace rootlets.	MC>PL			
			7.0			B							DCP completed to 1.7m
				1.5									
			6.5										
				2.0					END OF TEST PIT AT 2.00 m Target depth achieved				
			6.0										
			5.5										
			5.0										
			4.5										

This Test Pit log should be read in conjunction with WSP's accompanying standard notes.

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TP17-26-69 – Auger Hole

drawn	**HP**		client: **VICROADS**	
approved	**PP**		project: **MORDIALLOC BYPASS**	
date	**30 JUNE 2017**			
scale	**NTS**		title: **TEST PIT PHOTOS**	
original size	**A4**		project no: **2135645A**	figure no: **TP17 – 26 – 69**

TEST PIT NO.

TEST PIT ENGINEERING LOG

TP17-26-70

SHEET : 1 OF 1

Client:	**VicRoads**	Date Commenced:	**25/5/17**
Project:	**Mordialloc Bypass**	Date Completed:	**25/5/17**
Test Pit Location:	**Dingley Village**	Recorded By:	**RM**
Project Number:	**2135645A**	Log Checked By:	**NS**

Excavation Method:	**Backhoe JCB 3CX**	Hole Angle:	**-90°**	Surface RL:	**9.67 m AHD**
Dimensions:	**0.50 m x 1.20 m**	Bearing:	**---**	Co-ords:	**E 334598.12 N 5794177.04 MGA94 55**

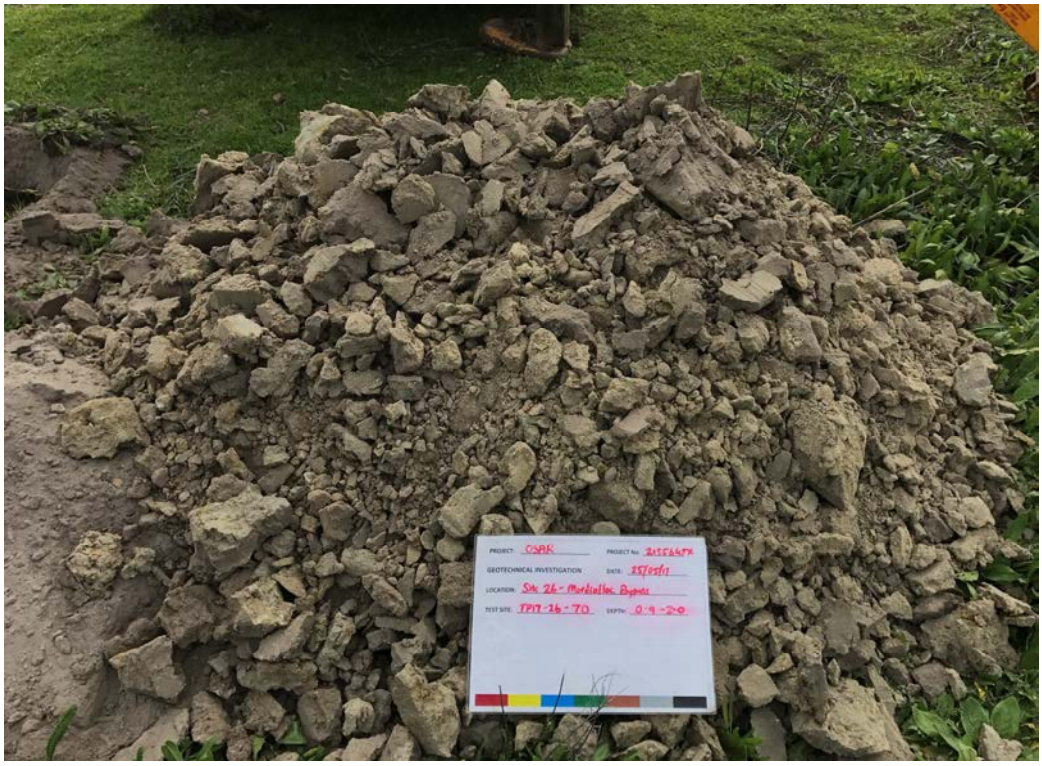
Test Pit Information							Field Material Description						
METHOD	SUPPORT	WATER	RL (m AHD)	DEPTH (m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	POCKET PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	Nil	NFGWE	9.5	0.5		ES		SM	SAND; fine to coarse grained, grey-brown, with silt.	D			QUATERNARY ALLUVIUM DCP refusal at 0.27m ES=Environmental Sample PID=0ppm
			9.0	0.90				CH	Sandy CLAY; high plasticity, grey-brown, mottled orange, fine to coarse grained sand.	M			BRIGHTON GROUP
			8.5	1.0									
			8.0	1.5									
			7.5	2.0					END OF TEST PIT AT 2.00 m Target depth achieved				
			7.0										
			6.5										
			6.0										

This Test Pit log should be read in conjunction with WSP's accompanying standard notes.

WSP Australia Pty Ltd. V00 8.30.002 PB_LIB_7.5_WN_NEW_LOGO.GLB Log PB NON-CORED LOG SITE 26 - MORDIALLOC LOGS.GPJ <<DrawingFile>> 10/11/2017 14:13 Developed by Datgel Pty Ltd



TP17-26-70 – Excavation



TP17-26-70– Excavated Spoil

drawn	HP		client: VICROADS	
approved	PP		project: MORDIALLOC BYPASS	
date	30 JUNE 2017			
scale	NTS		title: TEST PIT PHOTOS	
original size	A4		project no: 2135645A	figure no: TP17 – 26 – 70

BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO. **GB17-26-01**

SHEET 1 OF 1

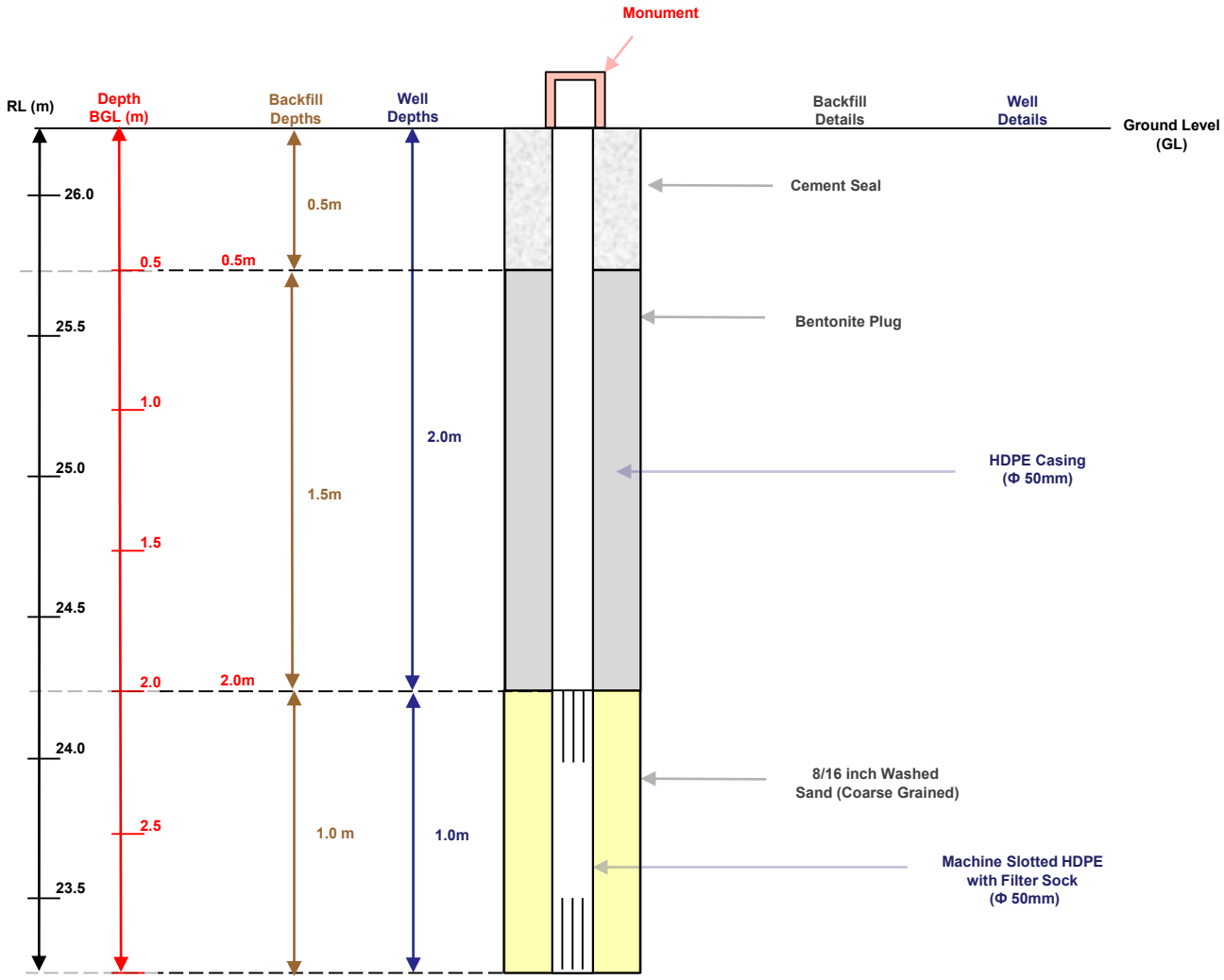
Client:	**VicRoads**	Date Commenced:	**24-8-17**
Project:	**Mordialloc Freeway**	Date Completed:	**24-8-17**
Borehole Location:	**Dingley Bypass**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**JC**

Drill Model/Mounting:	**Comacchio Geo 205**	Driller:	**Earthcore**	Surface RL:	**26.21 m**
Borehole Diameter:	**100 mm**	Driller Lic No:	**0738**	Co-ords:	**E 334454 N 5796919**

Borehole Information							Field Material Description					
1 METHOD	2 SUPPORT	3 WATER	4 WELL CONSTRUCTION	5 RL(m) / DEPTH(m)	6 FIELD TEST	7 SAMPLE	8 GRAPHIC LOG	9 USC SYMBOL	10 SOIL/ROCK MATERIAL FIELD DESCRIPTION	11 MOISTURE	12 RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	13 STRUCTURE AND ADDITIONAL OBSERVATIONS
AS		N F G W E	Cement Seal Bentonite Plug Sand (coarse grained) Machine slotted HDPE	26 0.25 0.60 25 1 24 2 3.00 3 23				CI-CH	FILL: CLAY; brown grey, with fine to coarse grained gravel. FILL: SAND; fine grained, dark brown, trace fine grained gravel. Sandy CLAY; medium to high plasticity, orange brown, pale brown grey END OF BOREHOLE AT 3.00 m			FILL TERTIARY BRIGHTON GROUP (RED BLUFF FORMATION)

This borehole log should be read in conjunction with WSP's accompanying standard notes.

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drawn	RS		client: VICROADS	
approved	PP		project: MORDIALLOC FREEWAY	
date	31 JAN 2018			
scale	NTS		title: GAS BORE PIEZOMETER INSTALLATION DETAILS	
original size	A4		project no: 2135645A	figure no: GB17-26-01

BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO. **GB17-26-02**

SHEET 1 OF 1

Client:	**VicRoads**	Date Commenced:	**25-8-17**
Project:	**Mordialloc Freeway**	Date Completed:	**25-8-17**
Borehole Location:	**Dingley Bypass**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**JC**

Drill Model/Mounting:	**Comacchio Geo 305**	Driller:	**Earthcore**	Surface RL:	**27.56 m**
Borehole Diameter:	**100 mm**	Driller Lic No:	**0738**	Co-ords:	**E 334855 N 5796868**

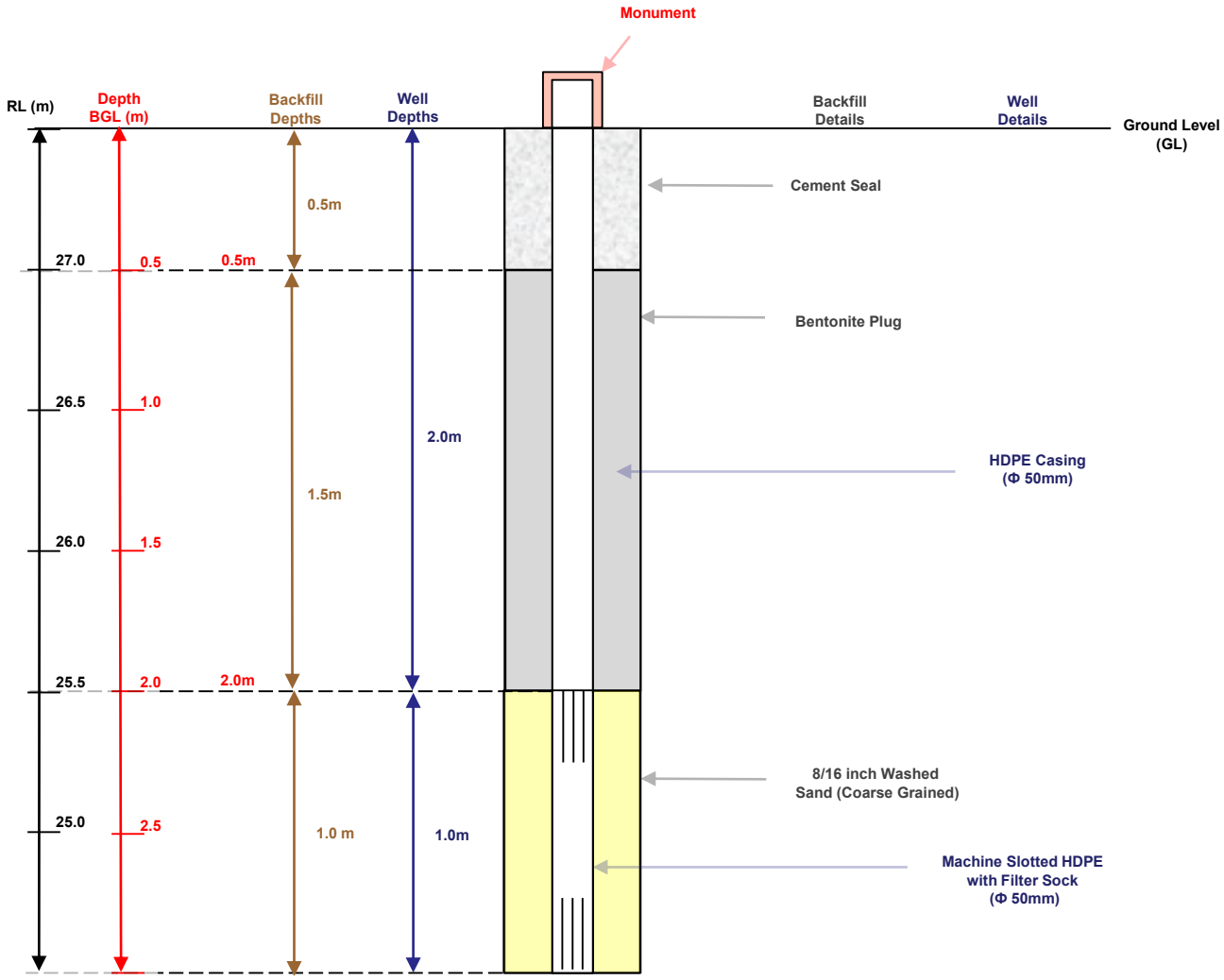
Borehole Information | **Field Material Description**

1 METHOD	2 SUPPORT	3 WATER	4 WELL CONSTRUCTION	5 RL(m) / DEPTH(m)	6 FIELD TEST	7 SAMPLE	8 GRAPHIC LOG	9 USC SYMBOL	10 SOIL/ROCK MATERIAL FIELD DESCRIPTION	11 MOISTURE	12 RELATIVE DENSITY /CONSISTENCY	13 STRUCTURE AND ADDITIONAL OBSERVATIONS
AS		N F G W E	Cement Seal Bentonite Plug Sand (coarse grained) Machine slotted HDPE	27 26 25 24 0.30 1.00 1 2 2.40 3.00 3				CI-CH	FILL: CLAY; medium plasticity, dark brown, grey, some fine to medium grained sand and gravel.	M		FILL
								CI-CH	Silty CLAY; medium to high plasticity, pale grey, orange brown, some fine grained sand.			TERTIARY BRIGHTON GROUP (RED BLUFF FORMATION)
								CI-CH	Sandy CLAY; medium to high plasticity, pale grey, orange brown, fine grained sand.			
								SP	SAND; fine grained, pale grey.			
									END OF BOREHOLE AT 3.00 m			

RELATIVE DENSITY /CONSISTENCY: VS S F ST VST H | FB VL L MD D VD

This borehole log should be read in conjunction with WSP's accompanying standard notes.

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drawn	RS		client: VICROADS	
approved	PP		project: MORDIALLOC FREEWAY	
date	31 JAN 2018			
scale	NTS		title: GAS BORE PIEZOMETER INSTALLATION DETAILS	
original size	A4		project no: 2135645A	figure no: GB17-26-02

BOREHOLE NO.

BOREHOLE ENVIRONMENTAL LOG GB17-26-03

SHEET 1 OF 1

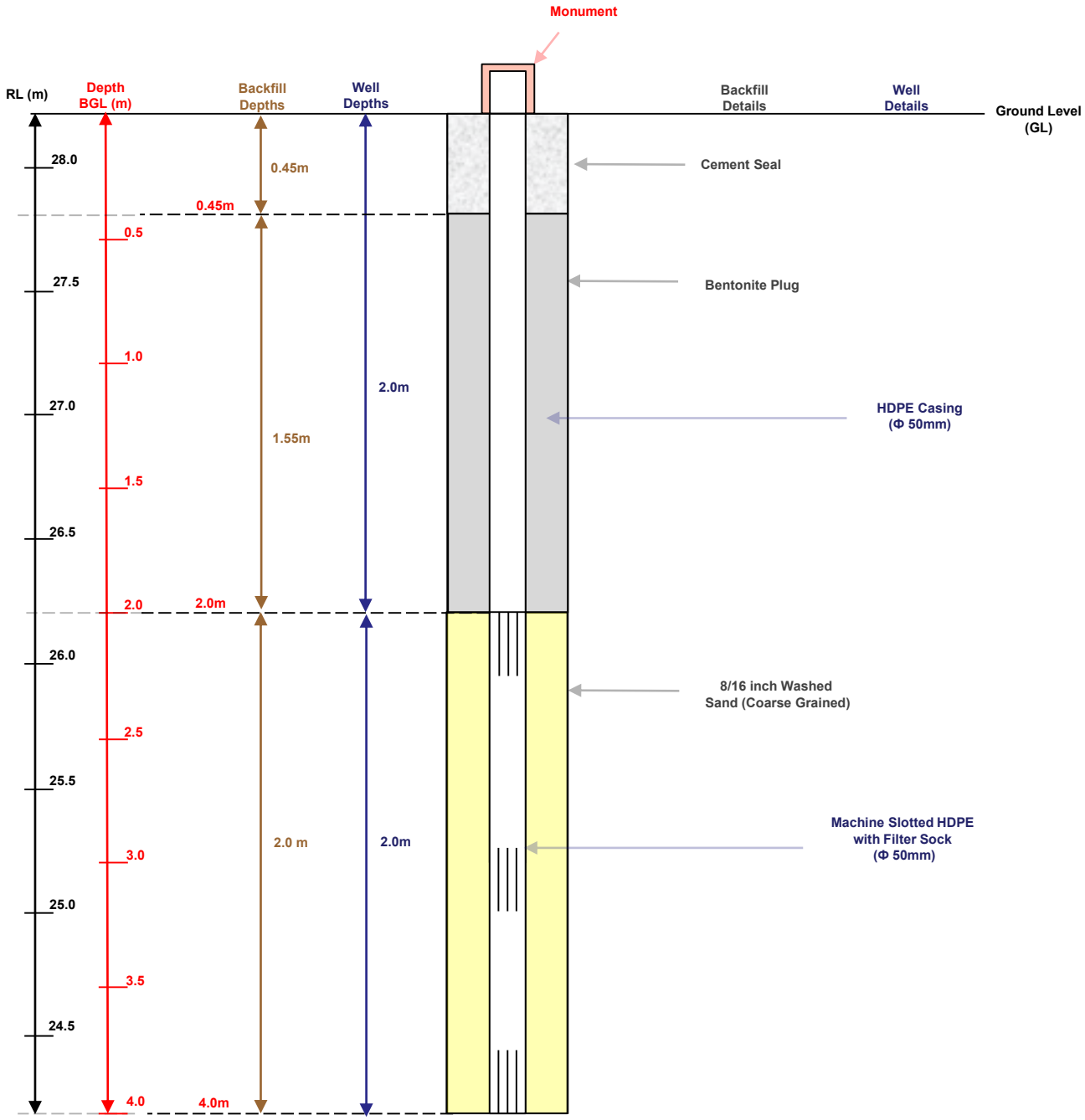
Client:	**VicRoads**	Date Commenced:	**25-8-17**
Project:	**Mordialloc Freeway**	Date Completed:	**25-8-17**
Borehole Location:	**Dingley Village**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**JC**

Drill Model/Mounting:	**Comacchio Geo 305**	Driller:	**Earthcore**	Surface RL:	**28.21 m**
Borehole Diameter:	**100 mm**	Driller Lic No:	**0738**	Co-ords:	**E 334678 N 5796823**

Borehole Information							Field Material Description					
1	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
		N F G W E	Cement Seal	28					FILL: Clayey SAND; fine grained, grey.			FILL
				0.30					FILL: Sandy CLAY; medium plasticity, orange brown, grey, pale grey, trace fine grained gravel.			
			Bentonite Plug	1								
				27								
AS			Sand (coarse grained) Machine slotted HDPE	2.00 2				CI	Sandy CLAY; medium plasticity, pale brown, orange brown, pale grey, fine grained sand.			TERTIARY BRIGHTON GROUP (RED BLUFF FORMATION)
				26								
				3								
				25								
				4.00 4					END OF BOREHOLE AT 4.00 m			

This borehole log should be read in conjunction with WSP's accompanying standard notes.

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drawn	RS		client: VICROADS	
approved	PP		project: MORDIALLOC FREEWAY	
date	31 JAN 2018			
scale	NTS		title: GAS BORE PIEZOMETER INSTALLATION DETAILS	
original size	A4		project no: 2135645A	figure no: GB17-26-03

BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO. **GB17-26-04**

SHEET 1 OF 1

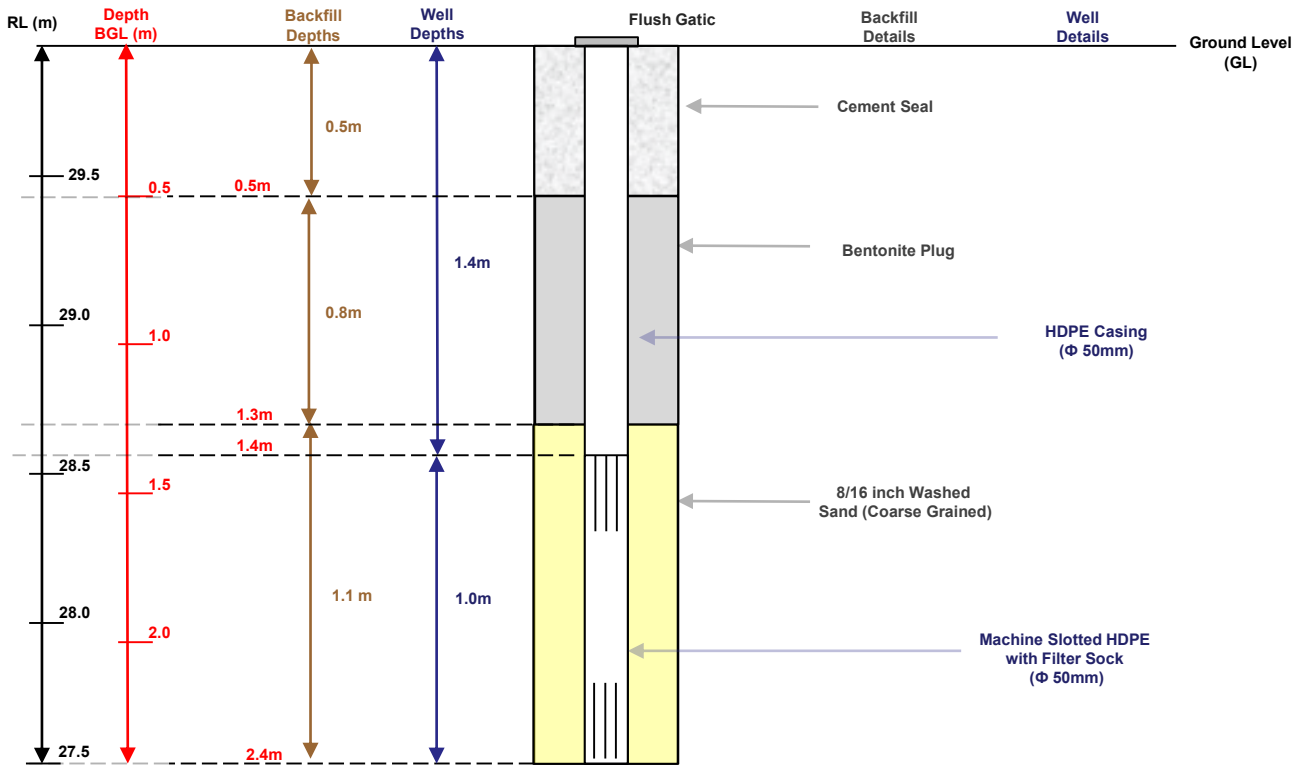
Client:	**VicRoads**	Date Commenced:	**1-9-17**
Project:	**Mordialloc Freeway**	Date Completed:	**1-9-17**
Borehole Location:	**Dingley Village**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**JC**

Drill Model/Mounting:	**Comacchio Geo 305**	Driller:	**Earthcore**	Surface RL:	**29.91 m**
Borehole Diameter:	**100 mm**	Driller Lic No:	**0738**	Co-ords:	**E 334671 N 5796699**

Borehole Information							Field Material Description					
1	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
AS		N F G W E	Cement Seal Bentonite Plug Sand (coarse grained) Machine slotted HDPE	0.40 29 1 28 2 2.40 27 3 26					FILL: Sandy GRAVEL; fine to coarse grained, grey, brown, with brick fragments. FILL: CLAY; medium plasticity, dark brown, grey, with metal pieces. END OF BOREHOLE AT 2.40 m	M		FILL

This borehole log should be read in conjunction with WSP's accompanying standard notes.

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drawn	RS		client: VICROADS	
approved	PP		project: MORDIALLOC FREEWAY	
date	31 JAN 2018			
scale	NTS		title: GAS BORE PIEZOMETER INSTALLATION DETAILS	
original size	A4		project no: 2135645A	figure no: GB17-26-04

BOREHOLE NO.

BOREHOLE ENVIRONMENTAL LOG GB17-26-05

SHEET 1 OF 1

Client:	**VicRoads**	Date Commenced:	**12/9/17**
Project:	**OSAR**	Date Completed:	**12/9/17**
Borehole Location:	**Mordialloc Bypass**	Recorded By:	**R. Wilson**
Project Number:	**2135645A**	Log Checked By:	

Drill Model/Mounting:	**Geoprobe 305**	Driller:	**Earthcore**	Surface RL:	
Borehole Diameter:	**110 mm**	Driller Lic No:		Co-ords:	

Borehole Information							Field Material Description					
	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
								CL	FILL: CLAY. Moist, brown, grey, medium plasticity with fine to coarse grained sand and fine to coarse gravel, trace brick fragments and cobbles.			FILL
				0.70				CL	becoming pale grey-brown, dark grey with odour.			
				1								
				2.00 2					END OF BOREHOLE AT 2.00 m			
				3								
				4								

This borehole log should be read in conjunction with WSP | Parsons Brinckerhoff's accompanying standard notes.

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BOREHOLE NO.

BOREHOLE ENVIRONMENTAL LOG

GB17-26-06

SHEET 1 OF 1

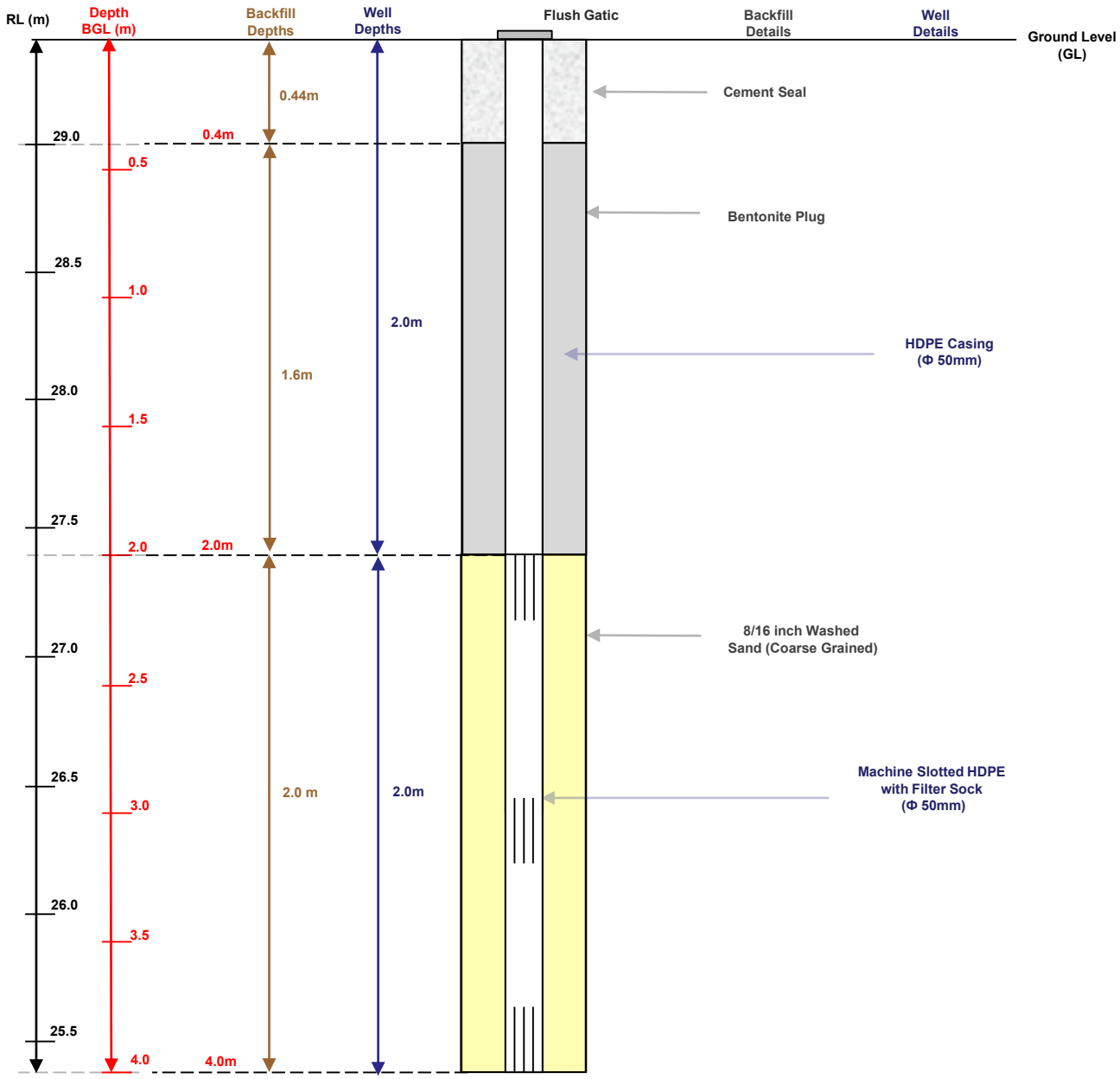
Client:	**VicRoads**	Date Commenced:	**8-9-17**
Project:	**Mordialloc Freeway**	Date Completed:	**8-9-17**
Borehole Location:	**Dingley Village**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**JC**

Drill Model/Mounting:	**Comacchio Geo 305**	Driller:	**Earthcore**	Surface RL:	**29.44 m**
Borehole Diameter:	**100 mm**	Driller Lic No:	**0738**	Co-ords:	**E 334638 N 5796559**

Borehole Information							Field Material Description					
1	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (FB VL L MD D VD / VS S F ST VST H)	STRUCTURE AND ADDITIONAL OBSERVATIONS
		N F G W E	Cement Seal						FILL: Sandy GRAVEL; fine to coarse grained, grey.	D		FILL
			Bentonite Plug	29								
				0.60				SP	SAND; fine grained, dark grey to grey.	M		QUATERNARY ALLUVIUM
				1								
				1.40				CI-CH	Silty CLAY; medium to high plasticity, orange brown, red, grey.			TERTIARY BRIGHTON GROUP (RED BLUFF FORMATION)
AS			Sand (coarse grained)	28								
			Machine slotted HDPE	2.00 2				CI	Sandy CLAY; medium plasticity, orange brown, red brown, fine to medium grained sand.			
				27								
				3						D-M		3.0m becoming cemented, very slow auger penetration
				26								
				4.00 4					END OF BOREHOLE AT 4.00 m			

This borehole log should be read in conjunction with WSP's accompanying standard notes.

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drawn	RS		client: VICROADS	
approved	PP		project: MORDIALLOC FREEWAY	
date	31 JAN 2018			
scale	NTS		title: GAS BORE PIEZOMETER INSTALLATION DETAILS	
original size	A4		project no: 2135645A	figure no: GB17-26-06

BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO. **GB17-26-07**

SHEET 1 OF 1

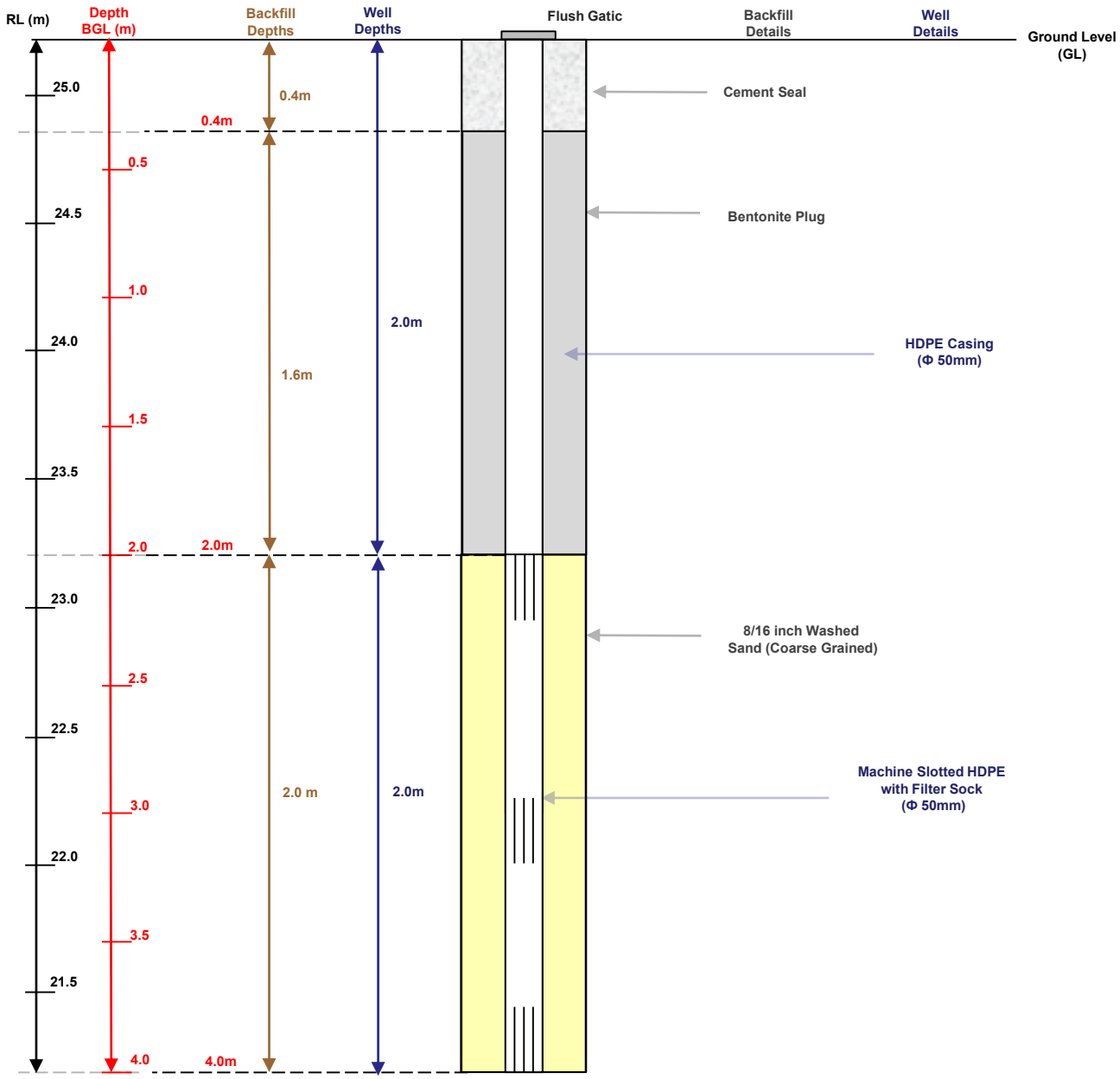
Client:	**VicRoads**	Date Commenced:	**31-8-17**
Project:	**Mordialloc Freeway**	Date Completed:	**31-8-17**
Borehole Location:	**Dingley Village**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**JC**

Drill Model/Mounting:	**Comacchio Geo 305**	Driller:	**Earthcore**	Surface RL:	**25.33 m**
Borehole Diameter:	**100 mm**	Driller Lic No:	**0738**	Co-ords:	**E 334606 N 5796353**

Borehole Information							Field Material Description					
1	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
		N F G W E	Cement Seal	25					FILL: Sandy GRAVEL; fine to coarse grained, brown, grey, fine to coarse grained sand.			FILL
				0.30					FILL: SAND; fine grained, dark grey, black, with gravel and cobbles.			
			Bentonite Plug	0.60				SP	SAND; fine grained, brown, pale brown.			QUATERNARY ALLUVIUM
				0.80				CI	Sandy CLAY; medium plasticity, pale grey, orange brown, fine grained sand.			TERTIARY BRIGHTON GROUP (RED BLUFF FORMATION)
				1								
				24								
				1.60				SC	Clayey SAND; fine grained, pale grey, orange brown.			
AS			Sand (coarse grained) Machine slotted HDPE	2								
				23								
				3								
				22								
				4.00 4					END OF BOREHOLE AT 4.00 m			

This borehole log should be read in conjunction with WSP's accompanying standard notes.

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drawn	RS		client: VICROADS	
approved	PP		project: MORDIALLOC FREEWAY	
date	31 JAN 2018		title: GAS BORE PIEZOMETER INSTALLATION DETAILS	
scale	NTS		project no: 2135645A	figure no: GB17-26-07
original size	A4			

BOREHOLE NO.

BOREHOLE ENVIRONMENTAL LOG

GB17-26-08

SHEET 1 OF 1

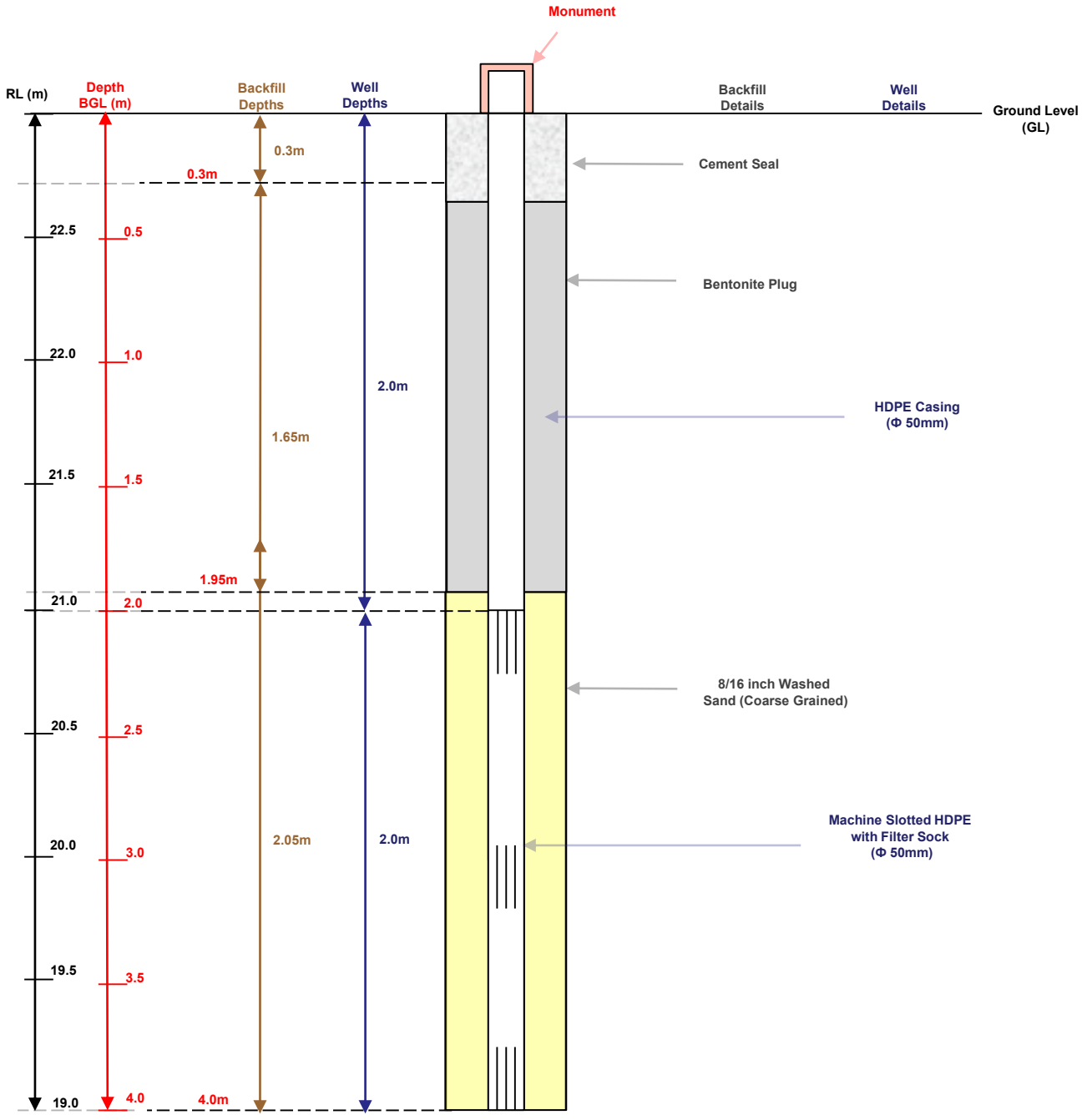
Client:	**VicRoads**	Date Commenced:	**24-8-17**
Project:	**Mordialloc Freeway**	Date Completed:	**24-8-17**
Borehole Location:	**Dingley Village**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**JC**

Drill Model/Mounting:	**Comacchio Geo 305**	Driller:	**Earthcore**	Surface RL:	**22.92 m**
Borehole Diameter:	**100 mm**	Driller Lic No:	**0738**	Co-ords:	**E 334579 N 5796196**

Borehole Information							Field Material Description				
2	3	4	5		6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m)	DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
		N F G W E	Cement Seal							FILL: CLAY; medium to high plasticity, brown, grey, with fine to coarse grained gravel and sand, with brick fragments, odour.			FILL
			Bentonite Plug	22	1								
					1.60				CH	Silty CLAY; high plasticity, grey.	W		QUATERNARY ALLUVIUM
AS			Sand (coarse grained) Machine slotted HDPE	21	2								
				20	3								
					3.80				CI-CH	Sandy CLAY; medium to high plasticity, orange brown, grey, fine to medium grained sand.			TERTIARY BRIGHTON GROUP (RED BLUFF FORMATION)
				19	4.00 4					END OF BOREHOLE AT 4.00 m			

This borehole log should be read in conjunction with WSP's accompanying standard notes.

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drawn	RS		client: VICROADS	
approved	PP		project: MORDIALLOC FREEWAY	
date	31 JAN 2018		title: GAS BORE PIEZOMETER INSTALLATION DETAILS	
scale	NTS		project no: 2135645A	figure no: GB17-26-08
original size	A4			

BOREHOLE NO.

BOREHOLE ENVIRONMENTAL LOG

GB17-26-09

SHEET 1 OF 1

Client:	**VicRoads**	Date Commenced:	**24-8-17**
Project:	**Mordialloc Freeway**	Date Completed:	**24-8-17**
Borehole Location:	**Dingley Village**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**JC**

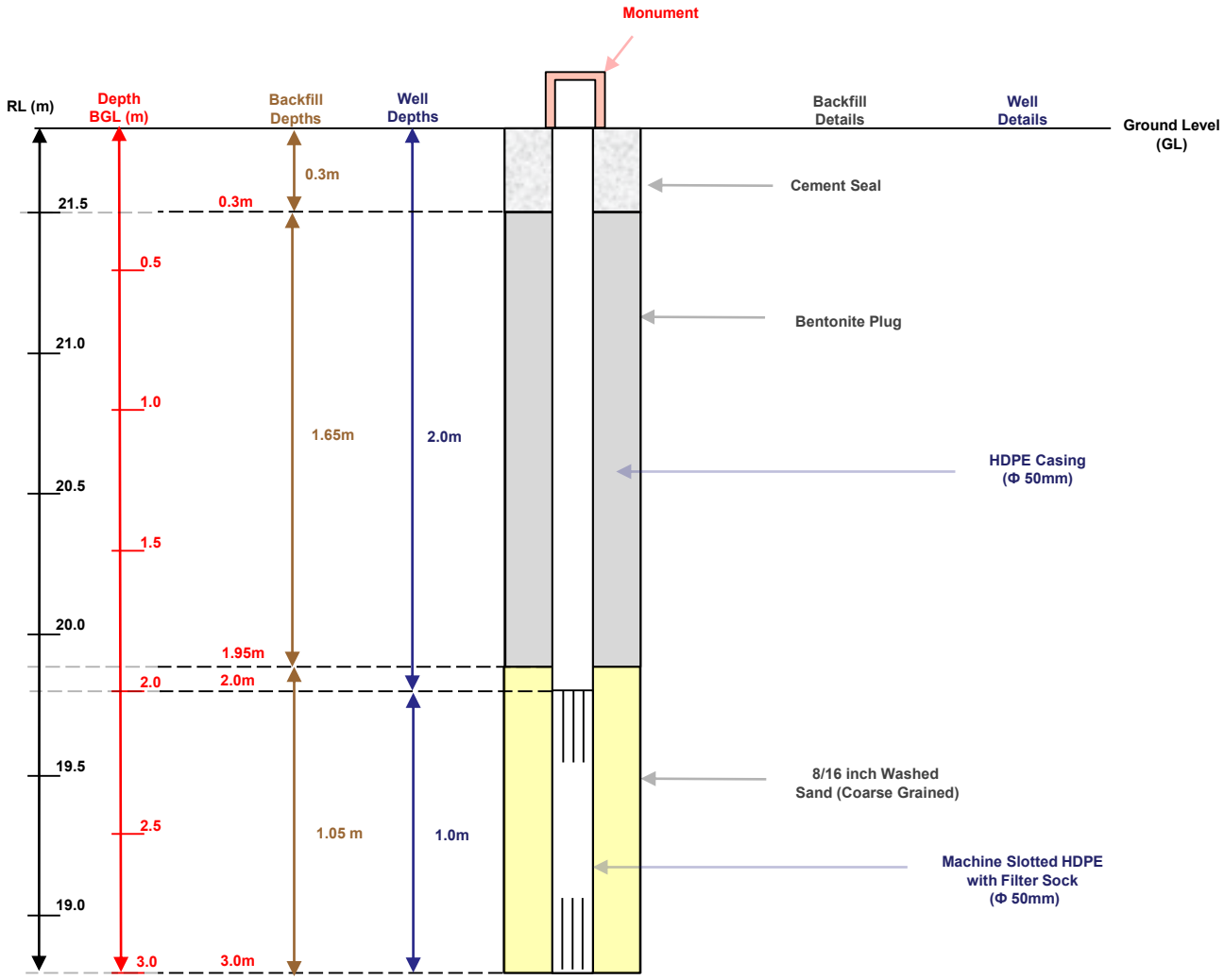
Drill Model/Mounting:	**Comacchio Geo 305**	Driller:	**Earthcore**	Surface RL:	**21.79 m**
Borehole Diameter:	**100 mm**	Driller Lic No:	**0738**	Co-ords:	**E 334559.23 N 5796073.808**

Borehole Information | **Field Material Description**

1 METHOD	2 SUPPORT	3 WATER	4 WELL CONSTRUCTION	5 RL(m)	5 DEPTH(m)	6 FIELD TEST	7 SAMPLE	8 GRAPHIC LOG	9 USC SYMBOL	10 SOIL/ROCK MATERIAL FIELD DESCRIPTION	11 MOISTURE	12 RELATIVE DENSITY /CONSISTENCY	13 STRUCTURE AND ADDITIONAL OBSERVATIONS
AS		N F G W E	Cement Seal Bentonite Plug Sand (coarse grained) Machine slotted HDPE	21 20 19 18	1 1.80 2 3.00 3				CI-SC	FILL: CLAY; medium plasticity, orange brown, with fine to medium grained gravel and sand. Clayey SAND/Sandy CLAY; medium plasticity, fine to medium grained sand, grey, red brown, orange brown. END OF BOREHOLE AT 3.00 m	M-W	FB VL L MD D VD VS S F ST VST H	FILL TERTIARY BRIGHTON GROUP (RED BLUFF FORMATION)

This borehole log should be read in conjunction with WSP's accompanying standard notes.

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drawn	RS		client: VICROADS	
approved	PP		project: MORDIALLOC FREEWAY	
date	31 JAN 2018			
scale	NTS		title: GAS BORE PIEZOMETER INSTALLATION DETAILS	
original size	A4		project no: 2135645A	figure no: GB17-26-09

BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO. **GB17-26-10**

SHEET 1 OF 1

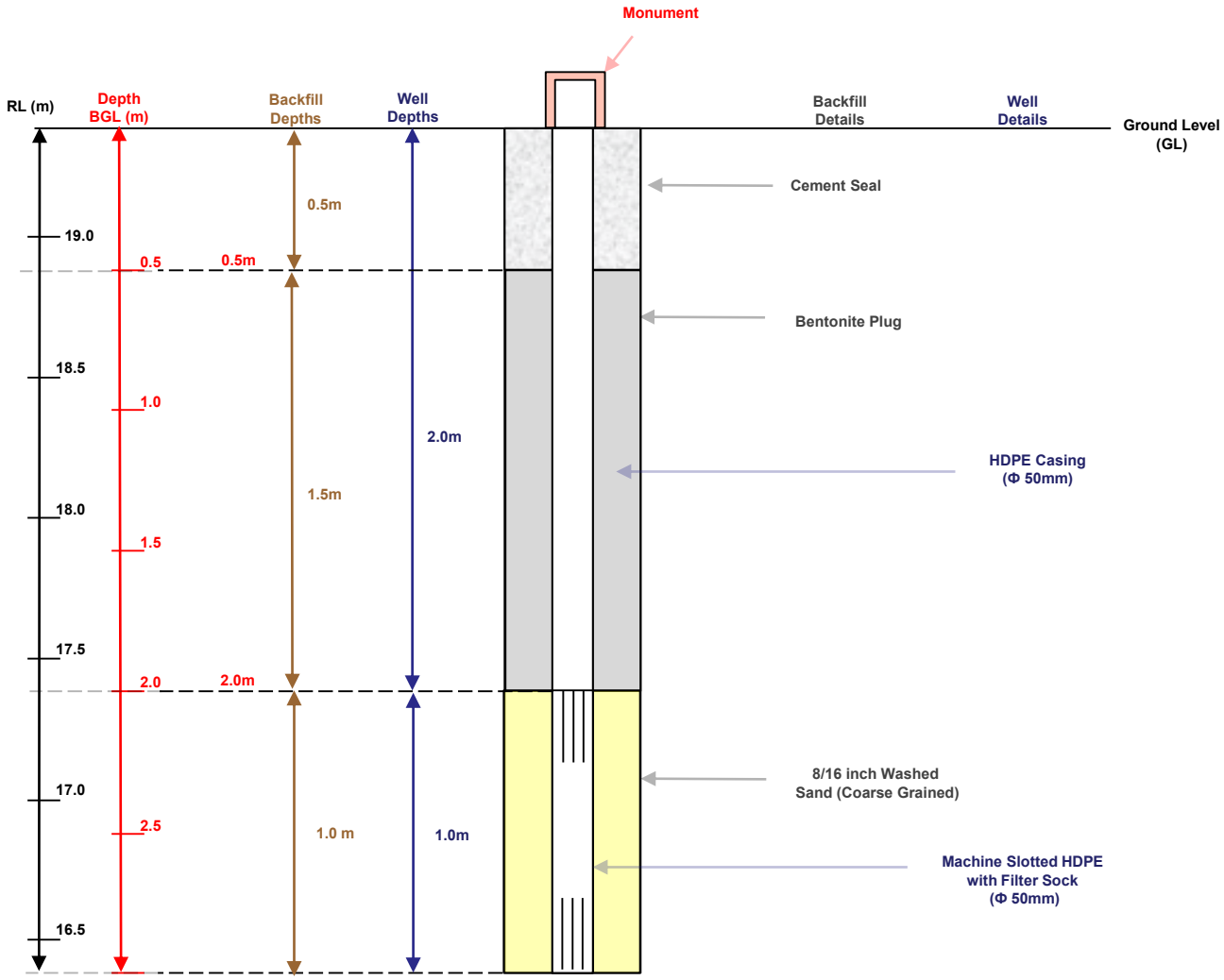
Client:	**VicRoads**	Date Commenced:	**25-8-17**
Project:	**Mordialloc Freeway**	Date Completed:	**25-8-17**
Borehole Location:	**Dingley Village**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**JC**

Drill Model/Mounting:	**Comacchio Geo 305**	Driller:	**Earthcore**	Surface RL:	**19.39 m**
Borehole Diameter:	**100 mm**	Driller Lic No:	**0738**	Co-ords:	**E 334500.444 N 5795964.544**

Borehole Information							Field Material Description					
1	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (FB VL L MD D VD / VS S F ST VST H)	STRUCTURE AND ADDITIONAL OBSERVATIONS
AS		N F G W E	Cement Seal	19				SP	SAND; fine grained, grey.			QUATERNARY ALLUVIUM
			Bentonite Plug	1.00 1				SP	SAND; fine grained, pale brown, grading to orange brown, trace clay pockets.			TERTIARY BRIGHTON GROUP (RED BLUFF FORMATION)
			Sand (coarse grained) Machine slotted HDPE	18 2								
				17 2.50				CI	Sandy CLAY; medium plasticity, orange brown, pale grey, fine grained sand.			
				3.00 3					END OF BOREHOLE AT 3.00 m			
				16								

This borehole log should be read in conjunction with WSP's accompanying standard notes.

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drawn	RS		client: VICROADS	
approved	PP		project: MORDIALLOC FREEWAY	
date	31 JAN 2018			
scale	NTS		title: GAS BORE PIEZOMETER INSTALLATION DETAILS	
original size	A4		project no: 2135645A	figure no: GB17-26-10

BOREHOLE NO.

BOREHOLE ENVIRONMENTAL LOG GW17-26-01

SHEET 1 OF 2

Client:	**VicRoads**	Date Commenced:	**8-9-18**
Project:	**Mordialloc Freeway**	Date Completed:	**8-9-17**
Borehole Location:	**Landfill**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**JC**

Drill Model/Mounting:	**Comacchio Geo 305**	Driller:	**Earthcore**	Surface RL:	**29.59 m**
Borehole Diameter:	**100 mm**	Driller Lic No:	**0738**	Co-ords:	**E 334659.71 N 5796555.71**

Borehole Information							Field Material Description					
1	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
WB			Cement Seal	29					FILL: Sandy GRAVEL; grey, fine to coarse grained with brick fragments	D		FILL
				0.70					FILL: Gravelly SAND; fine grained, dark grey-brown, some fine to medium grained gravel			
			Bentonite Plug	1								
				1.10					FILL: SAND; fine grained, brown-grey brown.	M		
				28								
				2.00 2				CI	Sandy CLAY; medium plasticity, red brown, orange brown, fine to coarse grained sand.	MC~PL		TERTIARY BRIGHTON GROUP (RED BLUFF FORMATION)
				27								
				3						MC<PL		
			Sand (coarse grained)	26								

This borehole log should be read in conjunction with WSP's accompanying standard notes.

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BOREHOLE NO.

BOREHOLE ENVIRONMENTAL LOG GW17-26-01

SHEET 2 OF 2

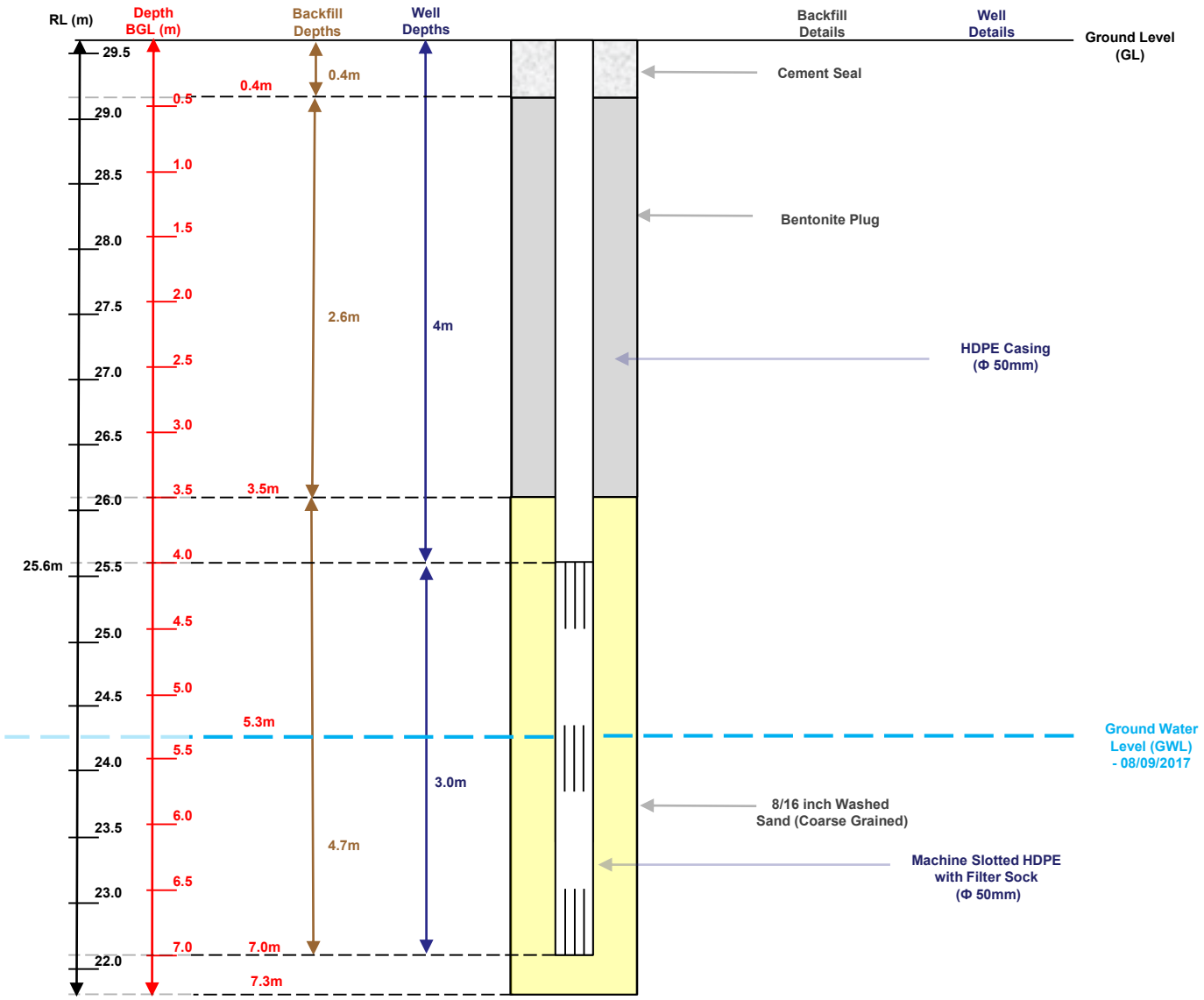
Client:	**VicRoads**	Date Commenced:	**8-9-18**
Project:	**Mordialloc Freeway**	Date Completed:	**8-9-17**
Borehole Location:	**Landfill**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**JC**

Drill Model/Mounting:	**Comacchio Geo 305**	Driller:	**Earthcore**	Surface RL:	**29.59 m**
Borehole Diameter:	**100 mm**	Driller Lic No:	**0738**	Co-ords:	**E 334659.71 N 5796555.71**

Borehole Information							Field Material Description					
1	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
WB		▼	Machine slotted HDPE with filter sock	25				CI	Sandy CLAY; medium plasticity, red brown, orange brown, fine to coarse grained sand. *(continued)*	MC<PL		TERTIARY BRIGHTON GROUP (RED BLUFF FORMATION)
				4.50				SC	Clayey SAND; fine grained, orange brown.	W		
				24								
				5								
				23								
				6								
				22								
				7								
				7.30					END OF BOREHOLE AT 7.30 m			

This borehole log should be read in conjunction with WSP's accompanying standard notes.

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drawn	RS		client: VICROADS	
approved	PP		project: MORDIALLOC FREEWAY	
date	31 JAN 2018			
scale	NTS		title: GROUNDWATER PIEZOMETER INSTALLATION DETAILS	
original size	A4		project no: 2135645A	figure no: GW17-26-01

BOREHOLE NO.

BOREHOLE ENVIRONMENTAL LOG GW17-26-02

SHEET 1 OF 3

Client:	**VicRoads**	Date Commenced:	**30-8-17**
Project:	**Mordialloc Freeway**	Date Completed:	**31-8-17**
Borehole Location:	**Nursery**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**JC**

Drill Model/Mounting:	**Comacchio Geo 305**	Driller:	**Earthcore**	Surface RL:	**21.15 m**
Borehole Diameter:	**100 mm**	Driller Lic No:	**0738**	Co-ords:	**E 334603.626 N 5796353.996**

Borehole Information							Field Material Description					
	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
WB			Cement Seal; Bentonite Plug; Sand (coarse grained)	21 / 0.00 0.30 0.50 0.70 20 / 1 19 / 2 2.70 18 / 3					FILL: Sandy GRAVEL; fine to coarse grained, brown grey, yellow brown, fine to coarse grained sand.			FILL
									FILL: Gravelly SAND; fine grained, black, organic odour			
								SP	SAND; fine grained, pale brown, grey, with organic odour.			INFERRED QUATERNARY ALLUVIUM
								SC	Clayey SAND; fine to medium grained, red brown, orange brown, pale grey-brown, low to medium plasticity clay.			TERTIARY BRIGHTON GROUP (RED BLUFF FORMATION)
								SP	SAND; fine to medium grained, orange brown, pale brown, with some clay.			

This borehole log should be read in conjunction with WSP's accompanying standard notes.

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BOREHOLE NO.

BOREHOLE ENVIRONMENTAL LOG GW17-26-02

SHEET 2 OF 3

Client:	**VicRoads**	Date Commenced:	**30-8-17**
Project:	**Mordialloc Freeway**	Date Completed:	**31-8-17**
Borehole Location:	**Nursery**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**JC**

Drill Model/Mounting:	**Comacchio Geo 305**	Driller:	**Earthcore**	Surface RL:	**21.15 m**
Borehole Diameter:	**100 mm**	Driller Lic No:	**0738**	Co-ords:	**E 334603.626 N 5796353.996**

Borehole Information							Field Material Description					
1	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
WB		▼	Machine slotted HDPE with filter sock	17 5 16 6 15 7 14 7.20				SP	SAND; fine to medium grained, orange brown, pale brown, with some clay. *(continued)* 4.2m becoming orange brown, red brown, pale brown 4.5m becoming pale brown, white, orange-brown			
								SP	SAND; fine to medium grained, dark brown-grey, trace clay.			TERTIARY BRIGHTON GROUP (BEAUMARIS SANDSTONE)

This borehole log should be read in conjunction with WSP's accompanying standard notes.

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BOREHOLE NO.

BOREHOLE ENVIRONMENTAL LOG GW17-26-02

SHEET 3 OF 3

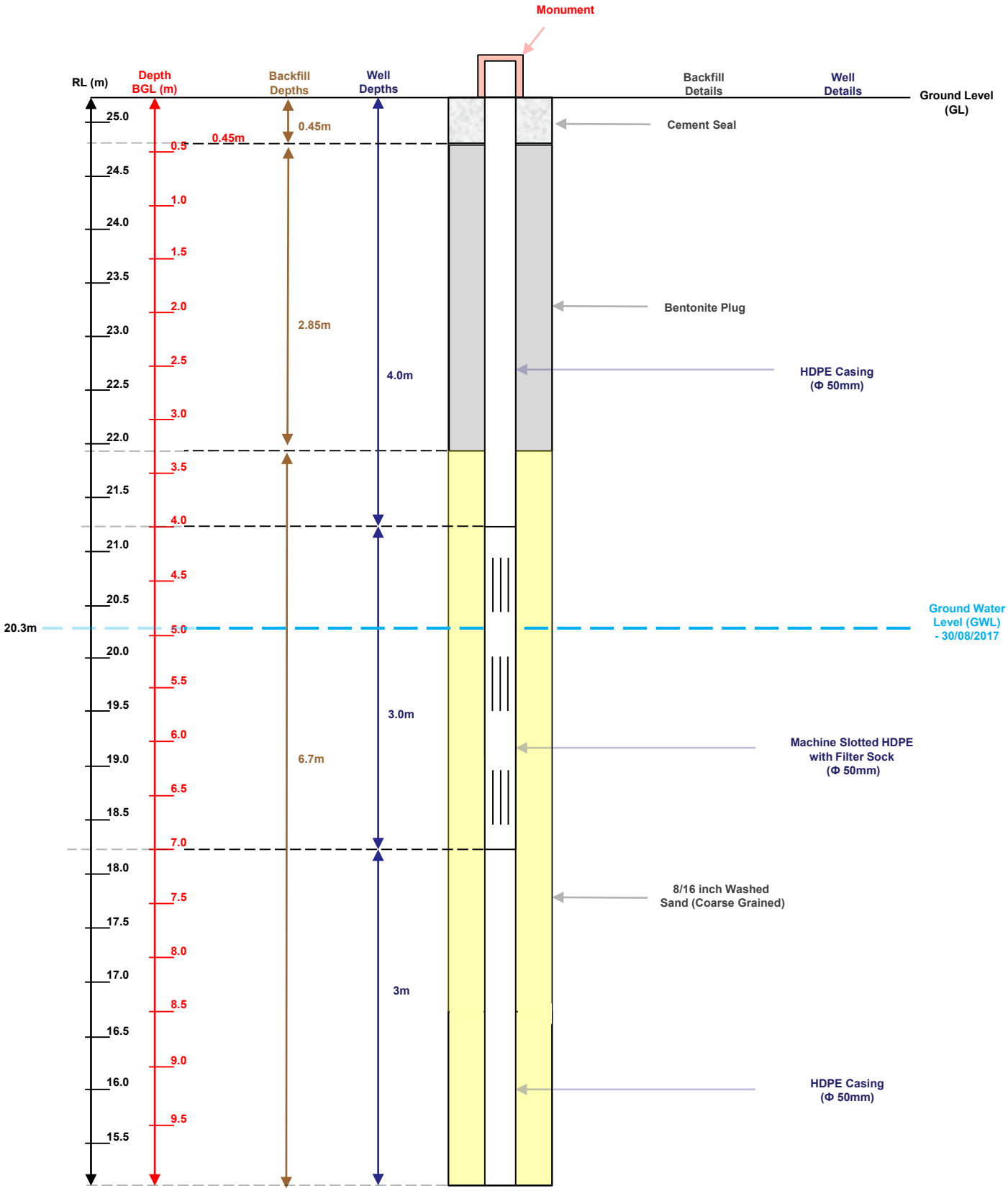
Client:	**VicRoads**	Date Commenced:	**30-8-17**
Project:	**Mordialloc Freeway**	Date Completed:	**31-8-17**
Borehole Location:	**Nursery**	Recorded By:	**JL**
Project Number:	**2135645A**	Log Checked By:	**JC**

Drill Model/Mounting:	**Comacchio Geo 305**	Driller:	**Earthcore**	Surface RL:	**21.15 m**
Borehole Diameter:	**100 mm**	Driller Lic No:	**0738**	Co-ords:	**E 334603.626 N 5796353.996**

Borehole Information							Field Material Description					
1	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
				13				SP	SAND; fine to medium grained, dark brown-grey, trace clay. *(continued)*			
WB				9					8.8m becoming dark grey, with some clay pockets			
				12								
				10.00 10					END OF BOREHOLE AT 10.00 m			
				11								
				10								

This borehole log should be read in conjunction with WSP's accompanying standard notes.

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drawn	AM		client: VICROADS	
approved	NW		project: MORDIALLOC FREEWAY	
date	30 AUG 2017		title: GROUNDWATER PIEZOMETER INSTALLATION DETAILS	
scale	NTS		project no: 2135645A	figure no: GW17-26-02 (B17-68388)
original size	A4			

BOREHOLE NO.

BOREHOLE ENVIRONMENTAL LOG LW17-26-01

SHEET 1 OF 3

Client:	VicRoads	Date Commenced:	7-9-17
Project:	Mordialloc Freeway	Date Completed:	7-9-17
Borehole Location:	Landfill	Recorded By:	PP
Project Number:	2135645A	Log Checked By:	JC

Drill Model/Mounting:	Comacchio Geo 305	Driller:	Earthcore	Surface RL:	30.10 m
Borehole Diameter:	100 mm	Driller Lic No:	0738	Co-ords:	E 334653.97 N 5796624.01

Borehole Information							Field Material Description					
1	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
AS			Cement Seal; Bentonite Plug	30 / 0.30					FILL; Sandy CLAY: high plasticity, dark brown, fine grained sand	M		FILL
									FILL; SAND: fine grained, grey, cemented layer			PID@0.5m = 5.1ppm
				0.60					FILL; Sandy CLAY: high plasticity, pale brown, fine grained sand			
				1 / 29								PID@1.5m = 1.0 ppm
				2 / 28								PID@2.0m = 6.4 ppm
				2.60					2.5m trace plastic materials LANDFILL WASTE			
				3 / 27						M/W		hard to penetrate, very slow to auger through to 3.5m
									3.5m encountered wet waste, various hard materials along depth	W		

This borehole log should be read in conjunction with WSP's accompanying standard notes.

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BOREHOLE NO.

BOREHOLE ENVIRONMENTAL LOG

LW17-26-01

SHEET 2 OF 3

Client:	**VicRoads**	Date Commenced:	**7-9-17**
Project:	**Mordialloc Freeway**	Date Completed:	**7-9-17**
Borehole Location:	**Landfill**	Recorded By:	**PP**
Project Number:	**2135645A**	Log Checked By:	**JC**

Drill Model/Mounting:	**Comacchio Geo 305**	Driller:	**Earthcore**	Surface RL:	**30.10 m**
Borehole Diameter:	**100 mm**	Driller Lic No:	**0738**	Co-ords:	**E 334653.97 N 5796624.01**

Borehole Information							Field Material Description					
	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
				-26 / 5					LANDFILL WASTE *(continued)*	W		
WB			Sand (coarse grained)	-25								
				6								
			Machine slotted HDPE with filter sock	-24								
				7								
				-23								

This borehole log should be read in conjunction with WSP's accompanying standard notes.

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BOREHOLE NO.

BOREHOLE ENVIRONMENTAL LOG LW17-26-01

SHEET 3 OF 3

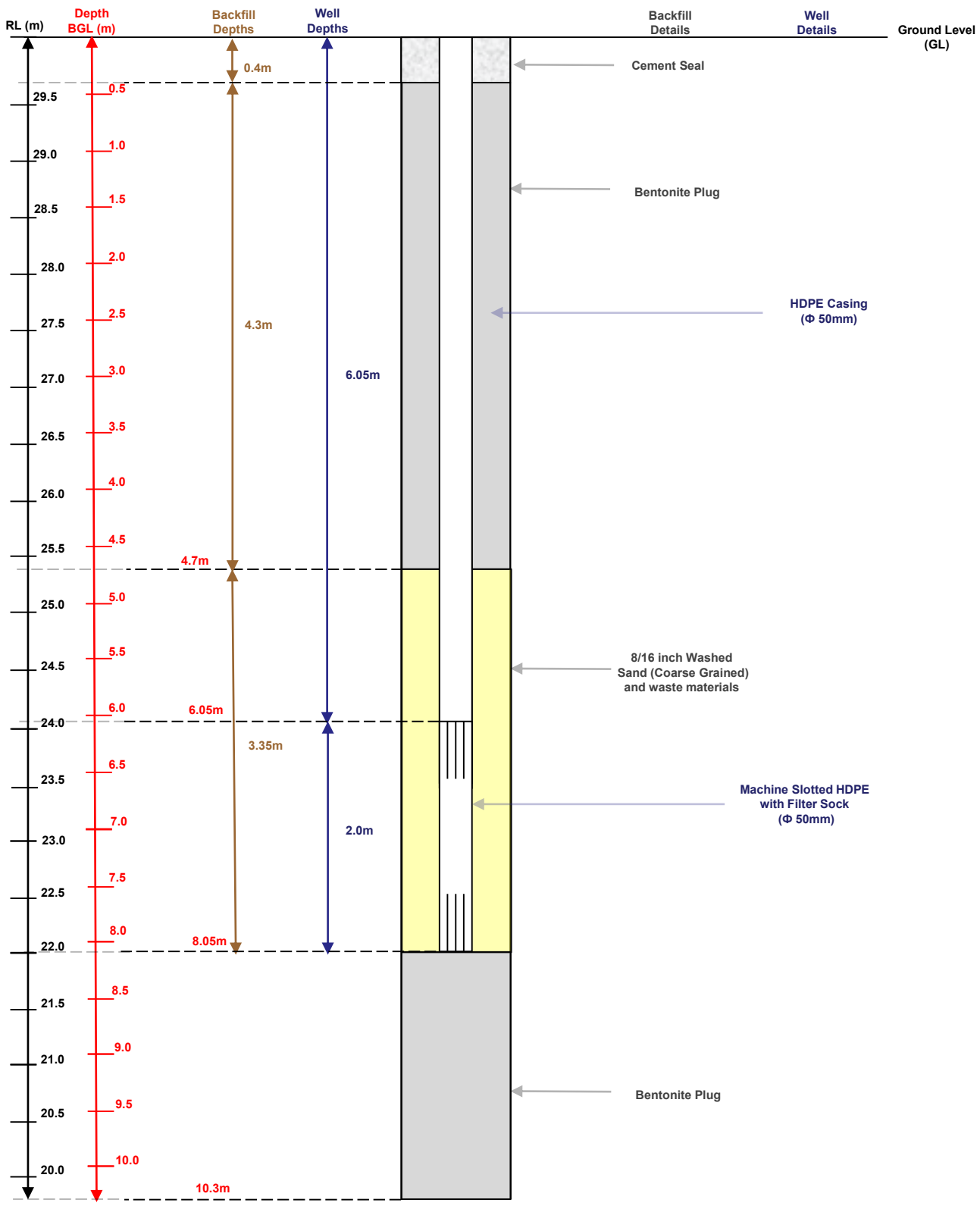
Client:	**VicRoads**	Date Commenced:	**7-9-17**
Project:	**Mordialloc Freeway**	Date Completed:	**7-9-17**
Borehole Location:	**Landfill**	Recorded By:	**PP**
Project Number:	**2135645A**	Log Checked By:	**JC**

Drill Model/Mounting:	**Comacchio Geo 305**	Driller:	**Earthcore**	Surface RL:	**30.10 m**
Borehole Diameter:	**100 mm**	Driller Lic No:	**0738**	Co-ords:	**E 334653.97 N 5796624.01**

Borehole Information							Field Material Description					
1	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
			Bentonite plug	22					LANDFILL WASTE *(continued)*	W		very hard to penetrate, very slow wash bore progress
				8.90				CH	Sandy CLAY: high plasticity, orange, pale brown, fine to coarse grained sand			TERTIARY BRIGHTON GROUP (RED BLUFF FORMATION)
WB				9								
				21								
				10								
				20								
				10.30					END OF BOREHOLE AT 10.30 m			
				11								
				19								

This borehole log should be read in conjunction with WSP's accompanying standard notes.

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drawn	RS		client: VICROADS	
approved	PP		project: MORDIALLOC FREEWAY	
date	31 JAN 2018		title: LEACHATE WELL PIEZOMETER INSTALLATION DETAILS	
scale	NTS		project no: 2135645A	figure no: LW17-26-01
original size	A4			

APPENDIX J

ANALYTICAL RESULTS

Table 1A. Soil analytical results summary - broad suite

				IWRG Combined Compounds								TRH							TPH					BTEX						
	pH (CaCl2)	Moisture Content	Chlorinated hydrocarbons	Monocylic aromatic hydrocarbons	Polycylic aromatic hydrocarbons	Organochlorine pesticides	Other chlorinated hydrocarbons	Other organochlorine pesticides	Phenols (non-halogenated)	Phenols(halogenated)	C10 - C16 Fraction	C16 - C34 Fraction	C10 - C40 Fraction (Sum)	C34 - C40 Fraction	C6 - C10 Fraction minus BTEX (F1)	TPH C6 - C10 Fraction	TRH >C10-C16 less Naphthalene (F2)	+C10 - C36 (Sum of total)	C6 - C9 Fraction	C10 - C14 Fraction	C15 - C28 Fraction	C29-C36 Fraction	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Cyanide Total
	pH Unit	%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.1	1	0.01	0.2	0.5	0.03	0.01	0.03	1	0.03	50	100	50	100	10	10	50	50	10	50	100	100	0.2	0.5	0.5	0.5	0.5	0.5	1
EPAVic Cat B Upper Limit (if exceeded, Category A soil)			50	240	400	50			2200	320								40000	2600				16						10000
EPAVic Cat C Upper Limit (if exceeded, Category B soil)			10	70	100	10			560	10								10000	650				4						2500
EPAVic Fill Material Upper Limit (if exceeded, Category C soil)				7	20		1	1	60	1								1000	100				1						50
NEPM 2013 Table 1A(1) HILs Rec C Soil																													
NEPM 2013 Table 1A(3) Rec C Soil HSL for Vapour Intrusion																													
0-1m															NL		NL						NL	NL	NL			NL	
1-2m															NL		NL						NL	NL	NL			NL	
2-4m															NL		NL						NL	NL	NL			NL	
>4m															NL		NL						NL	NL	NL			NL	
HSL-C Recreational / Open Space Direct Contact											3800	5300		7400	5100								120	18000	5300			15000	
NEPM 2013 ESLs, Urban residential and public open space												300		2800	180		120						50	85	70			105	
NEPM 2013 EILs, Urban residential and public open space																													
NEPM 2013 Management Limits for TPH Fractions F1-F4, Residential, parkland and public open space												2500		10,000	700		1000												
HSLs for vapour intrusion, intrusive maintenance worker (shallow trench), 0 to ,2m, sand											NL				NL								77	NL	NL			NL	
Intrusive Maintenance Worker(Direct Contact)											62000	85000		120000	82000								1100	120000	85000			130000	

Field_ID	Location	Sample_Depth	Sample Type	Date Sampled	Lab_Report_Number																									
B17-68167_0.5-0.6	B17-68167_S26	0.5-0.6	Lineal (borehole)	22/03/2017	EM1703393	5.5	21.1	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
B17-68170_0.6-0.7	B17-68170_S26	0.6-0.7	Lineal (borehole)	22/03/2017	EM1703393	5.9	32.4	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
BH1_0.2	BH1_EnvMix West	0.2	Targeted (borehole)	29/03/2018	EM1805503	7.9	6	<0.01	<0.2	<0.5	<0.07	<0.01	<0.07	<1	<0.07	<50	<100	180	180	<10	<10	<50	140	<10	<50	<100	140	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
BH2_0.2	BH2_EnvMix West	0.2	Targeted (borehole)	29/03/2018	EM1805503	6.5	22.4	<0.01	4.9	<0.5	<0.07	<0.01	<0.07	<1	<0.07	70	680	1040	290	<10	<10	70	920	<10	50	370	500	<0.2	<0.5	0.6	3.2	1.1	4.3	4
BH3_0.2	BH3_EnvMix West	0.2	Targeted (borehole)	29/03/2018	EM1805503	7.8	2.2	<0.01	<0.2	<0.5	<0.14	<0.01	<0.14	<1	<0.14	<50	410	1160	750	<10	<10	<50	670	<10	<50	110	560	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
B17-68379/0.1	B17-68379	0.1	Targeted (borehole)	16/08/2017	EM1711031	5.3	7.7	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
B17-68379/0.7		0.7		16/08/2017	EM1711031	5.4	10.6	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
B17-68382/0.1	B17-68382	0.1	Targeted (borehole)	17/08/2017	EM1711031	6.9	7.2	<0.01	<0.2	<0.5	0.09	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
B17-68382/0.5		0.5		17/08/2017	EM1711031	7	20.7	<0.01	<0.2	<0.5	0.14	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
B17-68382/1.2		1.2		17/08/2017	EM1711031	6.3	15.9	<0.01	<0.2	<0.5	0.04	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
B17-68382/2.0		2		17/08/2017	EM1711031	5.8	13.6	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
B17-68386/0.1	B17-68386	0.1	Targeted (borehole)	16/08/2017	EM1711031	4.2	9.8	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
B17-68386/0.7		0.7		16/08/2017	EM1711031	4.1	7.2	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
B17-68388 0.4	B17-68388	0.3-0.4	Targeted (borehole)	30/08/2017	EM1715033	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B17-68388 0.7		0.6-0.7		30/08/2017	EM1715033	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B17-68388 1.0		0.9-1.0		30/08/2017	EM1715033	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B17-68389 0.2	B17-68389	0.1-0.2	Targeted (borehole)	30/08/2017	EM1711735	6.3	16.2	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
B17-68389 0.5		0.4-0.5		30/08/2017	EM1711735	5.8	9.8	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
B17-68389 1.0		1		30/08/2017	EM1711735	5.2	12.3	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
B17_68391 0.5	B17_68391	0.4-0.5	Targeted (borehole)	28/08/2017	EM1711578	5	4.3	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
B17_68391 1.0		0.9-1.0		28/08/2017	EM1711578	4.2	27.3	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
B17_68391 1.5		1.4-1.5		28/08/2017	EM1711578	4.1	24.2	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
B17-68395/0.1	B17-68395	0.1	Targeted (borehole)	22/08/2017	EM1711253	7	11.2	<0.01	<0.2	<0.5	0.09	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
B17-68395/0.5		0.5		22/08/2017	EM1711253	7.2	9.7	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
B17-68396/0.1	B17-68396	0.1	Targeted (borehole)	21/08/2017	EM1711185	6.3	10.2	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
B17-68396/0.5		0.5		21/08/2017	EM1711185	6.5	13.2	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
B17-68396/0.9		0.9		21/08/2017	EM1711185	7	12.2	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
B17-68396/1.9		1.9		21/08/2017	EM1711185	6.7	15	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
B17-68396/2.4		2.4		21/08/2017	EM1711185	6.3	13.1	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
B17-68396/3.2		3.2		21/08/2017	EM1711185	6.5	13.3	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
B17-68397-01/1.5	B17-68397-01_S26	1.5	Targeted (borehole)	10/05/2017	EM1706051	7.7	15.5	<0.01	<0.2	2.4	<0.03	<0.01	<0.03	<1	<0.03	<50	110	110	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
B17-68397-01/2.0		2		10/05/2017	EM1706051	7.7	14.6	0.06	<0.2	<0.5	<0.03	0.06	<0.03	<1	<0.03	50	910	1130	170	<10	<10	50	1030	<10	<50	650	380	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
B17-68397-01/3.0		3		10/05/2017	EM1706051	7.6	21.1	0.4	5.7	4.4	0.15	0.4	0.15	1	<0.03	340	1440	1920	140	24	29	340	1900	18	230	1300	370	<0.2	<0.5	1.7	2.7	0.8	3.5	6
B17-68399/0.3	B17-68399	0.3	Targeted (borehole)	22/08/2017	EM1711253	10.7	10.2	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
B17-68399/0.5		0.5		22/08/2017	EM1711253	7.1	18.4	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
B17-68417/0.4	B17-68417	0.3-0.4	Targeted (borehole)	6/10/2017	EM1713792	8.3	13.4	0.45	<0.2	<0.5	<0.03	0.45	<0.03	<1	<0.03	<50	310	420	110	<10	<10	<50	390	<10	<50	140	250	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
B17-68417/0.9		0.8-0.9		6/10/2017	EM1713792	5.5	16.9	0.09	<0.2	<0.5	<0.03	0.09	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
B17-68418/0.7	B17-68418	0.7	Lineal (borehole)	4/10/2017	EM1713792	7.5	13	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
B17-68419/0.7	B17-68419	0.6-0.7	Targeted (borehole)	12/10/2017	EM1714071	8.5	15.8	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
B17-68419/7.4		7.4		12/10/2017	EM1714071	6.9	22.4	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
B17-68420/0.7	B17-68420	0.6-0.7	Targeted (borehole)	11/10/2017	EM1714071	8.4	21.4	<0.01	<0.2	0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
B17-68421/0.8	B17-68421	0.7-0.8	Targeted (borehole)	10/10/2017	EM1714071	8.3	48.5	<0.01	<0.2	8.8	<0.03	<0.01	<0.03	<1	<0.03	<50	440	600	160	<10	<10	<50	570	<10	<50	250	320	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
LW17-26-01 0.5	LW17-26-01	0.5	Targeted (borehole)	7/09/2017	EM1712226	7.1	19.5	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
LW17-26-01 1.5		1.5		7/09/2017	EM1712226	7.3	14	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
LW17-26-01 2.0		2		7/09/2017	EM1712226	7	14.4	<0.01	<0.2	<0.5	0.04	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
TP17-26-03/0.6	TP17-26-03	0.6	Lineal (Test pit)	19/06/2017	EM1708010	4.3	11.7	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
TP17-26-05/0.6	TP17-26-05	0.6	Lineal (Test pit)	18/06/2017	EM1708010	4.3	7	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
TP17-26-07/0.6	TP17-26-07	0.6	Lineal (Test pit)	18/06/2017	EM1708010	4.7	18.2	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
TP17-26-09/0.8	TP17-26-09	0.6-0.8	Lineal (Test pit)	1/06/2017	EM1707148	6.9	11	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
TP17-26-10/1.0	TP17-26-10	1	Lineal (Test pit)	31/05/2017	EM1707148	6.7	13	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1

Table 1A. Soil analytical results summary - broad suite

			IWRG Combined Compounds								TRH							TPH					BTEX						Ir
	pH (CaCl2)	Moisture Content	Chlorinated hydrocarbons	Monocylic aromatic hydrocarbons	Polycylic aromatic hydrocarbons	Organochlorine pesticides	Other chlorinated hydrocarbons	Other organochlorine pesticides	Phenols (non-halogenated)	Phenols(halogenated)	C10 - C16 Fraction	C16 - C34 Fraction	C10 - C40 Fraction (Sum)	C34 - C40 Fraction	C6 - C10 Fraction minus BTEX (F1)	TPH C6 - C10 Fraction	TRH >C10-C16 less Naphthalene (F2)	+C10 - C36 (Sum of total)	C6 - C9 Fraction	C10 - C14 Fraction	C15 - C28 Fraction	C29-C36 Fraction	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Cyanide Total
	pH Unit	%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.1	1	0.01	0.2	0.5	0.03	0.01	0.03	1	0.03	50	100	50	100	10	10	50	50	10	50	100	100	0.2	0.5	0.5	0.5	0.5	0.5	1
EPAVic Cat B Upper Limit (if exceeded, Category A soil)			50	240	400	50			2200	320								40000	2600				16						10000
EPAVic Cat C Upper Limit (if exceeded, Category B soil)			10	70	100	10			560	10								10000	650				4						2500
EPAVic Fill Material Upper Limit (if exceeded, Category C soil)				7	20		1	1	60	1								1000	100				1						50
NEPM 2013 Table 1A(1) HILs Rec C Soil																													
NEPM 2013 Table 1A(3) Rec C Soil HSL for Vapour Intrusion																													
0-1m															NL		NL						NL	NL	NL			NL	
1-2m															NL		NL						NL	NL	NL			NL	
2-4m															NL		NL						NL	NL	NL			NL	
>4m															NL		NL						NL	NL	NL			NL	
HSL-C Recreational / Open Space Direct Contact											3800	5300		7400	5100								120	18000	5300			15000	
NEPM 2013 ESLs, Urban residential and public open space												300		2800	180		120						50	85	70			105	
NEPM 2013 EILs, Urban residential and public open space																													
NEPM 2013 Management Limits for TPH Fractions F1-F4, Residential, parkland and public open space												2500		10,000	700		1000												
HSLs for vapour intrusion, intrusive maintenance worker (shallow trench), 0 to ,2m, sand											NL				NL								77	NL	NL			NL	
Intrusive Maintenance Worker(Direct Contact)											62000	85000		120000	82000								1100	120000	85000			130000	

Field_ID	Location	Sample_Depth	Sample Type	Date Sampled	Lab_Report_Number																									
TP17-26-14/0.8	TP17-26-14	0.8	Lineal (Test pit)	22/05/2017	EM1706717	4.8	25.3	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	1
TP17-26-16/0.7	TP17-26-16	0.7	Lineal (Test pit)	22/05/2017	EM1706717	5.2	18.3	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
TP17-26-18/0.8	TP17-26-18	0.8	Lineal (Test pit)	31/05/2017	EM1707148	4.7	25.6	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
TP17-26-20/0.7	TP17-26-20	0.7	Lineal (Test pit)	31/05/2017	EM1707148	7.2	37.1	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
TP17-26-23/0.9	TP17-26-23	0.9	Lineal (Test pit)	31/05/2017	EM1707148	6.8	33.4	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
TP17-26-24/0.8	TP17-26-24	0.8	Lineal (Test pit)	23/05/2017	EM1706717	7.6	28.4	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
TP17-26-25/0.7	TP17-26-25	0.7	Lineal (Test pit)	23/05/2017	EM1706717	7.8	38	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
TP17-26-27/0.8	TP17-26-27	0.8	Lineal (Test pit)	23/05/2017	EM1706717	7.9	23.8	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
TP17-26-29/0.4	TP17-26-29	0.4	Lineal (Test pit)	22/05/2017	EM1706717	7.6	21.8	<0.01	<0.2	<0.5	0.06	<0.01	<0.03	<1	<0.03	<50	160	160	<100	<10	<10	<50	100	<10	<50	<100	100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	1
TP17-26-31/1.0	TP17-26-31	1	Lineal (Test pit)	23/05/2017	EM1706717	8.1	17.5	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
TP17-26-33/0.5-0.6	TP17-26-33	0.5-0.6	Lineal (Test pit)	24/05/2017	EM1706717	8.1	17.5	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
TP17-26-35/0.5-0.6	TP17-26-35	0.5-0.6	Lineal (Test pit)	24/05/2017	EM1706717	7.7	17.7	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
TP17-26-37/0.4	TP17-26-37	0.4	Lineal (Test pit)	24/05/2017	EM1706717	7.9	11.3	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
TP17-26-41/0.8	TP17-26-41	0.8	Lineal (Test pit)	25/05/2017	EM1706717	7.2	4.7	<0.01	<0.2	2.2	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
TP17-26-43/0.7	TP17-26-43	0.7	Lineal (Test pit)	25/05/2017	EM1706717	6.9	9.2	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
TP17-26-45/0.6	TP17-26-45	0.6	Lineal (Test pit)	26/05/2017	EM1706803	7.6	9	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
TP17-26-45/2.0		2	Lineal (Test pit)	26/05/2017	EM1706803	7.2	10.9	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
TP17-26-47/0.7	TP17-26-47	0.7	Lineal (Test pit)	1/06/2017	EM1707148	5.2	8.2	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
TP17-26-49/0.8	TP17-26-49	0.8	Lineal (Test pit)	1/06/2017	EM1707148	5.1	11.3	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
TP17-26-52/0.6	TP17-26-52	0.6	Lineal (Test pit)	14/06/2017	EM1707764	6.8	10.9	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
TP17-26-53/0.6	TP17-26-53	0.6	Lineal (Test pit)	14/06/2017	EM1707764	5.3	5.5	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
TP17-26-55/0.6	TP17-26-55	0.6	Lineal (Test pit)	14/06/2017	EM1707764	7.1	12.3	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
TP17-26-56/0.6	TP17-26-56	0.6	Lineal (Test pit)	14/06/2017	EM1707764	7.7	14.5	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
TP17-26-58/0.6	TP17-26-58	0.6	Lineal (Test pit)	14/06/2017	EM1707764	6.4	15.3	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
TP17-26-6/0.6	TP17-26-60	0.6	Lineal (Test pit)	15/06/2017	EM1707764	6.2	15.7	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
TP17-26-62/0.6	TP17-26-62	0.6	Lineal (Test pit)	15/06/2017	EM1707764	6.2	19.7	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
TP17-26-63/0.6	TP17-26-63	0.6	Lineal (Test pit)	15/06/2017	EM1707764	5.6	14.8	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
TP17-26-64/0.5	TP17-26-64	0.5	Lineal (Test pit)	24/05/2017	EM1706717	4.4	4.5	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	1
TP17-26-68/0.6	TP17-26-68	0.6	Lineal (Test pit)	26/05/2017	EM1706803	7	5.9	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
TP17-26-69/0.5	TP17-26-69	0.5	Lineal (Test pit)	12/05/2017	EM1706039	7.2	8.2	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
TP17-26-70/0.7	TP17-26-70	0.7	Lineal (Test pit)	25/05/2017	EM1706717	6.1	2	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
T1-26A	T1-26A	0.1	Target (Test pit)	4/05/2018	EM1807431	4.7	10.6	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
T2-26A	T2-26A	0.1	Target (Test pit)	4/05/2018	EM1807431	4.6	12.5	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	1
TP18-26A-01	TP18-26A-01	0.9	Lineal (Test pit)	4/05/2018	EM1807431	4.7	24.7	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
TP18-26A-02	TP18-26A-02	0.9	Lineal (Test pit)	4/05/2018	EM1807431	5	15.4	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
PD18-26A-04	PD18-26A-04	0.9	Lineal (PD)	4/05/2018	EM1807431	5.7	16.9	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
TP18-26A-09	TP18-26A-09	0.8	Lineal (Test pit)	4/05/2018	EM1807431	4.7	11.4	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
PD18-26A-10	PD18-26A-10	0.7-0.9	Lineal (PD)	3/05/2018	EM1807431	6.6	15.1	<0.01	<0.2	<0.5	<0.03	<0.01	<0.03	<1	<0.03	<50	<100	<50	<100	<10	<10	<50	<50	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1

Table 1A. Soil analytical results summary - broad suite

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Table 1A. Soil analytical results summary - broad suite

			Inorganics		Major/minor ions					Metals																										
			Fluoride	Sulphate	Calcium	Chloride	Magnesium	Potassium	Sodium	Arsenic	Cadmium	Chromium	Chromium (hexavalent)	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Tin	Zinc	4,4-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	b-BHC	chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD			
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	µg/kg	mg/kg	mg/kg	mg/kg	mg/kg			
EQL			40	10	10	10	10	10	10	5	1	5	0.5	5	5	0.1	2	2	5	2	5	5	0.05	0.03	0.03	0.03	0.03	30	0.03	0.03	0.03	0.05			
EPAVic Cat B Upper Limit (if exceeded, Category A soil)			40000							2000	400		2000	20000	6000	300	4000	12000	200	720		140000				4.8		16000							
EPAVic Cat C Upper Limit (if exceeded, Category B soil)			10000							500	100		500	5000	1500	75	1000	3000	50	180	500	35000				1.2		4000						
EPAVic Fill Material Upper Limit (if exceeded, Category C soil)			450							20	3		1	100	300	1	40	60	10	10	50	200												
NEPM 2013 Table 1A(1) HILs Rec C Soil										300	90		300	17000	600	80		1200	700			30000				10		70000						
NEPM 2013 Table 1A(3) Rec C Soil HSL for Vapour Intrusion																																			
0-1m																																			
1-2m																																			
2-4m																																			
>4m																																			
HSL-C Recreational / Open Space Direct Contact																																			
NEPM 2013 ESLs, Urban residential and public open space																																			
NEPM 2013 EILs, Urban residential and public open space										*100*			*410*	*220*	*1100*			*280*				*230*													
NEPM 2013 Management Limits for TPH Fractions F1-F4, Residential, parkland and public open space																																			
HSLs for vapour intrusion, intrusive maintenance worker (shallow trench), 0 to ,2m, sand																																			
Intrusive Maintenance Worker(Direct Contact)																																			
Field_ID	Location	Sample_Depth	Sample Type	Date Sampled	Lab_Report_Number																																
TP17-26-14/0.8	TP17-26-14	0.8	Lineal (Test pit)	22/05/2017	EM1706717	230	-	-	-	-	-	-	<5	<1	-	<0.5	8	12	<0.1	<2	7	<5	<2	<5	5	<0.05	<0.03	<0.03	<0.03	<0.03	<30	<0.03	<0.03	<0.03	<0.05	
TP17-26-16/0.7	TP17-26-16	0.7	Lineal (Test pit)	22/05/2017	EM1706717	210	-	-	-	-	-	-	<5	<1	-	<0.5	<5	9	<0.1	<2	5	<5	<2	<5	<5	<0.05	<0.03	<0.03	<0.03	<0.03	<30	<0.03	<0.03	<0.03	<0.05	
TP17-26-18/0.8	TP17-26-18	0.8	Lineal (Test pit)	31/05/2017	EM1707148	130	-	-	-	-	-	-	<5	<1	-	<0.5	<5	7	<0.1	4	4	<5	<2	<5	<5	<0.05	<0.03	<0.03	<0.03	<0.03	<30	<0.03	<0.03	<0.03	<0.05	
TP17-26-20/0.7	TP17-26-20	0.7	Lineal (Test pit)	31/05/2017	EM1707148	340	-	-	-	-	-	-	7	<1	-	<0.5	9	12	<0.1	<2	13	<5	<2	<5	8	<0.05	<0.03	<0.03	<0.03	<0.03	<30	<0.03	<0.03	<0.03	<0.05	
TP17-26-23/0.9	TP17-26-23	0.9	Lineal (Test pit)	31/05/2017	EM1707148	200	-	-	-	-	-	-	7	<1	-	<0.5	8	11	<0.1	<2	14	<5	<2	<5	15	<0.05	<0.03	<0.03	<0.03	<0.03	<30	<0.03	<0.03	<0.03	<0.05	
TP17-26-24/0.8	TP17-26-24	0.8	Lineal (Test pit)	23/05/2017	EM1706717	350	-	-	-	-	-	-	<5	<1	-	<0.5	11	12	<0.1	<2	16	<5	<2	<5	5	<0.05	<0.03	<0.03	<0.03	<0.03	<30	<0.03	<0.03	<0.03	<0.05	
TP17-26-25/0.7	TP17-26-25	0.7	Lineal (Test pit)	23/05/2017	EM1706717	320	-	-	-	-	-	-	<5	<1	-	<0.5	8	11	<0.1	<2	9	<5	<2	<5	6	<0.05	<0.03	<0.03	<0.03	<0.03	<30	<0.03	<0.03	<0.03	<0.05	
TP17-26-27/0.8	TP17-26-27	0.8	Lineal (Test pit)	23/05/2017	EM1706717	470	-	-	-	-	-	-	5	<1	-	<0.5	<5	<5	<0.1	<2	12	<5	<2	<5	13	<0.05	<0.03	<0.03	<0.03	<0.03	<30	<0.03	<0.03	<0.03	<0.05	
TP17-26-29/0.4	TP17-26-29	0.4	Lineal (Test pit)	22/05/2017	EM1706717	500	-	-	-	-	-	-	5	<1	-	<0.5	20	15	0.2	<2	15	<5	<2	<5	186	<0.05	<0.03	<0.03	0.06	<0.03	<30	<0.03	<0.03	<0.03	<0.05	
TP17-26-31/1.0	TP17-26-31	1	Lineal (Test pit)	23/05/2017	EM1706717	640	-	-	-	-	-	-	<5	<1	-	<0.5	<5	6	<0.1	<2	5	<5	<2	<5	6	<0.05	<0.03	<0.03	<0.03	<0.03	<30	<0.03	<0.03	<0.03	<0.05	
TP17-26-33/0.5-0.6	TP17-26-33	0.5-0.6	Lineal (Test pit)	24/05/2017	EM1706717	280	-	-	-	-	-	-	22	<1	-	<0.5	<5	13	<0.1	3	8	<5	<2	<5	<5	<0.05	<0.03	<0.03	<0.03	<0.03	<30	<0.03	<0.03	<0.03	<0.05	
TP17-26-35/0.5-0.6	TP17-26-35	0.5-0.6	Lineal (Test pit)	24/05/2017	EM1706717	350	-	-	-	-	-	-	5	<1	-	<0.5	<5	8	<0.1	<2	9	<5	<2	<5	6	<0.05	<0.03	<0.03	<0.03	<0.03	<30	<0.03	<0.03	<0.03	<0.05	
TP17-26-37/0.4	TP17-26-37	0.4	Lineal (Test pit)	24/05/2017	EM1706717	150	-	-	-	-	-	-	23	<1	-	<0.5	<5	7	<0.1	<2	30	<5	<2	<5	38	<0.05	<0.03	<0.03	<0.03	<0.03	<30	<0.03	<0.03	<0.03	<0.05	
TP17-26-41/0.8	TP17-26-41	0.8	Lineal (Test pit)	25/05/2017	EM1706717	50	-	-	-	-	-	-	<5	<1	-	<0.5	<5	14	<0.1	<2	7	<5	<2	<5	26	<0.05	<0.03	<0.03	<0.03	<0.03	<30	<0.03	<0.03	<0.03	<0.05	
TP17-26-43/0.7	TP17-26-43	0.7	Lineal (Test pit)	25/05/2017	EM1706717	80	-	-	-	-	-	-	<5	<1	-	<0.5	<5	<5	<0.1	<2	3	<5	<2	<5	<5	<0.05	<0.03	<0.03	<0.03	<0.03	<30	<0.03	<0.03	<0.03	<0.05	
TP17-26-45/0.6	TP17-26-45	0.6	Lineal (Test pit)	26/05/2017	EM1706803	90	-	-	-	-	-	-	<5	<1	-	<0.5	17	46	<0.1	<2	10	<5	<2	<5	80	<0.05	<0.03	<0.03	<0.03	<0.03	<30	<0.03	<0.03	<0.03	<0.05	
TP17-26-45/2.0		2	Lineal (Test pit)	26/05/2017	EM1706803	80	-	-	-	-	-	-	<5	<1	-	<0.5	<5	<5	<0.1	<2	2	<5	<2	<5	<5	<0.05	<0.03	<0.03	<0.03	<0.03	<30	<0.03	<0.03	<0.03	<0.05	
TP17-26-47/0.7	TP17-26-47	0.7	Lineal (Test pit)	1/06/2017	EM1707148	<40	-	-	-	-	-	-	<5	<1	-	<0.5	<5	<5	<0.1	<2	<2	<5	<2	<5	<5	<0.05	<0.03	<0.03	<0.03	<0.03	<30	<0.03	<0.03	<0.03	<0.05	
TP17-26-49/0.8	TP17-26-49	0.8	Lineal (Test pit)	1/06/2017	EM1707148	<40	-	-	-	-	-	-	<5	<1	-	<0.5	<5	<5	<0.1	<2	75	<5	<2	<5	<5	<0.05	<0.03	<0.03	<0.03	<0.03	<30	<0.03	<0.03	<0.03	<0.05	
TP17-26-52/0.6	TP17-26-52	0.6	Lineal (Test pit)	14/06/2017	EM1707764	<40	-	-	-	-	-	-	<5	<1	-	<0.5	<5	6	<0.1	<2	2	<5	<2	<5	<5	<0.05	<0.03	<0.03	<0.03	<0.03	<30	<0.03	<0.03	<0.03	<0.05	
TP17-26-53/0.6	TP17-26-53	0.6	Lineal (Test pit)	14/06/2017	EM1707764	70	-	-	-	-	-	-	<5	<1	-	<0.5	<5	<5	<0.1	<2	<2	<5	<2	<5	<5	<0.05	<0.03	<0.03	<0.03	<0.03	<30	<0.03	<0.03	<0.03	<0.05	
TP17-26-55/0.6	TP17-26-55	0.6	Lineal (Test pit)	14/06/2017	EM1707764	190	-	-	-	-	-	-	11	<1	-	<0.5	<5	5	<0.1	<2	5	<5	<2	<5	<5	<0.05	<0.03	<0.03	<0.03	<0.03	<30	<0.03	<0.03	<0.03	<0.05	
TP17-26-56/0.6	TP17-26-56	0.6	Lineal (Test pit)	14/06/2017	EM1707764	40	-	-	-	-	-	-	<5	<1	-	<0.5	<5	5	<0.1	<2	2	<5	<2	<5	<5	<0.05	<0.03	<0.03	<0.03	<0.03	<30	<0.03	<0.03	<0.03	<0.05	
TP17-26-58/0.6	TP17-26-58	0.6	Lineal (Test pit)	14/06/2017	EM1707764	80	-	-	-	-	-	-	20	<1	-	<0.5	13	35	<0.1	<2	14	<5	<2	<5	34	<0.05	<0.03	<0.03	<0.03	<0.03	<30	<0.03	<0.03	<0.03	<0.05	
TP17-26-6/0.6	TP17-26-60	0.6	Lineal (Test pit)	15/06/2017	EM1707764	110	-	-	-	-	-	-	<5	<1	-	<0.5	<5	6	<0.1	<2	6	<5	<2	<5	<5	<0.05	<0.03	<0.03	<0.03	<0.03	<30	<0.03	<0.03	<0.03	<0.05	
TP17-26-62/0.6	TP17-26-62	0.6	Lineal (Test pit)	15/06/2017	EM1707764	150	-	-	-	-	-	-	<5	<1	-	<0.5	<5	10	<0.1	<2	9	<5	<2	<5	7	<0.05	<0.03	<0.03	<0.03	<0.03	<30	<0.03	<0.03	<0.03	<0.05	
TP17-26-63/0.6	TP17-26-63	0.6	Lineal (Test pit)	15/06/2017	EM1707764	90	-	-	-	-	-	-	9	<1	-	<0.5	<5	9	<0.1	<2	5	<5	<2	<5	17	<0.05	<0.03	<0.03	<0.03	<0.03	<30	<0.03	<0.03	<0.03	<0.05	
TP17-26-64/0.5	TP17-26-64	0.5	Lineal (Test pit)	24/05/2017	EM1706717	<40	-	-	-	-	-	-	<5	<1	-	<0.5	<5	8	<0.1	<2	<2	<5	<2	<5	7	<0.05	<0.03	<0.03	<0.03	<0.03	<30	<0.03	<0.03	<0.03	<0.05	
TP17-26-68/0.6	TP17-26-68	0.6	Lineal (Test pit)	26/05/2017	EM1706803	60	-	-	-	-	-	-	<5	<1	-	<0.5	<5	<5	<0.1	<2	<2	<5	<2	<5	<5	<0.05	<0.03	<0.03	<0.03	<0.03	<30	<0.03	<0.03	<0.03	<0.05	
TP17-26-69/0.5	TP17-26-69	0.5	Lineal (Test pit)	12/05/2017	EM1706039	100	-	-	-	-	-	-	6	<1	-	<0.5	14	20	<0.1	<2	7	<5	<2	<5	55	<0.05	<0.03	<0.03	<0.03	<0.03	<30	<0.03	<0.03	<0.03	<0.05	
TP17-26-70/0.7	TP17-26-70	0.7	Lineal (Test pit)	25/05/2017	EM1706717	<40	-	-	-	-	-	-	<5	<1	-	<0.5	<5	<5	<0.1	<2	<2	<5	<2	<5	<5	<0.05	<0.03	<0.03	<0.03	<0.03	<30	<0.03	<0.03	<0.03	<0.05	
T1-26A	T1-26A	0.1	Target (Test pit)	4/05/2018	EM1807431	150	-	-	-	-	-	-	<5	<1	-	<0.5	<5	7	<0.1	<2	4	<5	<2	<5	<5	<0.05	<0.03	<0.03	<0.03	<0.03	<30	<0.03	<0.03	<0.03	<0.05	
T2-26A	T2-26A	0.1	Target (Test pit)	4/05/2018	EM1807431	140	-	-	-	-	-	-	<5	<1	-	<0.5	6	10	<0.1	<2	5	<5	<2	<5	<5	<0.05	<0.03	<0.03	<0.03	<0.03	<30	<0.03	<0.03	<0.03	<0.05	
TP18-26A-01	TP18-26A-01	0.9	Lineal (Test pit)	4/05/2018	EM1807431	130	-	-	-	-	-	-	<5	<1	-	<0.5	<5	8	<0.1	<2	5	<5	<2	<5	<5	<0.05	<0.03	<0.03	<0.03	<0.03	<30	<0.03	<0.03	<0.03	<0.05	
TP18-26A-02	TP18-26A-02	0.9	Lineal (Test pit)	4/05/2018	EM1807431	140	-	-	-	-	-	-	<5	<1	-	<0.5	<5	7	<0.1	<2	6	<5	<2	<5	<5	<0.05	<0.03	<0.03	<0.03	<0.03	<30	<0.03	<0.03	<0.03	<0.05	
PD18-26A-04	PD18-26A-04	0.9	Lineal (PD)	4/05/2018	EM1807431	120	-	-	-	-	-	-	<5	<1	-	<0.5	<5	5	<0.1	<2	6	<5	<2	<5	6	<0.05	<0.03	<0.03	<0.03	<0.03	<30	<0.03	<0.03	<0.03	<0.05	
TP18-26A-09	TP18-26A-09	0.8	Lineal (Test pit)	4/05/2018	EM1807431	120	-	-	-	-	-	-	<5	<1	-	<0.5	<5	7	<0.1	<2	4	<5	<2	<5	<5	<0.05	<0.03	<0.03	<0.03	<0.03	<30	<0.03	<0.03	<0.03	<0.05	
PD18-26A-10	PD18-26A-10	0.7-0.9	Lineal (PD)	3/05/2018	EM1807431	<40	-	-	-	-	-	-	<5	<1	-	<0.5	<5	<5	<0.1	<2	3	<5	<2	<5	<5	<0.05	<0.03	<0.03	<0.03	<0.03	<30	<0.03	<0.03	<0.03	<0.05	

Table 1A. Soil analytical results summary - broad suite

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Table 1A. Soil analytical results summary - broad suite

								OCP																					PAH										
								DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Hexachlorobenzene	Methoxychlor	Toxaphene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j) & Benzo(k)fluoranthene	Benzo(g,h,i)perylene	Benzo(a)pyrene TEQ calc (Zero)	Benzo(a)pyrene TEQ (medium bound) *	Benzo(a)pyrene TEQ (upper bound) *	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene
								mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	µg/kg	µg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	MG/KG	MG/KG	mg/kg	mg/kg	mg/kg	mg/kg
EQL								0.05	0.05	0.03	0.03	0.03	0.03	0.03	30	50	0.03	0.03	0.03	0.03	0.03	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
EPAVic Cat B Upper Limit (if exceeded, Category A soil)									50									4.8									20										
EPAVic Cat C Upper Limit (if exceeded, Category B soil)									50									1.2									5										
EPAVic Fill Material Upper Limit (if exceeded, Category C soil)																											1										
NEPM 2013 Table 1A(1) HILs Rec C Soil									400					20				10		10	400	30								3							
NEPM 2013 Table 1A(3) Rec C Soil HSL for Vapour Intrusion																																					
0-1m																																					
1-2m																																					
2-4m																																					
>4m																																					
HSL-C Recreational / Open Space Direct Contact																																					
NEPM 2013 ESLs, Urban residential and public open space																											0.7										
NEPM 2013 EILs, Urban residential and public open space								*180*																													
NEPM 2013 Management Limits for TPH Fractions F1-F4, Residential, parkland and public open space																																					
HSLs for vapour intrusion, intrusive maintenance worker (shallow trench), 0 to ,2m, sand																																					
Intrusive Maintenance Worker(Direct Contact)																																					
Field_ID	Location	Sample_Depth	Sample Type	Date Sampled	Lab_Report_Number																																
TP17-26-14/0.8	TP17-26-14	0.8	Lineal (Test pit)	22/05/2017	EM1706717	<0.05	<0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<30	-	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5
TP17-26-16/0.7	TP17-26-16	0.7	Lineal (Test pit)	22/05/2017	EM1706717	<0.05	<0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<30	-	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5
TP17-26-18/0.8	TP17-26-18	0.8	Lineal (Test pit)	31/05/2017	EM1707148	<0.05	<0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<30	-	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5
TP17-26-20/0.7	TP17-26-20	0.7	Lineal (Test pit)	31/05/2017	EM1707148	<0.05	<0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<30	-	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5
TP17-26-23/0.9	TP17-26-23	0.9	Lineal (Test pit)	31/05/2017	EM1707148	<0.05	<0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<30	-	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5
TP17-26-24/0.8	TP17-26-24	0.8	Lineal (Test pit)	23/05/2017	EM1706717	<0.05	<0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<30	-	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5
TP17-26-25/0.7	TP17-26-25	0.7	Lineal (Test pit)	23/05/2017	EM1706717	<0.05	<0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<30	-	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5
TP17-26-27/0.8	TP17-26-27	0.8	Lineal (Test pit)	23/05/2017	EM1706717	<0.05	<0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<30	-	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5
TP17-26-29/0.4	TP17-26-29	0.4	Lineal (Test pit)	22/05/2017	EM1706717	<0.05	<0.05	0.06	<0.03	<0.03	<0.03	<0.03	<30	-	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5
TP17-26-31/1.0	TP17-26-31	1	Lineal (Test pit)	23/05/2017	EM1706717	<0.05	<0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<30	-	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5
TP17-26-33/0.5-0.6	TP17-26-33	0.5-0.6	Lineal (Test pit)	24/05/2017	EM1706717	<0.05	<0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<30	-	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5
TP17-26-35/0.5-0.6	TP17-26-35	0.5-0.6	Lineal (Test pit)	24/05/2017	EM1706717	<0.05	<0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<30	-	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5
TP17-26-37/0.4	TP17-26-37	0.4	Lineal (Test pit)	24/05/2017	EM1706717	<0.05	<0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<30	-	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5
TP17-26-41/0.8	TP17-26-41	0.8	Lineal (Test pit)	25/05/2017	EM1706717	<0.05	<0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<30	-	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.5	<0.5	<0.5	<0.5	<0.5	0.8	<0.5	<0.5	0.6	1.2	<0.5	<0.5	0.7	<0.5
TP17-26-43/0.7	TP17-26-43	0.7	Lineal (Test pit)	25/05/2017	EM1706717	<0.05	<0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<30	-	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5
TP17-26-45/0.6	TP17-26-45	0.6	Lineal (Test pit)	26/05/2017	EM1706803	<0.05	<0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<30	-	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5
TP17-26-45/2.0		2	Lineal (Test pit)	26/05/2017	EM1706803	<0.05	<0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<30	-	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5
TP17-26-47/0.7	TP17-26-47	0.7	Lineal (Test pit)	1/06/2017	EM1707148	<0.05	<0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<30	-	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5
TP17-26-49/0.8	TP17-26-49	0.8	Lineal (Test pit)	1/06/2017	EM1707148	<0.05	<0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<30	-	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5
TP17-26-52/0.6	TP17-26-52	0.6	Lineal (Test pit)	14/06/2017	EM1707764	<0.05	<0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<30	-	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5
TP17-26-53/0.6	TP17-26-53	0.6	Lineal (Test pit)	14/06/2017	EM1707764	<0.05	<0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<30	-	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5
TP17-26-55/0.6	TP17-26-55	0.6	Lineal (Test pit)	14/06/2017	EM1707764	<0.05	<0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<30	-	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5
TP17-26-56/0.6	TP17-26-56	0.6	Lineal (Test pit)	14/06/2017	EM1707764	<0.05	<0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<30	-	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5
TP17-26-58/0.6	TP17-26-58	0.6	Lineal (Test pit)	14/06/2017	EM1707764	<0.05	<0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<30	-	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5
TP17-26-6/0.6	TP17-26-60	0.6	Lineal (Test pit)	15/06/2017	EM1707764	<0.05	<0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<30	-	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5
TP17-26-62/0.6	TP17-26-62	0.6	Lineal (Test pit)	15/06/2017	EM1707764	<0.05	<0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<30	-	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5
TP17-26-63/0.6	TP17-26-63	0.6	Lineal (Test pit)	15/06/2017	EM1707764	<0.05	<0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<30	-	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5
TP17-26-64/0.5	TP17-26-64	0.5	Lineal (Test pit)	24/05/2017	EM1706717	<0.05	<0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<30	-	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5
TP17-26-68/0.6	TP17-26-68	0.6	Lineal (Test pit)	26/05/2017	EM1706803	<0.05	<0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<30	-	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5
TP17-26-69/0.5	TP17-26-69	0.5	Lineal (Test pit)	12/05/2017	EM1706039	<0.05	<0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<30	-	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5
TP17-26-70/0.7	TP17-26-70	0.7	Lineal (Test pit)	25/05/2017	EM1706717	<0.05	<0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<30	-	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5
T1-26A	T1-26A	0.1	Target (Test pit)	4/05/2018	EM1807431	<0.05	<0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<30	-	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5
T2-26A	T2-26A	0.1	Target (Test pit)	4/05/2018	EM1807431	<0.05	<0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<30	-	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5
TP18-26A-01	TP18-26A-01	0.9	Lineal (Test pit)	4/05/2018	EM1807431	<0.05	<0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<30	-	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5
TP18-26A-02	TP18-26A-02	0.9	Lineal (Test pit)	4/05/2018	EM1807431	<0.05	<0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<30	-	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5
PD18-26A-04	PD18-26A-04	0.9	Lineal (PD)	4/05/2018	EM1807431	<0.05	<0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<30	-	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5
TP18-26A-09	TP18-26A-09	0.8	Lineal (Test pit)	4/05/2018	EM1807431	<0.05	<0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<30	-	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5
PD18-26A-10	PD18-26A-10	0.7-0.9	Lineal (PD)	3/05/2018	EM1807431	<0.05	<0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<30	-	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5

Table 1A. Soil analytical results summary - broad suite

							PCBs	Phenols																								
	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	Pyrene	Sum of PAHs	PCBs (Sum of total)	2,3,5,6-Tetrachlorophenol	2,4,5-trichlorophenol	2,4,6-Trichlorophenol	2,4-dichlorophenol	2,4-dimethylphenol	2,4-dinitrophenol	2,6-dichlorophenol	2,3,4,5 & 2,3,4,6-Tetrachlorophenol	2-chlorophenol	2-methylphenol	2-nitrophenol	3-&4-methylphenol	4,6-Dinitro-2-methylphenol	4,6-Dinitro-o-cyclohexyl phenol	4-chloro-3-methylphenol	4-nitrophenol	Dinoseb	Pentachlorophenol	Phenol	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethene
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.5	0.5	0.5	0.5	0.5	0.1	0.03	0.05	0.05	0.03	1	5	0.03	0.05	0.03	1	1	1	5	5	0.03	5	5	0.2	1	0.01	0.01	0.02	0.04	0.01
EPAVic Cat B Upper Limit (if exceeded, Category A soil)						0																									
EPAVic Cat C Upper Limit (if exceeded, Category B soil)						0																									
EPAVic Fill Material Upper Limit (if exceeded, Category C soil)						2																									
NEPM 2013 Table 1A(1) HILs Rec C Soil						1																		120	40000						
NEPM 2013 Table 1A(3) Rec C Soil HSL for Vapour Intrusion																															
0-1m		NL																													
1-2m		NL																													
2-4m		NL																													
>4m		NL																													
HSL-C Recreational / Open Space Direct Contact		1900																													
NEPM 2013 ESLs, Urban residential and public open space																															
NEPM 2013 EILs, Urban residential and public open space		*170*																													
NEPM 2013 Management Limits for TPH Fractions F1-F4, Residential, parkland and public open space		NL																													
HSLs for vapour intrusion, intrusive maintenance worker (shallow trench), 0 to ,2m, sand		NL																													
Intrusive Maintenance Worker(Direct Contact)		29000																													

Field_ID	Location	Sample_Depth	Sample Type	Date Sampled	Lab_Report_Number																													
B17-68167_0.5-0.6	B17-68167_S26	0.5-0.6	Lineal (borehole)	22/03/2017	EM1703393	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
B17-68170_0.6-0.7	B17-68170_S26	0.6-0.7	Lineal (borehole)	22/03/2017	EM1703393	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
BH1_0.2	BH1_EnvMix West	0.2	Targeted (borehole)	29/03/2018	EM1805503	<0.5	<0.5	<0.5	<0.5		<0.2	<0.07	<0.07	<0.07	<0.07	<1	<6	<0.07	<0.14	<0.07	<1	<1	<1	<5	<5	<0.07	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
BH2_0.2	BH2_EnvMix West	0.2	Targeted (borehole)	29/03/2018	EM1805503	<0.5	<0.5	<0.5	<0.5		<0.2	<0.07	<0.07	<0.07	<0.07	<1	<6	<0.07	<0.14	<0.07	<1	<1	<1	<5	<5	<0.07	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
BH3_0.2	BH3_EnvMix West	0.2	Targeted (borehole)	29/03/2018	EM1805503	<0.5	<0.5	<0.5	<0.5		<0.4	<0.14	<0.14	<0.14	<0.14	<1	<11	<0.14	<0.28	<0.14	<1	<1	<1	<6	<6	<0.14	<6	<6	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
B17-68379/0.1	B17-68379	0.1	Targeted (borehole)	16/08/2017	EM1711031	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
B17-68379/0.7		0.7		16/08/2017	EM1711031	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
B17-68382/0.1	B17-68382	0.1	Targeted (borehole)	17/08/2017	EM1711031	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
B17-68382/0.5		0.5		17/08/2017	EM1711031	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
B17-68382/1.2		1.2		17/08/2017	EM1711031	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
B17-68382/2.0		2		17/08/2017	EM1711031	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
B17-68386/0.1	B17-68386	0.1	Targeted (borehole)	16/08/2017	EM1711031	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
B17-68386/0.7		0.7		16/08/2017	EM1711031	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
B17-68388 0.4	B17-68388	0.3-0.4	Targeted (borehole)	30/08/2017	EM1715033	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B17-68388 0.7		0.6-0.7		30/08/2017	EM1715033	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B17-68388 1.0		0.9-1.0		30/08/2017	EM1715033	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B17-68389 0.2	B17-68389	0.1-0.2	Targeted (borehole)	30/08/2017	EM1711735	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
B17-68389 0.5		0.4-0.5		30/08/2017	EM1711735	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
B17-68389 1.0		1		30/08/2017	EM1711735	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
B17_68391 0.5	B17_68391	0.4-0.5	Targeted (borehole)	28/08/2017	EM1711578	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
B17_68391 1.0		0.9-1.0		28/08/2017	EM1711578	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
B17_68391 1.5		1.4-1.5		28/08/2017	EM1711578	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
B17-68395/0.1	B17-68395	0.1	Targeted (borehole)	22/08/2017	EM1711253	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
B17-68395/0.5		0.5		22/08/2017	EM1711253	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
B17-68396/0.1	B17-68396	0.1	Targeted (borehole)	21/08/2017	EM1711185	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
B17-68396/0.5		0.5		21/08/2017	EM1711185	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
B17-68396/0.9		0.9		21/08/2017	EM1711185	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
B17-68396/1.9		1.9		21/08/2017	EM1711185	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
B17-68396/2.4		2.4		21/08/2017	EM1711185	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
B17-68396/3.2		3.2		21/08/2017	EM1711185	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
B17-68397-01/1.5	B17-68397-01_S26	1.5	Targeted (borehole)	10/05/2017	EM1706051	<0.5	<0.5	<0.5	0.9	2.4	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
B17-68397-01/2.0		2		10/05/2017	EM1706051	<0.5	<0.5	<0.5	<0.5	<0.5	0.2	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
B17-68397-01/3.0		3		10/05/2017	EM1706051	<0.5	<1 - 0.8	0.8	1.2	4.4	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	1	<0.01	<0.01	<0.02	<0.04	<0.01
B17-68399/0.3	B17-68399	0.3	Targeted (borehole)	22/08/2017	EM1711253	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
B17-68399/0.5		0.5		22/08/2017	EM1711253	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
B17-68417/0.4	B17-68417	0.3-0.4	Targeted (borehole)	6/10/2017	EM1713792	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
B17-68417/0.9		0.8-0.9		6/10/2017	EM1713792	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
B17-68418/0.7	B17-68418	0.7	Lineal (borehole)	4/10/2017	EM1713792	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
B17-68419/0.7	B17-68419	0.6-0.7	Targeted (borehole)	12/10/2017	EM1714071	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
B17-68419/7.4		7.4		12/10/2017	EM1714071	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
B17-68420/0.7	B17-68420	0.6-0.7	Targeted (borehole)	11/10/2017	EM1714071	<0.5	<0.5	<0.5	0.5	0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
B17-68421/0.8	B17-68421	0.7-0.8	Targeted (borehole)	10/10/2017	EM1714071	<0.5	<0.5	1.8	1.4	8.8	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
LW17-26-01 0.5	LW17-26-01	0.5	Targeted (borehole)	7/09/2017	EM1712226	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
LW17-26-01 1.5		1.5		7/09/2017	EM1712226	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
LW17-26-01 2.0		2		7/09/2017	EM1712226	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
TP17-26-03/0.6	TP17-26-03	0.6	Lineal (Test pit)	19/06/2017	EM1708010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
TP17-26-05/0.6	TP17-26-05	0.6	Lineal (Test pit)	18/06/2017	EM1708010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
TP17-26-07/0.6	TP17-26-07	0.6	Lineal (Test pit)	18/06/2017	EM1708010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
TP17-26-09/0.8	TP17-26-09	0.6-0.8	Lineal (Test pit)	1/06/2017	EM1707148	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
TP17-26-10/1.0	TP17-26-10	1	Lineal (Test pit)	31/05/2017	EM1707148	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01

Table 1A. Soil analytical results summary - broad suite

							PCBs	Phenols																											
	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	Pyrene	Sum of PAHs	PCBs (Sum of total)	2,3,5,6-Tetrachlorophenol	2,4,5-trichlorophenol	2,4,6-Trichlorophenol	2,4-dichlorophenol	2,4-dimethylphenol	2,4-dinitrophenol	2,6-dichlorophenol	2,3,4,5 & 2,3,4,6-Tetrachlorophenol	2-chlorophenol	2-methylphenol	2-nitrophenol	3-&4-methylphenol	4,6-Dinitro-2-methylphenol	4,6-Dinitro-o-cyclohexyl phenol	4-chloro-3-methylphenol	4-nitrophenol	Dinoseb	Pentachlorophenol	Phenol	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethene
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.5	0.5	0.5	0.5	0.5	0.1	0.03	0.05	0.05	0.03	1	5	0.03	0.05	0.03	1	1	1	5	5	0.03	5	5	0.2	1	0.01	0.01	0.02	0.04	0.01
EPAVic Cat B Upper Limit (if exceeded, Category A soil)						0																											
EPAVic Cat C Upper Limit (if exceeded, Category B soil)						0																											
EPAVic Fill Material Upper Limit (if exceeded, Category C soil)						2																											
NEPM 2013 Table 1A(1) HILs Rec C Soil						1																		120	40000								
NEPM 2013 Table 1A(3) Rec C Soil HSL for Vapour Intrusion																																	
0-1m		NL																															
1-2m		NL																															
2-4m		NL																															
>4m		NL																															
HSL-C Recreational / Open Space Direct Contact		1900																															
NEPM 2013 ESLs, Urban residential and public open space																																	
NEPM 2013 EILs, Urban residential and public open space		*170*																															
NEPM 2013 Management Limits for TPH Fractions F1-F4, Residential, parkland and public open space		NL																															
HSLs for vapour intrusion, intrusive maintenance worker (shallow trench), 0 to ,2m, sand		NL																															
Intrusive Maintenance Worker(Direct Contact)		29000																															

Field_ID	Location	Sample_Depth	Sample Type	Date Sampled	Lab_Report_Number																													
TP17-26-14/0.8	TP17-26-14	0.8	Lineal (Test pit)	22/05/2017	EM1706717	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
TP17-26-16/0.7	TP17-26-16	0.7	Lineal (Test pit)	22/05/2017	EM1706717	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
TP17-26-18/0.8	TP17-26-18	0.8	Lineal (Test pit)	31/05/2017	EM1707148	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
TP17-26-20/0.7	TP17-26-20	0.7	Lineal (Test pit)	31/05/2017	EM1707148	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
TP17-26-23/0.9	TP17-26-23	0.9	Lineal (Test pit)	31/05/2017	EM1707148	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
TP17-26-24/0.8	TP17-26-24	0.8	Lineal (Test pit)	23/05/2017	EM1706717	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
TP17-26-25/0.7	TP17-26-25	0.7	Lineal (Test pit)	23/05/2017	EM1706717	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
TP17-26-27/0.8	TP17-26-27	0.8	Lineal (Test pit)	23/05/2017	EM1706717	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
TP17-26-29/0.4	TP17-26-29	0.4	Lineal (Test pit)	22/05/2017	EM1706717	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
TP17-26-31/1.0	TP17-26-31	1	Lineal (Test pit)	23/05/2017	EM1706717	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
TP17-26-33/0.5-0.6	TP17-26-33	0.5-0.6	Lineal (Test pit)	24/05/2017	EM1706717	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
TP17-26-35/0.5-0.6	TP17-26-35	0.5-0.6	Lineal (Test pit)	24/05/2017	EM1706717	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
TP17-26-37/0.4	TP17-26-37	0.4	Lineal (Test pit)	24/05/2017	EM1706717	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
TP17-26-41/0.8	TP17-26-41	0.8	Lineal (Test pit)	25/05/2017	EM1706717	<0.5	<0.5	<0.5	0.7	2.2	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
TP17-26-43/0.7	TP17-26-43	0.7	Lineal (Test pit)	25/05/2017	EM1706717	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
TP17-26-45/0.6	TP17-26-45	0.6	Lineal (Test pit)	26/05/2017	EM1706803	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
TP17-26-45/2.0		2	Lineal (Test pit)	26/05/2017	EM1706803	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
TP17-26-47/0.7	TP17-26-47	0.7	Lineal (Test pit)	1/06/2017	EM1707148	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
TP17-26-49/0.8	TP17-26-49	0.8	Lineal (Test pit)	1/06/2017	EM1707148	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
TP17-26-52/0.6	TP17-26-52	0.6	Lineal (Test pit)	14/06/2017	EM1707764	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
TP17-26-53/0.6	TP17-26-53	0.6	Lineal (Test pit)	14/06/2017	EM1707764	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
TP17-26-55/0.6	TP17-26-55	0.6	Lineal (Test pit)	14/06/2017	EM1707764	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
TP17-26-56/0.6	TP17-26-56	0.6	Lineal (Test pit)	14/06/2017	EM1707764	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
TP17-26-58/0.6	TP17-26-58	0.6	Lineal (Test pit)	14/06/2017	EM1707764	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
TP17-26-6/0.6	TP17-26-60	0.6	Lineal (Test pit)	15/06/2017	EM1707764	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
TP17-26-62/0.6	TP17-26-62	0.6	Lineal (Test pit)	15/06/2017	EM1707764	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
TP17-26-63/0.6	TP17-26-63	0.6	Lineal (Test pit)	15/06/2017	EM1707764	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
TP17-26-64/0.5	TP17-26-64	0.5	Lineal (Test pit)	24/05/2017	EM1706717	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
TP17-26-68/0.6	TP17-26-68	0.6	Lineal (Test pit)	26/05/2017	EM1706803	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
TP17-26-69/0.5	TP17-26-69	0.5	Lineal (Test pit)	12/05/2017	EM1706039	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
TP17-26-70/0.7	TP17-26-70	0.7	Lineal (Test pit)	25/05/2017	EM1706717	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
T1-26A	T1-26A	0.1	Target (Test pit)	4/05/2018	EM1807431	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
T2-26A	T2-26A	0.1	Target (Test pit)	4/05/2018	EM1807431	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
TP18-26A-01	TP18-26A-01	0.9	Lineal (Test pit)	4/05/2018	EM1807431	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
TP18-26A-02	TP18-26A-02	0.9	Lineal (Test pit)	4/05/2018	EM1807431	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
PD18-26A-04	PD18-26A-04	0.9	Lineal (PD)	4/05/2018	EM1807431	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
TP18-26A-09	TP18-26A-09	0.8	Lineal (Test pit)	4/05/2018	EM1807431	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01
PD18-26A-10	PD18-26A-10	0.7-0.9	Lineal (PD)	3/05/2018	EM1807431	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.03	<0.05	<0.05	<0.03	<1	<5	<0.03	<0.05	<0.03	<1	<1	<1	<5	<5	<0.03	<5	<5	<0.2	<1	<0.01	<0.01	<0.02	<0.04	<0.01

Table 1A. Soil analytical results summary - broad suite

						VOC														
						1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,2-dichloroethane	1,4-dichlorobenzene	Carbon tetrachloride	Chlorobenzene	Chloroform	cis-1,2-dichloroethene	Dichloromethane	Hexachlorobutadiene	Styrene	TCE	Tetrachloroethene	trans-1,2-dichloroethene	Vinyl chloride
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL						0.01	0.02	0.02	0.02	0.01	0.02	0.02	0.01	0.4	0.02	0.5	0.02	0.02	0.02	0.02
EPA Vic Cat B Upper Limit (if exceeded, Category A soil)															11					4.8
EPA Vic Cat C Upper Limit (if exceeded, Category B soil)															2.8					1.2
EPA Vic Fill Material Upper Limit (if exceeded, Category C soil)																				
NEPM 2013 Table 1A(1) HILs Rec C Soil																				
NEPM 2013 Table 1A(3) Rec C Soil HSL for Vapour Intrusion																				
0-1m																				
1-2m																				
2-4m																				
>4m																				
HSL-C Recreational / Open Space Direct Contact																				
NEPM 2013 ESLs, Urban residential and public open space																				
NEPM 2013 EILs, Urban residential and public open space																				
NEPM 2013 Management Limits for TPH Fractions F1-F4, Residential, parkland and public open space																				
HSLs for vapour intrusion, intrusive maintenance worker (shallow trench), 0 to ,2m, sand																				
Intrusive Maintenance Worker(Direct Contact)																				
Field_ID	Location	Sample_Depth	Sample Type	Date Sampled	Lab_Report_Number															
B17-68167_0.5-0.6	B17-68167_S26	0.5-0.6	Lineal (borehole)	22/03/2017	EM1703393	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
B17-68170_0.6-0.7	B17-68170_S26	0.6-0.7	Lineal (borehole)	22/03/2017	EM1703393	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
BH1_0.2	BH1_EnvMix West	0.2	Targeted (borehole)	29/03/2018	EM1805503	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
BH2_0.2	BH2_EnvMix West	0.2	Targeted (borehole)	29/03/2018	EM1805503	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
BH3_0.2	BH3_EnvMix West	0.2	Targeted (borehole)	29/03/2018	EM1805503	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
B17-68379/0.1	B17-68379	0.1	Targeted (borehole)	16/08/2017	EM1711031	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
B17-68379/0.7		0.7		16/08/2017	EM1711031	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
B17-68382/0.1	B17-68382	0.1	Targeted (borehole)	17/08/2017	EM1711031	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
B17-68382/0.5		0.5		17/08/2017	EM1711031	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
B17-68382/1.2		1.2		17/08/2017	EM1711031	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
B17-68382/2.0		2		17/08/2017	EM1711031	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
B17-68386/0.1	B17-68386	0.1	Targeted (borehole)	16/08/2017	EM1711031	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
B17-68386/0.7		0.7		16/08/2017	EM1711031	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
B17-68388 0.4	B17-68388	0.3-0.4	Targeted (borehole)	30/08/2017	EM1715033	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B17-68388 0.7		0.6-0.7		30/08/2017	EM1715033	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B17-68388 1.0		0.9-1.0		30/08/2017	EM1715033	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B17-68389 0.2	B17-68389	0.1-0.2	Targeted (borehole)	30/08/2017	EM1711735	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
B17-68389 0.5		0.4-0.5		30/08/2017	EM1711735	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
B17-68389 1.0		1		30/08/2017	EM1711735	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
B17_68391 0.5	B17_68391	0.4-0.5	Targeted (borehole)	28/08/2017	EM1711578	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
B17_68391 1.0		0.9-1.0		28/08/2017	EM1711578	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
B17_68391 1.5		1.4-1.5		28/08/2017	EM1711578	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
B17-68395/0.1	B17-68395	0.1	Targeted (borehole)	22/08/2017	EM1711253	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
B17-68395/0.5		0.5		22/08/2017	EM1711253	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
B17-68396/0.1	B17-68396	0.1	Targeted (borehole)	21/08/2017	EM1711185	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
B17-68396/0.5		0.5		21/08/2017	EM1711185	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
B17-68396/0.9		0.9		21/08/2017	EM1711185	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
B17-68396/1.9		1.9		21/08/2017	EM1711185	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
B17-68396/2.4		2.4		21/08/2017	EM1711185	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
B17-68396/3.2		3.2		21/08/2017	EM1711185	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
B17-68397-01/1.5	B17-68397-01_S26	1.5	Targeted (borehole)	10/05/2017	EM1706051	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
B17-68397-01/2.0		2		10/05/2017	EM1706051	0.01	0.05	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
B17-68397-01/3.0		3		10/05/2017	EM1706051	<0.01	0.26	<0.02	0.09	0.02	0.03	<0.02	<0.01	<0.4	<0.02	0.5	<0.02	<0.02	<0.02	<0.02
B17-68399/0.3	B17-68399	0.3	Targeted (borehole)	22/08/2017	EM1711253	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
B17-68399/0.5		0.5		22/08/2017	EM1711253	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
B17-68417/0.4	B17-68417	0.3-0.4	Targeted (borehole)	6/10/2017	EM1713792	<0.01	<0.02	<0.02	<0.02	<0.01	0.45	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
B17-68417/0.9		0.8-0.9		6/10/2017	EM1713792	<0.01	<0.02	<0.02	<0.02	<0.01	0.09	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
B17-68418/0.7	B17-68418	0.7	Lineal (borehole)	4/10/2017	EM1713792	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
B17-68419/0.7	B17-68419	0.6-0.7	Targeted (borehole)	12/10/2017	EM1714071	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
B17-68419/7.4		7.4		12/10/2017	EM1714071	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
B17-68420/0.7	B17-68420	0.6-0.7	Targeted (borehole)	11/10/2017	EM1714071	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
B17-68421/0.8	B17-68421	0.7-0.8	Targeted (borehole)	10/10/2017	EM1714071	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
LW17-26-01 0.5	LW17-26-01	0.5	Targeted (borehole)	7/09/2017	EM1712226	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
LW17-26-01 1.5		1.5		7/09/2017	EM1712226	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
LW17-26-01 2.0		2		7/09/2017	EM1712226	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
TP17-26-03/0.6	TP17-26-03	0.6	Lineal (Test pit)	19/06/2017	EM1708010	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
TP17-26-05/0.6	TP17-26-05	0.6	Lineal (Test pit)	18/06/2017	EM1708010	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
TP17-26-07/0.6	TP17-26-07	0.6	Lineal (Test pit)	18/06/2017	EM1708010	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
TP17-26-09/0.8	TP17-26-09	0.6-0.8	Lineal (Test pit)	1/06/2017	EM1707148	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
TP17-26-10/1.0	TP17-26-10	1	Lineal (Test pit)	31/05/2017	EM1707148	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02

Table 1A. Soil analytical results summary - broad suite

						VOC														
						1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,2-dichloroethane	1,4-dichlorobenzene	Carbon tetrachloride	Chlorobenzene	Chloroform	cis-1,2-dichloroethene	Dichloromethane	Hexachlorobutadiene	Styrene	TCE	Tetrachloroethene	trans-1,2-dichloroethene	Vinyl chloride
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL						0.01	0.02	0.02	0.02	0.01	0.02	0.02	0.01	0.4	0.02	0.5	0.02	0.02	0.02	0.02
EPAVic Cat B Upper Limit (if exceeded, Category A soil)															11					4.8
EPAVic Cat C Upper Limit (if exceeded, Category B soil)															2.8					1.2
EPAVic Fill Material Upper Limit (if exceeded, Category C soil)																				
NEPM 2013 Table 1A(1) HILs Rec C Soil																				
NEPM 2013 Table 1A(3) Rec C Soil HSL for Vapour Intrusion																				
0-1m																				
1-2m																				
2-4m																				
>4m																				
HSL-C Recreational / Open Space Direct Contact																				
NEPM 2013 ESLs, Urban residential and public open space																				
NEPM 2013 EILs, Urban residential and public open space																				
NEPM 2013 Management Limits for TPH Fractions F1-F4, Residential, parkland and public open space																				
HSLs for vapour intrusion, intrusive maintenance worker (shallow trench), 0 to ,2m, sand																				
Intrusive Maintenance Worker(Direct Contact)																				
Field_ID	Location	Sample_Depth	Sample Type	Date Sampled	Lab_Report_Number															
TP17-26-14/0.8	TP17-26-14	0.8	Lineal (Test pit)	22/05/2017	EM1706717	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
TP17-26-16/0.7	TP17-26-16	0.7	Lineal (Test pit)	22/05/2017	EM1706717	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
TP17-26-18/0.8	TP17-26-18	0.8	Lineal (Test pit)	31/05/2017	EM1707148	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
TP17-26-20/0.7	TP17-26-20	0.7	Lineal (Test pit)	31/05/2017	EM1707148	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
TP17-26-23/0.9	TP17-26-23	0.9	Lineal (Test pit)	31/05/2017	EM1707148	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
TP17-26-24/0.8	TP17-26-24	0.8	Lineal (Test pit)	23/05/2017	EM1706717	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
TP17-26-25/0.7	TP17-26-25	0.7	Lineal (Test pit)	23/05/2017	EM1706717	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
TP17-26-27/0.8	TP17-26-27	0.8	Lineal (Test pit)	23/05/2017	EM1706717	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
TP17-26-29/0.4	TP17-26-29	0.4	Lineal (Test pit)	22/05/2017	EM1706717	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
TP17-26-31/1.0	TP17-26-31	1	Lineal (Test pit)	23/05/2017	EM1706717	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
TP17-26-33/0.5-0.6	TP17-26-33	0.5-0.6	Lineal (Test pit)	24/05/2017	EM1706717	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
TP17-26-35/0.5-0.6	TP17-26-35	0.5-0.6	Lineal (Test pit)	24/05/2017	EM1706717	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
TP17-26-37/0.4	TP17-26-37	0.4	Lineal (Test pit)	24/05/2017	EM1706717	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
TP17-26-41/0.8	TP17-26-41	0.8	Lineal (Test pit)	25/05/2017	EM1706717	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
TP17-26-43/0.7	TP17-26-43	0.7	Lineal (Test pit)	25/05/2017	EM1706717	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
TP17-26-45/0.6	TP17-26-45	0.6	Lineal (Test pit)	26/05/2017	EM1706803	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
TP17-26-45/2.0		2	Lineal (Test pit)	26/05/2017	EM1706803	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
TP17-26-47/0.7	TP17-26-47	0.7	Lineal (Test pit)	1/06/2017	EM1707148	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
TP17-26-49/0.8	TP17-26-49	0.8	Lineal (Test pit)	1/06/2017	EM1707148	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
TP17-26-52/0.6	TP17-26-52	0.6	Lineal (Test pit)	14/06/2017	EM1707764	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
TP17-26-53/0.6	TP17-26-53	0.6	Lineal (Test pit)	14/06/2017	EM1707764	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
TP17-26-55/0.6	TP17-26-55	0.6	Lineal (Test pit)	14/06/2017	EM1707764	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
TP17-26-56/0.6	TP17-26-56	0.6	Lineal (Test pit)	14/06/2017	EM1707764	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
TP17-26-58/0.6	TP17-26-58	0.6	Lineal (Test pit)	14/06/2017	EM1707764	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
TP17-26-6/0.6	TP17-26-60	0.6	Lineal (Test pit)	15/06/2017	EM1707764	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
TP17-26-62/0.6	TP17-26-62	0.6	Lineal (Test pit)	15/06/2017	EM1707764	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
TP17-26-63/0.6	TP17-26-63	0.6	Lineal (Test pit)	15/06/2017	EM1707764	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
TP17-26-64/0.5	TP17-26-64	0.5	Lineal (Test pit)	24/05/2017	EM1706717	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
TP17-26-68/0.6	TP17-26-68	0.6	Lineal (Test pit)	26/05/2017	EM1706803	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
TP17-26-69/0.5	TP17-26-69	0.5	Lineal (Test pit)	12/05/2017	EM1706039	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
TP17-26-70/0.7	TP17-26-70	0.7	Lineal (Test pit)	25/05/2017	EM1706717	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
T1-26A	T1-26A	0.1	Target (Test pit)	4/05/2018	EM1807431	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
T2-26A	T2-26A	0.1	Target (Test pit)	4/05/2018	EM1807431	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
TP18-26A-01	TP18-26A-01	0.9	Lineal (Test pit)	4/05/2018	EM1807431	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
TP18-26A-02	TP18-26A-02	0.9	Lineal (Test pit)	4/05/2018	EM1807431	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
PD18-26A-04	PD18-26A-04	0.9	Lineal (PD)	4/05/2018	EM1807431	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
TP18-26A-09	TP18-26A-09	0.8	Lineal (Test pit)	4/05/2018	EM1807431	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
PD18-26A-10	PD18-26A-10	0.7-0.9	Lineal (PD)	3/05/2018	EM1807431	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.4	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02

Table 1B. Soil analytical results summary – PFAS

		Per- and Polyfluoroalkyl Subst						PFOS and PFOA						
	Moisture Content	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	Perfluorobutanoic acid (PFBA)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoropentanoic acid (PFPeA)	Sum of PFHxS and PFOS	6:2 Fluorotelomer Sulfonate (6:2 FtS)	8:2 Fluorotelomer sulfonate	Perfluorooctane sulfonic acid (PFOS)	PFOA	PFBS	PFHpA	PFHxA
	%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	1	0.0005	0.0005	0.001	0.0002	0.0002	0.0002	0.0005	0.0005	0.0002	0.0002	0.0002	0.0002	0.0002
Human health screening values							1				10			
Interim - ecological direct exposure							1				10			
Field_ID	**Location_Code**	**Sampled_Date_Time**	**SampleCode**	**Lab_Report_Number**										
BH1_0.2	BH1_EnvMix West	29/03/2018	EM1805503010	EM1805503	6	<0.0005	<0.0005	<0.001	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
BH2_0.2	BH2_EnvMix West	29/03/2018	EM1805503013	EM1805503	22.4	<0.0005	<0.0005	<0.001	0.0007	<0.0002	0.0043	<0.0005	<0.0005	0.0036	0.0008	<0.0002	<0.0002	0.0002
BH3_0.2	BH3_EnvMix West	29/03/2018	EM1805503016	EM1805503	2.2	<0.0005	<0.0005	<0.001	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
BH4_0.2/290318	BH4_Central	29/03/2018	EM1805503017	EM1805503	2.6	<0.0005	<0.0005	<0.001	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
BH5_0.2/290318	BH5_Central	29/03/2018	EM1805503021	EM1805503	5.6	<0.0005	<0.0005	<0.001	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
BH6_0.2/290318	BH6_Central	29/03/2018	EM1805503024	EM1805503	6.8	<0.0005	<0.0005	<0.001	<0.0002	<0.0002	0.0002	<0.0005	<0.0005	0.0002	<0.0002	<0.0002	<0.0002	<0.0002
SED1/290318/1S	SED1_Dunlop	29/03/2018	EM1805503007	EM1805503	36.2	<0.0005	<0.0005	<0.001	<0.0002	<0.0002	0.0008	<0.0005	<0.0005	0.0008	<0.0002	<0.0002	<0.0002	<0.0002
SED2/290318/2S	SED2_Dunlop	29/03/2018	EM1805503009	EM1805503	20.4	<0.0005	<0.0005	<0.001	<0.0002	<0.0002	0.0005	<0.0005	<0.0005	0.0005	<0.0002	<0.0002	<0.0002	<0.0002

Table 2. Soil analytical results summary - PASS

					ASS Field Screening Analysis			Exchangeable Cations					% Clay	pH measurements			Acidity trail				Sulfur trail			Excess Acid Neutralising Capacity			Acid Base Accounting		
					pH Unit	pH Unit	mg/kg	meq/100g	meq/100g	meq/100g	meq/100g	meq/100g	%	g/cm3	pH Unit	pH Unit	mole H+/t	% pyrite S	% pyrite S	% pyrite S	%S	%	%	%S	mole H+/t	mole H+/t	kg CaCO3/t	kg CaCO3/t	moles H+/t
					pH (F)	pH (Fox)	Reaction Rate	CEC	Exchangeable Calcium	Exchangeable Magnesium	Exchangeable Potassium	Exchangeable Sodium	Clay in soils <2um	DENSITY	pH (KCl) (23A)	pH OX (23B)	Titratable Actual Acidity (23F)	Sulfidic - Titratable Actual Acidity (TAA) (s-23 F)	Sulfidic - Titratable Peroxide Acidity (TPA) (s-23G)	Sulfidic - Titratable Sulfidic Acidity (s-23H) (TSA)(s-23H)	KCl Extractable Sulfur (23Ce)	Peroxide sulfur (23De)	Peroxide Oxidisable Sulfur (23E)	Sulfidic - Peroxide Oxidisable Sulfur (a-23E)	Excess Acid Neutralising Capacity (23Q)	Sulfidic - Excess Acid Neutralising Capacity (s-23Q)	Acidity - Excess Acid Neutralising Capacity (a-23Q)	Sulfidic - Excess Acid Neutralising Capacity (s-23Q)	ANC Fineness Factor	Net Acidity (sulfur units)	Net Acidity (acidity units)	Liming Rate	a-Net Acidity without ANCE	Liming rate without ANCE
EQL					0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	1	0.01	0.1	0.1	2	0.02	0.03	0.02	0.02	0.02	0.03	0.02	0.02	10	0.02	1	10	1
Adopted assessment criteria for classification of ASS (sand to loamy sand)																													
AASS or PASS are likely to be present					≤ 4.0	≤ 3.0	≥ 2	> 2.0																					
PASS may be present, further assessment is required					> 4.0 and < 5.0	> 3.0 and < 5.0	≥ 2	> 2.0																					
Field_ID	Location_Code	Sample Depth	Date Sampled	Matrix_Description																									
DB1 0.5m	DB1	0.5	4/10/2017	Sandy CLAY	8.8	9	4	-0.2	-	-	-	-	-	-	-	-	6.8	7.5	<2	<0.02	0.022	0.022	14	0.711	142	0.228	1.5	<0.02	14	1
DB1 1m	DB1	1	4/10/2017	Sandy SILT	8.6	6.5	3	2.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB1 1.5m	DB1	1.5	4/10/2017	CLAY	8.5	7.6	4	0.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB1 2m	DB1	2	4/10/2017	CLAY	8.3	9.4	4	-1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB1 2.5m	DB1	2.5	4/10/2017	CLAY	7	8.9	4	-1.9	25.3	12.5	9.4	<0.2	3.3	40	2.66	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB1 3m	DB1	3	4/10/2017	CLAY	8	6.2	2	1.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB1 3.5m	DB1	3.5	4/10/2017	CLAY	8	6.3	2	1.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB1 4.0m	DB1	4	4/10/2017	Sandy CLAY	7.5	8.1	4	-0.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB1 4.5m	DB1	4.5	4/10/2017	Sandy CLAY	7.4	7.6	3	-0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB1 5.0m	DB1	5	4/10/2017	Sandy CLAY	7.7	8.2	4	-0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB1 5.5m	DB1	5.5	4/10/2017	Grevelly Clayey SAND	7.5	8.1	4	-0.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB1 6.0m	DB1	6	4/10/2017	Grevelly Clayey SAND	7.4	8.5	4	-1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB1 6.5m	DB1	6.5	4/10/2017	Grevelly sandy CLAY	7.4	6.2	2	1.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB1 7m	DB1	7	4/10/2017	Grevelly Clayey SAND	7.7	5.9	2	1.8	-	-	-	-	-	-	5.8	6.4	4	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	-	1.5	<0.02	<10	<1	<10	<1
DB1 7.5m	DB1	7.5	4/10/2017	Grevelly Clayey SAND	7.7	6.1	1	1.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB1 8m	DB1	8	4/10/2017	Grevelly CLAY	7.5	6.4	1	1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB1 8.5m	DB1	8.5	4/10/2017	Grevelly CLAY	7.5	6.2	1	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB1 9m	DB1	9	4/10/2017	CLAY	7.4	6.1	1	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB1 9.5m	DB1	9.5	4/10/2017	CLAY	8.5	6.8	1	1.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB1 10m	DB1	10	4/10/2017	CLAY	8.4	6.5	1	1.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB2 0.5	DB2	0.5	3/10/2017	Silty CLAY	7.7	6	2	1.7	-	-	-	-	-	-	6	5.4	<2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	-	1.5	<0.02	<10	<1	<10	<1
DB2 1.0	DB2	1	3/10/2017	Grevelly Silty CLAY	7.8	6.6	1	1.2	28.4	13.8	8.8	<0.2	5.9	37	2.65	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB2 1.5	DB2	1.5	3/10/2017	Grevelly Silty CLAY	8.5	9.4	4	-0.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB2 2.0	DB2	2	3/10/2017	Silty CLAY	7.5	8.2	4	-0.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB2 2.5	DB2	2.5	3/10/2017	Grevelly Sandy CLAY	7.2	5.9	1	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB2 3.0	DB2	3	3/10/2017	Grevelly Sandy CLAY	6.9	6.1	1	0.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB2 3.5	DB2	3.5	3/10/2017	Grevelly Sandy CLAY	6.7	6.2	1	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB2 4.0	DB2	4	3/10/2017	Grevelly Sandy CLAY	7.2	6.2	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB2 4.5	DB2	4.5	3/10/2017	Grevelly Clayey SAND	7.4	5.9	1	1.5	-	-	-	-	-	-	5.9	5.9	2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	-	1.5	<0.02	<10	<1	<10	<1
DB2 5.0	DB2	5	3/10/2017	Grevelly Clayey SAND	6.7	5.8	1	0.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB2 5.5	DB2	5.5	3/10/2017	Grevelly Clayey SAND	7	5.7	3	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB2 6.0	DB2	6	3/10/2017	Grevelly Clayey SAND	6.6	5.9	1	0.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB2 6.5	DB2	6.5	3/10/2017	Grevelly Clayey SAND	7.2	5.9	1	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB2 7.0	DB2	7	3/10/2017	Grevelly Clayey SAND	6.9	5.9	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB2 7.5	DB2	7.5	3/10/2017	Grevelly Clayey SAND	7.3	5.9	1	1.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB2 8.0	DB2	8	3/10/2017	Clayey SAND	7	5.9	1	1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB2 8.5	DB2	8.5	3/10/2017	Clayey SAND	7.2	5.9	1	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB2 9.0	DB2	9	3/10/2017	Clayey SAND	7.1	5.9	1	1.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB2 9.5	DB2	9.5	3/10/2017	Clayey SAND	6.8	6	1	0.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB2 10.0	DB2	10	3/10/2017	Clayey SAND	7	6	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB2 0.5m	DB3	0.5	5/10/2017	CLAY	5.8	4.4	1	1.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB3 1m	DB3	1	5/10/2017	CLAY	5.5	4.3	1	1.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB3 1.5m	DB3	1.5	5/10/2017	CLAY	5.3	4.5	1	0.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB3 2m	DB3	2	5/10/2017	CLAY	6	4.7	1	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB3 2.5m	DB3	2.5	5/10/2017	CLAY	6.3	4.9	1	1.4	8.4	2.6	4.2	0.3	1.3	72	2.52	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB3 3m	DB3	3	5/10/2017	CLAY	6.6	4.8	1	1.8	-	-	-	-	-	-	-	7	6.7	<2	<0.02	<0.02	<0.02	<0.02	<0.02	0.163	32	0.052	1.5	<0.02	<10	<1	<10	<1
DB3 3.5m	DB3	3.5	5/10/2017	CLAY	7.4	7.4	3	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB3 4m	DB3	4	5/10/2017	CLAY	8.6	8.8	4	-0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB3 4.5m	DB3	4.5	5/10/2017	CLAY	8.4	7.6	4	0.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB3 5m	DB3	5	5/10/2017	CLAY	8.5	6.8	2	1.7	-	-	-	-	-	-	-	-	6.8	6.9	<2	<0.02	0.022	0.022	14	0.147	29	0.047	1.5	<0.02	<10	<1	14	1
DB3 5.5m	DB3	5.5	5/10/2017	CLAY	8.5	7.6	2	0.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB3 6m	DB3	6	5/10/2017	CLAY	8.4	7.8	4	0.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB3 6.5m	DB3	6.5	5/10/2017	CLAY	6.9	8.7	4	-1.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB3 7m	DB3	7	5/10/2017	CLAY	6.2	8.3	4	-2.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB3 7.5m	DB3	7.5	5/10/2017	Sandy CLAY	6.3	8	3	-1.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB3 8m	DB3	8	5/10/2017	Sandy CLAY	8.1	7.1	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB3 8.5m	DB3	8.5	5/10/2017	Sandy CLAY	8.3	7.1	3	1.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB3 9m	DB3	9	5/10/2017	Sandy CLAY	8.1	7.5	4	0.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB3 9.5m	DB3	9.5	5/10/2017	Sandy CLAY	7.6	5.7	2	1.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB3 10m	DB3	10	5/10/2017	Sandy CLAY	6.9	4.2	3	2.7	-	-	-	-	-	-	-	6.3	6.2	<2	<0.02	<0.02	<0.02	<0.02	<0.02	-	1.5	<0.02	<10	<1	<10	<1
DB4 0.5m	DB4	0.5	13/10/2017	Sandy CLAY	5.4	4.5	2	0.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB4 1.0m	DB4	1	13/10/2017	Sandy CLAY	5.3	4.2	2	1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB4 1.5m	DB4	1.5	13/10/2017	Sandy CLAY	5.1	3.9	2	1.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB4 1.9m	DB4	1.9	13/10/2017	Sandy CLAY	-	-	-	-	13	3.6	7.1	0.1	2.1	29	2.64	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB4 2.0m	DB4	2	13/10/2017	Sandy CLAY	5.2	3.9	1	1.3	-	-	-	-	-	-	-	5.1	5.2	4	<0.02	<0.02	<0.02	<0.02	<0.02	-	1.5	<0.02	<10	<1	<10	<1
DB4 2.5m	DB4	2.5	13/10/2017	SAND and CLAY	6	4.8	2	1.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB4 3.0m	DB4	3	13/10/2017	SAND	6.3	2.3	4	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 2. Soil analytical results summary - PASS

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Table 2. Soil analytical results summary - PASS

	ASS Field Screening Analysis			Exchangeable Cations							Clay	Density	pH measurements		Titratable Actual Acidity (23F)	Acidity trail			Sulfur trail			Excess Acid Neutralising Capacity		Acid Base Accounting			
	pH (F)	pH Unit	Reaction Rate	CEC	Exchangeable Calcium	Exchangeable Magnesium	Exchangeable Potassium	Exchangeable Sodium	meq/100g	meq/100g	%	DENSITY	pH (KCl) (23A)	pH OX (23B)		mole H+/t	% pyrite S	% pyrite S	% pyrite S	KCl Extractable Sulfur (23Oc)	Peroxide sulfur (23De)	Peroxide Oxidisable Sulfur (23E)	Excess Acid Neutralising Capacity (23Q)	acidity - Excess Acid Neutralising Capacity (a-23Q)	sulfidic - Excess Acid Neutralising Capacity (s-23Q)	ANC Fineness Factor	Net Acidity (sulfur units)	Net Acidity (acidity units)	Liming Rate	a-Net Acidity without ANCE	Liming rate without ANCE
	pH Unit	pH Unit	mg/kg	meq/100g	meq/100g	meq/100g	meq/100g	meq/100g	meq/100g	meq/100g	g/cm3	pH Unit	pH Unit	mole H+/t		%S	%S	%S	%S	%S	mole H+/t	%S	mole H+/t	%S	-	%S	mole H+/t	kg CaCO3/t	moles H+/t	kg CaCO3/t
EQL	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1	0.01	0.1	0.1	2	0.02	0.02	0.03	0.02	0.02	0.02	0.03	0.02	10	0.02	0.5	0.02	0.03	18	10	1
Adopted assessment criteria for classification of ASS (sand to loamy sand)																															
AASS or PASS are likely to be present	≤ 4.0	< 3.0	≥ 2	> 2.0																											
PASS may be present, further assessment is required	> 4.0 and < 5.0	> 3.0 and < 5.0	≥ 2	> 2.0																											

Field_ID	Location_Code	Sample Depth	Date Sampled	Matrix_Description																											
DB5 16m	DB5	16	12/10/2017	Clayey SAND	6.5	4.9	1	1.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB5 16.5m	DB5	16.5	12/10/2017	Clayey SAND	6.9	5.1	2	1.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB5 17m	DB5	17	12/10/2017	Clayey GRAVELL	6.7	4.8	2	1.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB5 17.5m	DB5	17.5	12/10/2017	Clayey GRAVELL	6.9	5	1	1.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB5 18m	DB5	18	12/10/2017	Gravelly CLAY	6.9	5.1	1	1.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB5 18.5m	DB5	18.5	12/10/2017	Clayey GRAVELL	7.1	5.2	1	1.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB5 19m	DB5	19	12/10/2017	Clayey GRAVELL	6.6	4.9	2	1.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB5 19.5m	DB5	19.5	12/10/2017	Clayey GRAVELL	6.6	4.8	1	1.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB5 20m	DB5	20	12/10/2017	Clayey GRAVELL	6.7	4.8	1	1.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB1 0.5m	SB1	0.5	28/09/2017	SAND	6.8	5.8	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB1 1m	SB1	1	28/09/2017	CLAY	6.6	6	1	0.6	14.7	7.4	6	0.6	0.6	2.66	39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB1 1.5m	SB1	1.5	28/09/2017	CLAY	7.1	6	2	1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB2 0.5m	SB2	0.5	28/09/2017	SAND	7.2	6.2	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB2 1m	SB2	1	28/09/2017	Clayey SAND	7.3	6	1	1.3	-	-	-	-	-	-	-	-	6.2	6.2	<2	<0.02	<0.02	<0.02	<0.02	<0.02	<10	-	<0.02	<0.02	1.5	<0.02	<10	<1
SB2 1.5m	SB2	1.5	28/09/2017	SAND	7.4	9.4	4	-2	9.1	5.3	3.1	0.3	0.4	2.65	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB3 0.5m	SB3	0.5	4/10/2017	Silty SAND	7.5	5.8	2	1.7	-	-	-	-	-	-	-	-	6.2	5.4	<2	<0.02	<0.02	<0.02	<0.02	<0.02	<10	-	<0.02	<0.02	1.5	<0.02	<10	<1
SB3 1m	SB3	1	4/10/2017	CLAY	7.7	6.6	2	1.1	11.6	2.1	6.1	<0.2	3.4	50	2.67	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB3 1.5m	SB3	1.5	4/10/2017	CLAY	7.8	6.1	2	1.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB4 0.5m	SB4	0.5	5/10/2017	SAND	6.4	4.5	1	1.9	-	-	-	-	-	-	-	-	6.2	6	<2	<0.02	<0.02	<0.02	<0.02	<0.02	<10	-	<0.02	<0.02	1.5	<0.02	<10	<1
SB4 1m	SB4	1	5/10/2017	Clayey SAND	6.6	4.7	1	1.9	4	1.5	1.9	0.3	0.3	24	2.64	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB4 1.5m	SB4	1.5	5/10/2017	Clayey SAND	6.4	4.8	1	1.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB5 0.5m	SB5	0.5	5/10/2017	Silty SAND	5.9	3.3	2	2.6	-	-	-	-	-	-	-	-	5.9	5	<2	<0.02	<0.02	0.023	0.023	<0.02	<10	-	0.02	14	1.5	0.02	14	1
SB5 1m	SB5	1	5/10/2017	Sandy CLAY	7.2	5.3	2	1.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB5 1.4m	SB5	1.4	5/10/2017	Sandy CLAY	7.2	-	-	-	18.5	4.5	7.7	<0.2	6.2	44	2.67	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB6 0.5m	SB6	0.5	5/10/2017	Clayey SAND	6.4	4.8	1	1.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB6 1m	SB6	1	5/10/2017	SAND	7.8	4.4	1	3.4	-	-	-	-	-	-	-	-	6	4.5	<2	<0.02	<0.02	<0.02	<0.02	<0.02	<10	-	<0.02	<0.02	1.5	<0.02	<10	<1
SB6 1.4m	SB6	1.4	5/10/2017	CLAY	-	-	-	-	12.4	3.6	5.7	0.4	2.7	39	2.63	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB6 1.5m	SB6	1.5	5/10/2017	CLAY	8.5	7.1	4	1.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB7 0.5m	SB7	0.5	12/10/2017	Clayey SAND	8	4.9	1	3.1	-	-	-	-	-	-	-	-	6	5.1	<2	<0.02	<0.02	<0.02	<0.02	<0.02	<10	-	<0.02	<0.02	1.5	<0.02	<10	<1
SB7 1m	SB7	1	12/10/2017	Sandy CLAY	8.2	5.9	1	2.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB7 1.4m	SB7	1.4	12/10/2017	Sandy CLAY	-	-	-	-	25.3	9.3	10.2	<0.2	5.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB7 1.5m	SB7	1.5	12/10/2017	Sandy CLAY	8.1	5.4	1	2.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB8 0.5m	SB8	0.5	12/10/2017	Clayey SAND	6.4	4.6	1	1.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB8 1m	SB8	1	12/10/2017	Sandy CLAY	7.9	4.8	1	3.1	-	-	-	-	-	-	-	-	6.1	3.9	<2	<0.02	<0.02	<0.02	0.023	0.023	14	-	0.02	14	1.5	0.02	14	1
SB8 1.4m	SB8	1.4	12/10/2017	Gravelly Sandy CLAY	-	-	-	-	17.1	7	7.7	<0.2	2.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB8 1.5m	SB8	1.5	12/10/2017	Gravelly Sandy CLAY	8.2	5.1	1	3.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB9 0.5	SB9	0.5	3/10/2017	FILL: Gravelly Silty CLAY	7.7	8.1	4	-0.4	25.7	15.7	9.5	<0.2	0.5	12	2.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB9 1.0	SB9	1	3/10/2017	Silty SAND	-	-	-	-	-	-	-	-	-	-	-	-	6.5	6	<2	<0.02	<0.02	<0.02	<0.02	<0.02	<10	-	<0.02	<0.02	1.5	<0.02	<10	<1
SB10 0.5	SB10	0.5	3/10/2017	CLAY	7.5	6	1	1.5	-	-	-	-	-	-	-	-	6.1	5.9	<2	<0.02	<0.02	<0.02	<0.02	<0.02	<10	-	<0.02	<0.02	1.5	<0.02	<10	<1
SB10 1.0	SB10	1	3/10/2017	CLAY	7.5	9	4	-1.5	35.1	21.2	9.8	<0.2	4.1	50	2.64	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB10 1.4	SB10	1.4	3/10/2017	CLAY	7.1	8.5	4	-1.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB11 0.5	SB11	0.5	3/10/2017	Silty CLAY	7.9	6.2	2	1.7	-	-	-	-	-	-	-	-	6.3	3.9	<2	<0.02	<0.02	<0.02	0.046	0.046	29	-	0.05	29	1.5	0.05	29	2
SB11 1.0	SB11	1	3/10/2017	Silty CLAY	7.9	7.8	4	0.1	34.6	17.8	12.3	<0.2	4.5	46	2.66	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB11 1.5	SB11	1.5	3/10/2017	Silty CLAY	7.5	7.8	4	-0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB12 0.5	SB12	0.5	3/10/2017	Gravelly Silty CLAY	8	5.9	2	2.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB12 0.8	SB12	0.8	3/10/2017	Gravelly Silty CLAY	-	-	-	-	23.5	6.5	9.3	<0.2	7.4	37	2.68	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB12 1.0	SB12	1	3/10/2017	Gravelly sandy CLAY	8.4	6.3	1	2.1	24.4	6.7	9.7	<0.2	7.9	36	2.66	8.5	8.7	<2	<0.02	<0.02	<0.02	0.03	0.031	<0.02	<10	3.08	615	0.985	1.5	<0.02	<10	<1
SB12 1.5	SB12	1.5	3/10/2017	Gravelly sandy CLAY	8.5	6.2	1	2.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB13 0.5m	SB13	0.5	4/10/2017	Sandy CLAY	7.6	5.4	4	2.2	-	-	-	-	-	-	-	7.8	7.3	<2	<0.02	<0.02	<0.02	<0.02	0.046	0.046	28	6.93	1380	2.22	1.5	<0.02	28	2
SB13 1m	SB13	1	4/10/2017	CLAY	8.3	8.6	4	-0.3	38	14.2	15	<0.2	8.6	36	2.66	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB13 1.5m	SB13	1.5	4/10/2017	CLAY	9.2	9.4	4	-0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB14 0.5m	SB14	0.5	4/10/2017	CLAY	7.9	8.3	4	-0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB14 1m	SB14	1	4/10/2017	CLAY	8.5	9.3	4	-0.8	33.8	17.6	9.8	<0.2	6.4	41	2.67	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB14 1.5m	SB14	1.5	4/10/2017	Gravelly CLAY	8.3	8.5	4	-0.2	-	-	-	-	-	-	-	8.6	9	<2	<0.02	<0.02	<0.02	<0.02	0.028	0.028	17	34	6800	10.9	1.5	<0.02	<10	<1	17	1
SB15 0.5m	SB15	0.5	4/10/2017	CLAY	8.4	5.8	3	2.6	-	-	-	-	-	-	-	8.6	7.6	<2	<0.02	<0.02	<0.02	0.026	0.06	0.034	21	2.24	447	0.716	1.5	<0.02	<10	<1	21	2
SB15 1.0m	SB15	1	4/10/2017	CLAY	7.8	8.7	1	-0.9	51.6	25.3	17.1	<0.2	9	81	2.71	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB15 1.5m	SB15	1.5	4/10/2017	Gravelly CLAY	8.2	9.2	4	-1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB16 0.5m	SB16	0.5	4/10/2017	CLAY	7.6	6.2	2	1.4	-	-	-	-	-	-	-	8	7.2	<2	<0.02	<0.02	<0.02	0.045	0.07	0.026	16	1.24	248	0.398	1.5	<0.02	<10	<1	16	1
SB16 1m	SB16	1	4/10/2017	CLAY	7.7	6.8	1	0.9	47.6	20.4	19.7	<0.2	7.4	48	2.67	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB16 1.5m	SB16	1.5	4/10/2017	CLAY	7.6	6.3	2	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB17 0.5m	SB17	0.5	4/10/2017	CLAY	8	6.6	3	1.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB17 1.0m	SB17	1	4/10/2017	CLAY	7.8	6.5	2	1.3	44.2	17.8	17.3	0.2	8.9	65	7.1	6.8	<2	<0.02	<0.02	<0.02	0.038	0.047	<0.02	<10	0.328	66	0.105	1.5	<0.02	<10	<1	<10	<1
SB17 1.5m	SB17	1.5	4/10/2017	CLAY	7.7	6.5	1	1.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 2. Soil analytical results summary - PASS

	ASS Field Screening Analysis				Exchangeable Cations					% Clay	Density	pH measurements		Acidity trail				Sulfur trail				Excess Acid Neutralising Capacity			Acid Base Accounting					
	pH (F)	pH (Fox)	Reaction Rate	ΔpH (calculated)*	CEC	Exchangeable Calcium	Exchangeable Magnesium	Exchangeable Potassium	Exchangeable Sodium	Clay in soils <2um	DENSITY	pH (KCl) (23A)	pH OX (23B)	Titratable Actual Acidity (23F)	sulfidic - Titratable Actual Acidity (TAA) (s-23 F)	sulfidic - Titratable Peroxide Acidity (TPA) (s-23G)	sulfidic - Titratable Sulfidic Acidity (s-23H) (TSA)(s-23H)	KCl Extractable Sulfur (23Ce)	Peroxide sulfur (23De)	Peroxide Oxidisable Sulfur (23E)	acidity - Peroxide Oxidisable Sulfur (a-23E)	Excess Acid Neutralising Capacity (23Q)	acidity - Excess Acid Neutralising Capacity (a-23Q)	sulfidic - Excess Acid Neutralising Capacity (s-23Q)	ANC Fineness Factor	Net Acidity (sulfur units)	Net Acidity (acidity units)	Liming Rate	a-Net Acidity without ANCE	Liming rate without ANCE
	pH Unit	pH Unit	mg/kg		meq/100g	meq/100g	meq/100g	meq/100g	meq/100g	%	g/cm3	pH Unit	pH Unit	mole H+/t	% pyrite S	% pyrite S	% pyrite S	%	%	%	mole H+/t	%S	mole H+/t	%S	-	%S	mole H+/t	kg CaCO3/t	moles H+/t	kg CaCO3/t
EQL	0.1	0.1	1		0.1	0.1	0.1	0.1	0.1	1	0.01	0.1	0.1	2	0.02	0.02	0.02	0.02	0.02	0.02	10	0.02	10	0.02	0.5	0.02	10	1	10	1
Adopted asseement criteria for classification of ASS (sand to loamy sand)															0.03	0.03	0.03			0.03						0.03	18			
AASS or PASS are likely to be present	≤ 4.0	≤ 3.0	≥ 2	> 2.0																										
PASS may be present, further assessment is required	> 4.0 and < 5.0	> 3.0 and < 5.0	≥ 2	> 2.0																										
Field_ID	**Location_Code**	**Sample Depth**	**Date Sampled**	**Matrix_Description**																										
SB18 0.5m	SB18	0.5	27/09/2017	CLAY	6.7	5.8	1	0.9	-	-	-	-	-	-	-	6.2	4.6	2	<0.02	<0.02	<0.02	0.026	0.056	0.03	19	-	-	-	1.5	0.03	21	2	21	2
SB18 1m	SB18	1	27/09/2017	CLAY	6.2	5.9	1	0.3	42	18.6	19.1	0.3	4.1	74	2.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB18 1.5m	SB18	1.5	27/09/2017	CLAY	6.1	5.8	1	0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB19 0.5m	SB19	0.5	27/09/2017	CLAY	6	5.6	2	0.4	-	-	-	-	-	-	-	5.8	5	5	<0.02	<0.02	<0.02	0.024	0.048	0.024	15	-	-	-	1.5	0.03	20	2	20	2
SB19 1m	SB19	1	27/09/2017	CLAY	5.6	5.3	1	0.3	34.1	12.5	18.5	0.2	2.9	75	2.58	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB19 1.5m	SB19	1.5	27/09/2017	CLAY	5.5	5.8	1	-0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB20/0.5m	SB20	0.5	5/10/2017	CLAY	5.2	3.9	1	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB20/1m	SB20	1	5/10/2017	CLAY	5.1	3.6	1	1.5	8.7	2.3	4.7	0.1	1.6	65	2.56	4.9	4.6	13	0.022	0.022	<0.02	0.091	0.117	0.026	16	-	-	-	1.5	0.05	29	2	29	2
SB20/1.5m	SB20	1.5	5/10/2017	CLAY	5.6	4.3	3	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB21/0.5m	SB21	0.5	5/10/2017	Silty CLAY	5.1	3.9	2	1.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB21/1m	SB21	1	5/10/2017	CLAY	5.2	3.8	1	1.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB21/1.3m	SB21	1.3	5/10/2017	CLAY	-	-	-		9.2	2.9	5.3	0.2	0.8	64	2.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB21/1.5m	SB21	1.5	5/10/2017	CLAY	5.5	4	1	1.5	-	-	-	-	-	-	-	4.9	4.3	36	0.058	<0.02	<0.02	0.022	0.06	0.038	24	-	-	-	1.5	0.1	60	4	60	4
SB22/0.5m	SB22	0.5	5/10/2017	CLAY	5.4	3.8	2	1.6	-	-	-	-	-	-	-	4.9	4.6	12	<0.02	<0.02	<0.02	<0.02	0.024	0.024	15	-	-	-	1.5	0.04	26	2	26	2
SB22/1m	SB22	1	5/10/2017	CLAY	5.1	3.8	1	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB22/1.4m	SB22	1.4	5/10/2017	CLAY	-	-	-	-	21.8	7.3	13.4	0.2	0.9	59	2.59	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB22/1.5m	SB22	1.5	5/10/2017	CLAY	5.1	3.7	1	1.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB23/0.5m	SB23	0.5	5/10/2017	Sandy CLAY	5.6	4	2	1.6	-	-	-	-	-	-	-	5.1	4.2	13	0.02	<0.02	<0.02	<0.02	0.031	0.031	19	-	-	-	1.5	0.05	32	2	32	2
SB23/1m	SB23	1	5/10/2017	Sandy CLAY	5.4	4	3	1.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB23/1.2m	SB23	1.2	5/10/2017	Sandy CLAY	-	-	-	-	11.7	4.2	7	0.1	0.4	24	2.62	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB23/1.5m	SB23	1.5	5/10/2017	Sandy CLAY	5.3	4	1	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB24 0.5m	SB24	0.5	11/10/2017	Sandy CLAY	5.9	4.6	1	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB24 1m	SB24	1	11/10/2017	Sandy CLAY	7.2	5.2	1	2	20.5	10	8	<0.2	2.2	32	2.65	6	6.1	<2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<10	-	-	-	1.5	<0.02	<10	<1	<10	<1
SB24 1.5m	SB24	1.5	11/10/2017	Sandy CLAY	7.7	5.3	1	2.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB25 0.5m	SB25	0.5	11/10/2017	CLAY - Strong slightly sulphurous, decomposing organinc odour	5.7	2.9	1	2.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB25 1m	SB25	1	11/10/2017	Sandy CLAY	6.7	4.2	1	2.5	11	4.3	5.6	<0.2	1.1	23	2.61	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB25 1.5m	SB25	1.5	11/10/2017	SAND	6.7	2.6	1	4.1	-	-	-	-	-	-	-	5.4	4.4	2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<10	-	-	-	1.5	<0.02	<10	<1	<10	<1
SB26 0.5m	SB26	0.5	11/10/2017	Silty CLAY	5.9	3.7	2	2.2	-	-	-	-	-	-	-	4.9	4.6	8	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<10	-	-	-	1.5	<0.02	<10	<1	<10	<1
SB26 1m	SB26	1	11/10/2017	CLAY	5.2	3.8	1	1.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB26 1.1m	SB26	1.1	11/10/2017	CLAY	-	-	-	-	16.3	5.7	9.7	0.2	0.7	49	2.58	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB26 1.5m	SB26	1.5	11/10/2017	CLAY	4.8	4.1	2	0.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB27 0.5m	SB27	0.5	11/10/2017	Clayey SAND	5.5	3.8	2	1.7	-	-	-	-	-	-	-	4.8	4.3	17	0.027	<0.02	<0.02	<0.02	<0.02	<0.02	<10	-	-	-	1.5	0.03	17	1	17	1
SB27 1m	SB27	1	11/10/2017	Clayey SAND	5.3	3.8	2	1.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB27 1.3m	SB27	1.3	11/10/2017	Sandy CLAY	-	-	-	-	15.1	4.7	9.6	0.2	0.7	37	2.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB27 1.5m	SB27	1.5	11/10/2017	Sandy CLAY	4.8	3.7	1	1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB28 0.5m	SB28	0.5	11/10/2017	Sandy CLAY	5.5	4.3	1	1.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB28 0.9m	SB28	0.9	11/10/2017	Sandy CLAY	-	-	-		27.6	8.1	16.6	0.4	2.5	39	2.62	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB28 1m	SB28	1	11/10/2017	Sandy CLAY	5.7	4.5	1	1.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB28 1.5m	SB28	1.5	11/10/2017	Clayey SAND	6	4.5	1	1.5	-	-	-	-	-	-	-	5.5	5.2	<2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<10	-	-	-	1.5	<0.02	<10	<1	<10	<1
SB29 0.5m	SB29	0.5	12/10/2017	Clayey SAND	5.9	4	1	1.9	-	-	-	-	-	-	-	4.9	4.3	8	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<10	-	-	-	1.5	<0.02	<10	<1	<10	<1
SB29 1m	SB29	1	12/10/2017	Sandy CLAY	5.9	4.5	1	1.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB29 1.4m	SB29	1.4	12/10/2017	Clayey SAND	-	-	-	-	13.9	3.7	8	0.2	2.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB29 1.5m	SB29	1.5	12/10/2017	Clayey SAND	5.8	4.2	1	1.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB30 0.5m	SB30	0.5	12/10/2017	Clayey SAND	5.1	4.1	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB30 1m	SB30	1	12/10/2017	Sandy CLAY	5.3	4.2	1	1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB30 1.4m	SB30	1.4	12/10/2017	Sandy CLAY	-	-	-		12.2	3.3	7.2	0.1	1.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB30 1.5m	SB30	1.5	12/10/2017	Sandy CLAY	5.1	4	1	1.1	-	-	-	-	-	-	-	5	4.8	7	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	12	-	-	-	1.5	0.03	20	1	20	1
SB31 0.5m	SB31	0.5	12/10/2017	Sandy CLAY	5.6	4.4	2	1.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB31 1m	SB31	1	12/10/2017	Sandy CLAY	6.3	4.9	1	1.4	-	-	-	-	-	-	-	5.4	4.7	5	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<10	-	-	-	1.5	<0.02	<10	<1	<10	<1
SB31 1.3m	SB31	1.3	12/10/2017	Sandy CLAY	-	-	-	-	15.7	4.4	9.3	0.2	1.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB31 1.5m	SB31	1.5	12/10/2017	Sandy CLAY	6	4.9	1	1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB32 0.5m	SB32	0.5	12/10/2017	Sandy CLAY	5.5	4.4	1	1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB32 1m	SB32	1	12/10/2017	Sandy CLAY	5.7	4.2	1	1.5	-	-	-	-	-	-	-	4.9	4.5	12	<0.02	0.022	<0.02	<0.02	<0.02	<0.02	<10	-	-	-	1.5	<0.02	12	<1	12	<1
SB32 1.3m	SB32	1.3	12/10/2017	Sandy CLAY	-	-	-	-	12.6	3.3	7	0.1	2.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB32 1.5m	SB32	1.5	12/10/2017	Sandy CLAY	5.4	4.3	1	1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB33 0.5m	SB33	0.5	12/10/2017	Clayey SAND	5.6	4	2	1.6	-	-	-	-	-	-	-	4.5	3.9	25	0.04	0.042	<0.02	<0.02	<0.02	<0.02	<10	-	-	-	1.5	0.04	25	2	25	2
SB33 1m	SB33	1	12/10/2017	Clayey SAND	5.5	4.2	2	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB33 1.2m	SB33	1.2	12/10/2017	Sandy CLAY	-	-	-	-	10.7	3	6.4	0.1	1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB33 1.5m	SB33	1.5	12/10/2017	Sandy CLAY	5.1	3.8	1	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB34 0.5m	SB34	0.5	28/09/2017	Clayey SAND	7	5.8	2	1.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB34 1m	SB34	1	28/09/2017	Sandy CLAY	5.4	4.4	2	1	-	-	-	-	-	-	-	5.1	5.1	16	0.026	<0.02	<0.02	<0.02	0.026	0.026	16	-	-	-	1.5	0.05	32	2	32	2
SB34 1.5m	SB34	1.5	28/09/2017	Sandy CLAY	5.2	4.3	2	0.9	16.7	6	8.9	0.2	1.5	47	2.58	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB35/0.5	SB35	0.5	3/10/2017	Silty CLAY	5.6	4	2	1.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 2. soil analytical results summary - PASS

	ASS Field Screening Analysis				Exchangeable Cations					% Clay	Density	pH measurements		Acidity trail			Sulfur trail			Excess Acid Neutralising Capacity	Add Base Accounting			
	pH (F)	pH (Fox)	Reaction Rate	ΔpH (calculated)*	CEC	Exchangeable Calcium	Exchangeable Magnesium	Exchangeable Potassium	Exchangeable Sodium	Clay in soils <2um	DENSITY	pH (KCl) (23A)	pH OX (23B)	Titratable Actual Acidity (23F)	% pyrite S	% pyrrite S	% pyrrite S	Peroxide sulfur (23De)	Peroxide Oxidisable Sulfur (23E)	acidity - Peroxide Oxidisable Sulfur (a-23E)	Excess Acid Neutralising Capacity (23Q)	ANC Fineness Factor	sulfidic - Excess Acid Neutralising Capacity (s-23Q)	acidity - Excess Acid Neutralising Capacity (a-23Q)	sulfidic - Excess Acid Neutralising Capacity (s-23Q)	Liming rate without ANCE	a-Net Acidity without ANCE	Liming Rate	Net Acidity (acidity units)	Net Acidity (sulfur units)	Liming Rate
EQL	0.1	0.1	1		0.1	0.1	0.1	0.1	0.1	1	0.01	0.1	0.1	2	0.02	0.03		0.02	0.02	0.02	10	0.5	0.02	10	1	10	1	10	0.02	1
Adopted assessment criteria for classification of ASS (sand to loamy sand)																														
PASS or PASS are likely to be present																														
PASS may be present, further assessment is required																														
Field_ID	**Location_Code**	**Sample Depth**	**Date Sampled**	**Matrix_Description**																										
SB35/1.0	SB35	1	3/10/2017	Sandy silty CLAY	5.7	3.9	1	1.8	-	-	-	-	-	4.7	4.7	25	0.04	<0.02	0.03	<0.02	0.022	0.022	14	-	1.5	0.06	39	3	39	3
SB35/1.5	SB35	1.5	3/10/2017	Sandy silty CLAY	5.2	4.1	2	1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB36/0.5	SB36	0.5	3/10/2017	Silty CLAY	5.1	4.3	2	0.8	-	-	-	-	-	4.9	6	16	0.025	<0.02	<0.02	<0.02	<0.02	<0.02	<10	-	1.5	0.02	16	1	16	1
SB36/0.7	SB36	0.7	3/10/2017	Silty CLAY	-	-	-	-	18.9	5.7	11.1	0.2	1.8	43	2.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB36/1.0	SB36	1	3/10/2017	Sandy Silty CLAY	4.9	4.3	1	0.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB36/1.5	SB36	1.5	3/10/2017	Sandy silty CLAY	4.8	4.1	1	0.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB37 0.5m	SB37	0.5	5/10/2017	CLAY	5.8	3.9	2	1.9	-	-	-	-	-	4.7	4.5	17	0.027	<0.02	<0.02	<0.02	0.023	0.023	14	-	1.5	0.05	31	2	31	2
SB37 1m	SB37	1	5/10/2017	CLAY	5	3.9	1	1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB37 1.2m	SB37	1.2	5/10/2017	CLAY	-	-	-	-	19.8	6.3	12.2	0.2	1.1	55	2.49	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB37 1.5m	SB37	1.5	5/10/2017	CLAY	4.9	3.8	1	1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB38/0.5m	SB38	0.5	5/10/2017	Clayey SAND	6.1	4.3	1	1.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB38/1m	SB38	1	5/10/2017	Clayey SAND	5	3.2	2	1.8	-	-	-	-	-	4.7	4.4	21	0.034	<0.02	<0.02	<0.02	<0.02	<0.02	<10	-	1.5	0.03	21	2	21	2
SB38 1.4m	SB38	1.4	5/10/2017	CLAY	-	-	-	-	14.1	4.5	8.2	0.2	1.2	35	2.53	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB38 1.5m	SB38	1.5	5/10/2017	CLAY	5.4	4.1	1	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 3A. Groundwater and leachate analytical results summary – broad suite

	Field								Lab pH/TDS/Cond			Major/minor ions												Cyanide						
	Conductivity (Field)	TDS (Field)	DO % (Field)	DO_ppm_Field	DO mg/L (Field)	Redox (Field)	Temperature (Field)	pH*	pH	Total Dissolved Solids (Calc.)	Conductivity @ 25 C	Anions Total	Cations Total	Bicarbonate Alkalinity as CaCO3	Carbonate Alkalinity as CaCO3	Alkalinity (total) as CaCO3	Alkalinity (Hydroxide) as CaCO3	Chloride	Ionic Balance	Calcium (Filtered)	Magnesium (Filtered)	Potassium (Filtered)	Sodium (Filtered)	Sulfate as SO4 - Turbidimetric (Filtered)	Cyanide Total	Bromide	Iodide	Fluoride	Kjeldahl Nitrogen Total	Methane	Nitrate (as N)
	uS/cm	mg/L	%	mg/L	mg/L	mV	°C	pH Units	pH Units	mg/L	µS/cm	meq/L	meq/L	mg/L	mg/L	mg/L	mg/L	mg/L	%	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L
EQL								0.01		10	1	0.01	0.01	1	1	1	1	1	0.01					1	4	10	10	0.1	0.2	0.01	0.01
Adopted criteria for buildings and structures									<5.5									6000						1000							
NEPM 2013 Table 1A(4) Rec HSL C GW for Vapour Intrusion, Sand																															
2-4m																															
4-8m																															
>8m																															
Adopted criteria for maintenance of ecosystems																									7						
Adopted criteria for potable water supply																								**500**	**80**		**500**	**1.5**			
Adopted criteria for primary contact recreation									*6.5-8.5*																*80*		*500*	*1.5*			
Adopted criteria for agriculture, parks and garden																									80		500	1.5			
Adopted criteria for stock watering									6.0-8.5															1000	80		500	1.5			

Location	Date Sampled	Field_ID	Monitoring Zone	Lab Report #																											
GW17-26-01	3/10/2017	GW17-26-01	UTAF	EM1713546	847	-	-	-	0	205.6	18.3	4.8	*4.61*	-	-	7.51	6.75	39	<1	39	<1	173	5.36	17	9	1	118	89	<4	-	-	-	-	0.124	6.5
GW17-26-02	3/10/2017	GW17-26-02	UTAF	EM1713546	1611	-	-	-	0.15	246.3	16	4.13	*3.88*	-	-	15.2	13	<1	<1	<1	<1	408	8.08	5	26	<1	243	179	<4	-	-	-	-	<0.01	4.86
B18-68673 S	3/05/2018	BH18-68673 S	UTAF	EM1807230	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<4	-	-	-	-	-	-
GW17-26-03	23/11/2017	GW17-26-03	UTAF	EM1716152	1107	865	4.9	-	0.48	96.6	16.2	7.4	7.02	845	1300	14.1	11.6	204	<1	204	<1	308	9.56	20	13	<1	220	64	-	625	-	0.4	-	-	0.79
GW17-26-03	6/03/2018	GW17-26-03	UTAF	EM1804056	745	-	8.4	0.82	-	133	16.01	7.3	6.7	632	972	9.98	8.78	211	<1	211	<1	172	6.42	13	10	<1	168	44	-	437	-	0.4	-	-	0.47
GW17-26-04	31/08/2017	GW17-26-04	UTAF	EM1711811	17,113	11,128	14.4	-	-	-78.3	16.2	6.94	6.67	11,000	17,000	182	177	220	<1	220	<1	5650	1.22	860	529	9	2080	**853**	-	-	-	0.4	-	-	0.01
GW17-26-04	20/11/2017	GW17-26-04	UTAF	EM1715957	15,353	10,940	70.4	-	5.92	-93.2	20.4	7.54	6.91	10,900	16,800	213	177	179	<1	179	<1	6790	9.3	820	519	5	2140	**864**	-	12,300	-	0.4	-	-	<0.01
GW17-26-04	6/03/2018	GW17-26-04	UTAF	EM1804056	14,507	-	43.5	3.73	-	-2	20	7.14	6.8	11,400	17,500	195	175	198	<1	198	<1	6100	5.47	854	481	9	2120	**904**	-	11,700	-	0.3	-	-	0.01
GW17-26-05	31/08/2017	GW17-26-05	UTAF	EM1711811	28,559	18,560	15.4	-	1.38	-72.2	15.6	7.02	6.75	19,800	30,400	345	335	318	<1	318	<1	10,600	1.56	1370	898	7	4420	**1920**	-	-	-	0.5	-	-	0.01
GW17-26-05	20/11/2017	GW17-26-05	UTAF	EM1715957	25,715	19,530	7.4	-	0.63	-93.3	17.5	7.43	6.66	19,900	30,600	384	335	307	<1	307	<1	11,800	6.86	1330	863	<5	4540	**2170**	-	21,100	-	0.8	-	-	<0.01
GW17-26-05	2/03/2018	GW17-26-05	UTAF	EM1803918	23,676	-	40.4	3.55	-	-7	16.3	7.3	6.75	20,900	32,100	349	328	330	<1	330	<1	10,500	3.05	1380	839	6	4370	**2210**	-	24,000	-	0.7	-	-	0.01
GW17-26-06	31/08/2017	GW17-26-06	UTAF	EM1711811	22,401	14,560	43	-	4.08	37.2	14.7	6.45	*6.13*	15,900	24,400	250	258	194	<1	194	<1	7420	1.54	852	870	8	3300	**1770**	-	-	-	0.2	-	-	<0.01
GW17-26-06	20/11/2017	GW17-26-06	UTAF	EM1715957	18,914	14,130	83.1	-	7.17	-30.4	18.4	6.97	6.89	15,200	23,400	287	264	196	<1	196	<1	8740	4.18	841	920	11	3350	**1740**	-	8550	-	0.2	-	-	<0.01
GW17-26-06	2/03/2018	GW17-26-06	UTAF	EM1803918	18,416	-	46.9	4.1	-	21	18.5	6.9	*6.32*	15,500	23,900	264	242	184	<1	184	<1	7870	4.42	837	774	8	3130	**1850**	-	9890	-	0.2	-	-	<0.01
GW17-26-07	1/09/2017	GW17-26-07	UTAF	EM1711838	17,980	11,694	17.1	-	1.64	-70	14.4	8.05	*6.41*	12,100	18,600	202	197	124	<1	124	<1	6140	1.46	668	630	23	2550	**1290**	-	-	-	0.2	-	-	<0.01
GW17-26-07	20/11/2017	GW17-26-07	UTAF	EM1715957	16,659	11,750	53.5	-	4.49	-94.3	20.9	7.29	6.7	11,900	18,300	233	203	266	<1	266	<1	7110	6.74	689	638	12	2670	**1290**	-	7610	-	0.6	-	-	<0.01
GW17-26-07	2/03/2018	GW17-26-07	UTAF	EM1803918	15,271	-	60.3	5.22	-	-13	19.24	7.02	6.52	12,600	19,400	201	176	281	<1	281	<1	6160	6.65	632	542	22	2290	**1060**	-	8610	-	0.6	-	-	<0.01
GW17-26-08	29/08/2017	GW17-26-08	QA	EM1711637	26,601	17,290	6	-	0.55	66.9	14.6	5.23	*4.88*	18,000	27,700	327	308	46	<1	46	<1	8730	3	983	1640	27	2840	**3850**	-	-	-	0.4	-	-	<0.01
GW17-26-08	23/11/2017	GW17-26-08	QA	EM1716152	22,684	17,470	69.7	-	6.03	25.6	16.7	5.9	*5.29*	17,700	27,200	360	301	66	<1	66	<1	9900	8.86	933	1620	26	2780	**3820**	-	15,900	-	0.4	-	-	<0.01
GW17-26-08	6/03/2018	GW17-26-08	QA	EM1804056	20,463	-	23.4	2.06	-	117	17.17	5.33	*5.15*	18,000	27,700	330	305	26	<1	26	<1	8710	4.07	990	1570	32	2880	**4050**	-	14,900	-	0.3	-	-	<0.01
GW17-26-09	29/08/2017	GW17-26-09	QA	EM1711637	7655	4979	58.7	-	5.7	77.8	15.3	5.93	*5.68*	5190	7980	77.5	75.2	106	<1	106	<1	2160	1.5	278	274	6	888	**694**	-	-	-	0.3	-	-	0.02
GW17-26-09	23/11/2017	GW17-26-09	QA	EM1716152	7267	5130	70	-	6.05	27.6	20.5	6.55	*6.1*	4870	7490	92.4	79.2	123	<1	123	<1	2680	7.71	297	275	6	956	**690**	-	3170	-	0.2	-	-	<0.01
GW17-26-09	6/03/2018	GW17-26-09	QA	EM1804056	6293	-	42.6	3.91	-	39	18.1	6.51	*6.11*	4880	7500	77.2	72.9	131	<1	131	<1	2150	2.88	284	251	7	871	**670**	-	3240	-	0.2	-	-	0.01
GW17-26-10D	30/08/2017	GW17-26-10D	UTAF	EM1711811	7413	4817	8.4	-	0.85	-122.8	15.5	8.44	6.89	4980	7660	73.7	68.6	518	45	564	<1	2000	3.54	160	180	7	1050	288	-	-	-	*2.6*	-	-	<0.01
GW17-26-10D	22/11/2017	GW17-26-10D	UTAF	EM1716035	6404	4910	3.2	-	0.29	-130.2	16.9	7.76	7.04	5000	7690	86.4	70.3	482	<1	482	<1	2500	10.2	158	181	6	1090	301	-	4820	-	0.9	-	-	<0.01
GW17-26-10D	1/03/2018	GW17-26-10D	UTAF	EM1803918	5316	-	4.1	0.4	-	-77	16.3	7.54	7.06	5010	7710	70.6	66.7	492	<1	492	<1	1930	2.82	171	166	7	1020	305	-	4690	-	0.9	-	-	<0.01
GW17-26-10S	30/08/2017	GW17-26-10S	QA	EM1711811	2101	1365	17.2	-	1.71	-29.7	14.4	6.97	6.52	1400	2160	21.2	17.7	248	<1	248	<1	567	8.99	49	46	7	260	13	-	-	-	0.3	-	-	<0.01
GW17-26-10S	22/11/2017	GW17-26-10S	QA	EM1716035	2040	1590	25.2	-	2.42	-44.8	16.1	7.35	6.75	1600	2470	26.6	22.9	265	<1	265	<1	720	7.44	49	54	7	364	47	-	1350	-	0.3	-	-	<0.01
GW17-26-10S	1/03/2018	GW17-26-10S	QA	EM1803918	2071	-	72.5	6.76	-	40	18.1	6.99	6.51	1590	2440	24	20.9	258	<1	258	<1	632	6.93	50	50	8	324	50	-	1620	-	0.3	-	-	<0.01
GW17-26-11D	28/08/2017	GW17-26-11D	UTAF	EM1711637	5846	3803	4.6	-	0.42	-100.6	16.5	7.88	*6.35*	4020	6190	58.1	53.8	513	<1	513	<1	1520	3.85	152	123	7	825	238	-	-	-	0.5	-	-	0.02
GW17-26-11D	23/11/2017	GW17-26-11D	UTAF	EM1716152	4987	3800	9	-	0.85	-99.4	17.1	7.36	6.86	3840	5910	64	55.2	468	<1	468	<1	1770	7.37	150	122	7	862	226	-	3640	-	0.6	-	-	0.03
GW17-26-11D	28/02/2018	GW17-26-11D	UTAF	EM1803825	4548	3633	5.8	0.48	-	60	15.2	7.26	6.86	3870	5950	56.5	53.5	490	<1	490	<1	1490	2.79	156	122	8	815	227	-	3930	<200	0.5	-	-	<0.01
GW17-26-11S	28/08/2017	GW17-26-11S	QA	EM1711637	2323	1508	31	-	3.06	-79.9	15.3	7.69	*6.38*	1510	2320	23.6	20.2	345	<1	345	<1	577	7.94	57	63	7	275	23	-	-	-	0.3	-	-	0.01
GW17-26-11S	23/11/2017	GW17-26-11S	QA	EM1716152	2333	1760	64.2	-	6.08	-90	17.4	7.3	6.86	1720	2640	30	24.8	407	<1	407	<1	743	9.59	78	66	8	350	44	-	1530	-	0.6	-	-	<0.01
GW17-26-11S	28/02/2018	GW17-26-11S	QA	EM1803825	2215	1690	45.5	4.29	-	107	17.2	7.22	6.74	1790	2750	27.5	23.2	405	<1	405	<1	658	8.49	71	66	8	322	40	-	1610	<100	0.5	-	-	<0.01
GW17-26-12D	30/08/2017	GW17-26-12D	UTAF	EM1711811	5952	3870	9.5	-	0.95	-99.6	16.1	7.41	6.72	4020	6190	54.8	52.9	329	<1	329	<1	1590	1.75	114	120	8	854	162	-	-	-	0.3	-	-	<0.01
GW17-26-12D	21/11/2017	GW17-26-12D	UTAF	EM1715957	4926	3800	7.3	-	0.65	-106.5	16.8	7.23	7	4150	6390	63.1	53.7	306	<1	306	<1	1890	8	90	114	1	916	176	-	2770	-	0.3	-	-	0.01
GW17-26-12D	28/02/2018	GW17-26-12D	UTAF	EM1803825	4701	3763	7.6	0.68	-	-1	15.2	7.01	6.69	4250	6540	55.4	52.3	324	<1	324	<1	1600	2.94	118	121	9	832	184	-	2740	<500	0.2	-	-	<0.01
GW17-26-12S	30/08/2017	GW17-26-12S	QA	EM1711811	12,686	8268	55.4	-	5.24	28.4	14.6	6.6	*5.93*	8450	13,000	156	131	154	<1	154	<1	4420	8.72	331	483	8	1710	**1350**	-	-	-	0.1	-	-	0.02
GW17-26-12S	21/11/2017	GW17-26-12S	QA	EM1715957	9624	7560	53.9	-	5.16	3.6	16	6.89	*5.87*	8260	12,700	152	118	140	<1	140	<1	4260	12.4	291	435	3	1560	**1380**	-	2660	-	0.1	-	-	<0.01
GW17-26-12S	28/02/2018	GW17-26-12S	QA	EM1803825	9535	7273	45.8	4.16	-	148	17.2	6.29	*5.97*	8060	12,400	133	117	152	<1	152	<1	3590	6.34	298	409	7	1570	**1370**	-	2880	<500	0.1	-	-	<0.01
GW17-26-13D	1/09/2017	GW17-26-13D	UTAF	EM1711838	4166	2704	11.5	-	1.11	-62.5	15.9	7.42	6.57	2850	4380	41	39	284	<1	284	<1	1150	2.49	103	85	6	614	138	-	-	-	0.2	-	-	<0.01
GW17-26-13D	21/11/2017	GW17-26-13D	UTAF	EM1715957	3504	2700	7.1	-	0.57	-73	16.6	7.5	6.51	2830	4350	45.6	40.3	283	<1	283	<1	1320	6.17	116	90	6	620	131	-	2730	-	0.2	-	-	<0.01
GW17-26-13D	28/02/2018	GW17-26-13D	UTAF	EM1803825	3248	26,325	4.5	0.44	-	7	14.6	6.88	*6.47*	2810	4330	39.8	36.4	296	<1	296	<1	1110	4.48	107	81	6	558	126	-	2940	<200	0.2	-	-	<0.01
GW17-26-13S	1/09/2017	GW17-26-13S	QA	EM1711838	4143	2690	18.3	-	1.81	-64.4	15	7.49	6.54	2760	4240	39.8	38.8	246	<1	246	<1	1140	1.21	46	69	9	704	130	-	-	-	0.4	-	-	<0.01
GW17-26-13S	21/11/2017	GW17-26-13S	QA	EM1715957	3890	2700	30.1	-	2.63	-87.4	21.5	7.45	6.58	2850	4390	44.8	39.6	263	<1	263	<1	1310	6.16	51	71	9	712	124	-	2780	-	0.4	-	-	<0.01
GW17-26-13S	28/02/2018	GW17-26-13S	QA	EM1803825	3488	2665	20.3	1.95	-	71	17.2	6.82	*6.42*	2940	4520	39.8	36.6	252	<1	252	<1	1140	4.31	51	72	10	640	128	-	2960	<200	0.3	-	-	<0.01
GW17-26-14D	29/08/2017	GW17-26-14D	UTAF	EM1711637	3729	2424	5.3	-	0.42	-41.1	17.1	6.67	*6.41*	2500	3840	39	33.1	335	<1	335	<1	1060	8.16	99	63	5	525	114	-	-	-	0.4	-	-	0.01
GW17-26-14D	22/11/2017	GW17-26-14D	UTAF	EM1716035	3417	2580	7.8	-	0.6	-39	17.6	7.5	6.68	2630	4050	42.5	38	315	<1	315	<1	1200	5.66	115	76	6	594	115	-	2380	-	0.4	-	-	<0.01
GW17-26-14D	27/02/2018	GW17-26-14D	UTAF	EM1803701	3666	2840	25.6	3.45	-	175	16.3	7.2	6.59	2720	4180	39.6	35.7	339	<1	339	<1	1080	5.2	123	75	7	534	115	-	2530	-	0.5	-	-	<0.01
GW17-26-14S	30/08/2017	GW17-26-14S	QA	EM1711811	4665	3029	46.5	-	4.54	14.3	14.6	7.77	6.78	3110	4780	45.9	42.1	385	<1	385	<1	1240	4.32	158	123	10	548	155	-	-	-	0.4	-	-	<0.01

Table 3A. Groundwater and leachate analytical results summary – broad suite

	Field								Lab pH/TDS/Cond			Major/minor ions												Cyanide						
	Conductivity (Field)	TDS (Field)	DO % (Field)	DO_ppm_Field	DO mg/L (Field)	Redox (Field)	Temperature (Field)	pH*	pH	Total Dissolved Solids (Calc.)	Conductivity @ 25 C	Anions Total	Cations Total	Bicarbonate Alkalinity as CaCO3	Carbonate Alkalinity as CaCO3	Alkalinity (total) as CaCO3	Alkalinity (Hydroxide) as CaCO3	Chloride	Ionic Balance	Calcium (Filtered)	Magnesium (Filtered)	Potassium (Filtered)	Sodium (Filtered)	Sulfate as SO4 - Turbidimetric (Filtered)	Cyanide Total	Bromide	Iodide	Fluoride	Kjeldahl Nitrogen Total	Methane	Nitrate (as N)
	uS/cm	mg/L	%	mg/L	mg/L	mV	°C	pH Units	pH Units	mg/L	µS/cm	meq/L	meq/L	mg/L	mg/L	mg/L	mg/L	mg/L	%	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L
EQL								0.01		10	1	0.01	0.01	1	1	1	1	1	0.01						4	10	10	0.1	0.2	0.01	0.01
Adopted criteria for buildings and structures									<5.5									6000						1000							
NEPM 2013 Table 1A(4) Rec HSL C GW for Vapour Intrusion, Sand																															
2-4m																															
4-8m																															
>8m																															
Adopted criteria for maintenance of ecosystems																									7						
Adopted criteria for potable water supply																								**500**	**80**		**500**	**1.5**			
Adopted criteria for primary contact recreation									*6.5-8.5*																*80*		*500*	*1.5*			
Adopted criteria for agriculture, parks and garden																									80		500	1.5			
Adopted criteria for stock watering									6.0-8.5															1000	80		500	1.5			
Location	**Date Sampled**	**Field_ID**	**Monitoring Zone**	**Lab Report #**																											
GW17-26-14S	22/11/2017	GW17-26-14S	QA	EM1716035	4649	3190	15.4	-	1.32	-106.2	22	7.61	6.65	3170	4880	52.1	45	351	<1	351	<1	1480	7.36	149	129	11	612	160	-	2280	-	0.5	-	-	<0.01
GW17-26-14S	27/02/2018	GW17-26-14S	QA	EM1803701	4113	3035	28.2	2.51	-	46	18.7	7.57	6.79	2950	4540	44.4	40.8	375	<1	375	<1	1200	4.28	154	119	12	529	149	-	2500	-	0.6	-	-	0.01
GW17-26-15D	29/08/2017	GW17-26-15D	UTAF	EM1711637	4279	2782	4.6	-	0.43	-62.8	16.5	6.59	*6.18*	2820	4340	40.4	38.7	232	<1	232	<1	1190	2.16	134	92	7	557	104	-	-	-	0.4	-	-	0.02
GW17-26-15D	22/11/2017	GW17-26-15D	UTAF	EM1716035	3768	2860	4.2	-	0.39	-81.5	17.5	7.41	6.58	2890	4440	46.3	40	264	<1	264	<1	1380	7.3	123	93	7	599	102	-	2900	-	0.4	-	-	<0.01
GW17-26-15D	27/02/2018	GW17-26-15D	UTAF	EM1803701	3700	2918	28.7	7.8	-	122	15.8	7.07	6.6	2830	4350	40.6	36.9	279	<1	279	<1	1160	4.73	139	91	8	512	109	-	3070	-	0.5	-	-	<0.01
GW17-26-15S	1/09/2017	GW17-26-15S	QA	EM1711838	6258	4070	36.7	-	3.66	35.6	14.3	7.51	*6.37*	4240	6530	63.8	63.5	378	<1	378	<1	1540	0.28	188	178	12	900	**617**	-	-	-	0.2	-	-	0.02
GW17-26-15S	22/11/2017	GW17-26-15S	QA	EM1716035	8176	5750	35.3	-	3.04	6.9	21	7.29	*6.44*	4390	6760	76.1	64.2	461	<1	461	<1	1870	8.54	168	172	5	954	**681**	-	4020	-	0.2	-	-	0.02
GW18-26-16D	2/03/2018	GW18-26-16S	UTAF	EM1803918	5566	-	31.7	2.86	-	124	19.1	6.99	*6.44*	3110	4790	42.8	39.1	198	<1	198	<1	1290	4.51	83	72	1	667	118	-	2980	-	0.3	-	-	0.73
GW18-26-16S	2/03/2018	GW18-26-16D	UTAF	EM1803918	3550	-	3.3	0.31	-	66	16.3	6.85	*6.28*	4280	6590	63.1	58	290	<1	290	<1	1880	4.22	119	111	1	986	205	-	4010	-	0.4	-	-	0.02
GW18-26-18D	1/03/2018	GW18-26-18D	UTAF	EM1803918	8903	-	26.6	2.39	-	-22	17.1	6.97	6.65	8190	12,600	132	120	224	<1	224	<1	3950	5.06	450	288	15	1680	**791**	-	10,000	-	0.5	-	-	<0.01
GW18-26-18S	1/03/2018	GW18-26-18S	QA	EM1803918	3346	-	24	2.23	-	33	19.11	7.27	6.81	2870	4420	41.7	37.2	419	<1	419	<1	1040	5.59	130	81	17	544	190	-	2380	-	0.6	-	-	0.02
GW18-26-22D	28/02/2018	GW18-26-22D	UTAF	EM1803825	4855	3783	4	0.37	-	-38	16.3	7.22	6.97	4400	6770	59.3	55.9	216	<1	216	<1	1780	2.94	184	109	11	862	230	-	4300	<500	0.3	-	-	<0.01
GW18-26-22S	28/02/2018	GW18-26-22S	QA	EM1803825	3349	2528	7	0.65	-	23	17.7	6.41	6.58	2380	3670	34.7	30.5	81	<1	81	<1	904	6.46	60	65	11	503	365	-	2770	<200	0.3	-	-	0.01
GW18-26-23D	27/02/2018	GW18-26-23D	UTAF	EM1803701	24,960	19.727	4.6	0.4	-	-36	15.6	6.34	*6.49*	19,600	30,200	319	300	74	<1	74	<1	9870	3.13	725	548	85	4980	1900	-	33,400	-	0.1	-	-	<0.01
GW18-26-23S	27/02/2018	GW18-26-23S	QA	EM1803701	1211	823	42.5	7.69	-	170	17.5	6.26	*6.29*	878	1350	13.2	12	47	<1	47	<1	218	4.82	12	16	15	222	292	-	422	-	0.3	-	-	<0.01

Table 3A. Groundwater and leachate analytical results summary – broad suite

	Inorganics								Organic	Ammonia	TRH							TPH					BTEX														
	Nitrite (as N)	Nitrogen (Total)	Organic Nitrogen (as N)	Nitrite + Nitrate as N	Reactive Phosphorus as P	TDS	TDS (Filtered)	Total Organic Carbon	Oil and Grease	Ammonia as N	C10 - C16 Fraction	C16 - C34 Fraction	C10 - C40 Fraction (Sum)	C34 - C40 Fraction	C6 - C10 Fraction minus BTEX (F1)	TPH C6 - C10 Fraction	TRH >C10-C16 less Naphthalene (F2)	>C10 - C36 (Sum of total)	C6 - C9 Fraction	C10 - C14 Fraction	C15 - C28 Fraction	C29-C36 Fraction	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Total BTEX	Aluminium (Filtered)	Arsenic (Filtered)	Barium (Filtered)	Beryllium (Filtered)	Boron (Filtered)	Cadmium (Filtered)	Chromium (Filtered)
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	0.01	0.2	0.2	0.01	0.01	10		1	5	0.01	50	100	100	100	20	20	50	50	20	50	100	50	1	1	1	2	1	2	1							
Adopted criteria for buildings and structures																																				
NEPM 2013 Table 1A(4) Rec HSL C GW for Vapour Intrusion, Sand																																				
2-4m															NL		NL						NL	NL	NL			NL								
4-8m															NL		NL						NL	NL	NL			NL								
>8m															NL		NL						NL	NL	NL			NL								
Adopted criteria for maintenance of ecosystems										0.9													950				350			55				370	0.2	
Adopted criteria for potable water supply																							**1**	**800**	**300**			**600**			**10**	**2000**	**60**	**4000**	**2**	
Adopted criteria for primary contact recreation																							*1*	*800*	*300*			*600*			*7*	*700*	*60*	*4000*	*2*	*50*
Adopted criteria for agriculture, parks and garden																															100	2000	60	500	10	100
Adopted criteria for stock watering																							1	800	300			600			500	2000	60	5000	10	100
Location	**Date Sampled**	**Field_ID**	**Monitoring Zone**	**Lab Report #**																																
GW17-26-01	3/10/2017	GW17-26-01	UTAF	EM1713546	0.15	-	-	6.65	-	-	559	19	-	0.12	<100	130	130	<100	<20	<20	<100	130	<20	<50	130	<50	<1	<2	<2	<2	<2	<2	<1	-	<1	35	<1	<50	0.1	<1
GW17-26-02	3/10/2017	GW17-26-02	UTAF	EM1713546	0.04	-	-	4.9	-	-	1150	10	-	0.04	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	-	2	10	<1	<50	0.1	1
B18-68673 S	3/05/2018	BH18-68673 S	UTAF	EM1807230	-	-	-	-	-	-	-	-	-	-	<100	260	260	<100	<20	<20	<100	330	<20	<50	260	70	<1	<2	<2	<2	<2	<2	<1	-	3	171	<1	580	<0.1	<1
GW17-26-03	23/11/2017	GW17-26-03	UTAF	EM1716152	0.01	-	-	0.8	<0.01	-	-	-	<5	0.04	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	<10	<1	10	<1	50	<0.1	<1
GW17-26-03	6/03/2018	GW17-26-03	UTAF	EM1804056	0.01	-	-	0.48	<0.01	-	-	-	<5	0.01	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	<10	<1	6	<1	60	<0.1	<1
GW17-26-04	31/08/2017	GW17-26-04	UTAF	EM1711811	<0.01	-	-	0.01	<0.01	-	-	-	<5	0.6	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	<10	***22***	86	<1	150	<0.1	<1
GW17-26-04	20/11/2017	GW17-26-04	UTAF	EM1715957	<0.01	-	-	<0.01	<0.01	-	-	-	<5	0.52	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	<10	***21***	78	<1	130	<0.1	<1
GW17-26-04	6/03/2018	GW17-26-04	UTAF	EM1804056	<0.01	-	-	0.01	<0.01	-	-	-	<5	0.59	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	<10	***26***	76	<1	140	<0.1	<1
GW17-26-05	31/08/2017	GW17-26-05	UTAF	EM1711811	<0.01	-	-	0.01	<0.01	-	-	-	<5	0.11	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	<10	***133***	49	<1	200	<0.1	<1
GW17-26-05	20/11/2017	GW17-26-05	UTAF	EM1715957	<0.01	-	-	<0.01	<0.01	-	-	-	<5	0.16	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	<10	***139***	53	<1	210	<0.1	<1
GW17-26-05	2/03/2018	GW17-26-05	UTAF	EM1803918	<0.01	-	-	0.01	<0.01	-	-	-	<5	0.2	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	20	***118***	43	<1	180	<0.1	<1
GW17-26-06	31/08/2017	GW17-26-06	UTAF	EM1711811	0.01	-	-	<0.01	<0.01	-	-	-	<5	0.38	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	<10	5	42	<1	110	<0.1	<1
GW17-26-06	20/11/2017	GW17-26-06	UTAF	EM1715957	<0.01	-	-	<0.01	<0.01	-	-	-	<5	0.24	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	<10	6	44	<1	120	<0.1	<1
GW17-26-06	2/03/2018	GW17-26-06	UTAF	EM1803918	<0.01	-	-	<0.01	<0.01	-	-	-	<5	0.3	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	<10	4	41	<1	120	<0.1	<1
GW17-26-07	1/09/2017	GW17-26-07	UTAF	EM1711838	<0.01	-	-	<0.01	<0.01	-	-	-	<5	0.37	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	<10	***16***	42	<1	430	<0.1	<1
GW17-26-07	20/11/2017	GW17-26-07	UTAF	EM1715957	<0.01	-	-	<0.01	<0.01	-	-	-	<5	0.26	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	<10	***49***	51	<1	150	<0.1	<1
GW17-26-07	2/03/2018	GW17-26-07	UTAF	EM1803918	<0.01	-	-	<0.01	<0.01	-	-	-	<5	0.29	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	<10	***31***	47	<1	130	<0.1	<1
GW17-26-08	29/08/2017	GW17-26-08	QA	EM1711637	0.06	-	-	0.06	<0.01	-	-	-	<5	0.55	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	2540	***147***	22	9	200	1	2
GW17-26-08	23/11/2017	GW17-26-08	QA	EM1716152	0.03	-	-	0.01	<0.01	-	-	-	<5	1.9	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	1720	***139***	32	9	180	0.8	2
GW17-26-08	6/03/2018	GW17-26-08	QA	EM1804056	0.02	-	-	<0.01	0.02	-	-	-	<5	2.05	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	1310	***138***	22	8	240	0.9	2
GW17-26-09	29/08/2017	GW17-26-09	QA	EM1711637	0.02	-	-	0.04	<0.01	-	-	-	<5	0.19	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	10	2	38	<1	80	<0.1	<1
GW17-26-09	23/11/2017	GW17-26-09	QA	EM1716152	<0.01	-	-	<0.01	<0.01	-	-	-	<5	0.16	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	<10	4	47	<1	120	<0.1	<1
GW17-26-09	6/03/2018	GW17-26-09	QA	EM1804056	<0.01	-	-	0.01	0.02	-	-	-	<5	0.19	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	<10	4	53	<1	140	<0.1	<1
GW17-26-10D	30/08/2017	GW17-26-10D	UTAF	EM1711811	<0.01	-	-	<0.01	0.01	-	-	-	<5	0.65	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	<10	***25***	88	<1	220	<0.1	<1
GW17-26-10D	22/11/2017	GW17-26-10D	UTAF	EM1716035	<0.01	-	-	<0.01	<0.01	-	-	-	<5	0.59	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	<10	***28***	68	<1	180	<0.1	<1
GW17-26-10D	1/03/2018	GW17-26-10D	UTAF	EM1803918	0.01	-	-	0.01	<0.01	-	-	-	<5	0.61	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	<10	***27***	53	<1	170	<0.1	<1
GW17-26-10S	30/08/2017	GW17-26-10S	QA	EM1711811	0.01	-	-	0.01	<0.01	-	-	-	<5	1.04	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	30	4	297	<1	80	<0.1	<1
GW17-26-10S	22/11/2017	GW17-26-10S	QA	EM1716035	<0.01	-	-	<0.01	<0.01	-	-	-	<5	0.67	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	10	6	282	<1	90	<0.1	<1
GW17-26-10S	1/03/2018	GW17-26-10S	QA	EM1803918	<0.01	-	-	<0.01	<0.01	-	-	-	<5	0.38	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	<10	6	208	<1	90	<0.1	<1
GW17-26-11D	28/08/2017	GW17-26-11D	UTAF	EM1711637	<0.01	-	-	0.02	<0.01	-	-	-	<5	0.56	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	<10	***67***	108	<1	200	<0.1	<1
GW17-26-11D	23/11/2017	GW17-26-11D	UTAF	EM1716152	<0.01	-	-	0.03	<0.01	-	-	-	<5	0.59	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	<10	***74***	68	<1	160	<0.1	<1
GW17-26-11D	28/02/2018	GW17-26-11D	UTAF	EM1803825	<0.01	-	-	<0.01	<0.01	-	-	-	<5	0.65	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	<10	***80***	57	<1	160	<0.1	1
GW17-26-11S	28/08/2017	GW17-26-11S	QA	EM1711637	0.01	-	-	0.02	<0.01	-	-	-	<5	0.69	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	<10	***26***	264	<1	140	<0.1	<1
GW17-26-11S	23/11/2017	GW17-26-11S	QA	EM1716152	<0.01	-	-	<0.01	<0.01	-	-	-	<5	0.63	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	<10	***17***	237	<1	130	<0.1	<1
GW17-26-11S	28/02/2018	GW17-26-11S	QA	EM1803825	<0.01	-	-	<0.01	<0.01	-	-	-	<5	0.5	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	<10	9	240	<1	140	<0.1	<1
GW17-26-12D	30/08/2017	GW17-26-12D	UTAF	EM1711811	<0.01	-	-	<0.01	<0.01	-	-	-	<5	0.63	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	<10	***229***	165	<1	130	<0.1	<1
GW17-26-12D	21/11/2017	GW17-26-12D	UTAF	EM1715957	<0.01	-	-	0.01	<0.01	-	-	-	<5	0.64	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	<10	***158***	131	<1	100	<0.1	<1
GW17-26-12D	28/02/2018	GW17-26-12D	UTAF	EM1803825	<0.01	-	-	<0.01	<0.01	-	-	-	<5	0.62	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	<10	***163***	120	<1	120	<0.1	<1
GW17-26-12S	30/08/2017	GW17-26-12S	QA	EM1711811	<0.01	-	-	0.02	<0.01	-	-	-	<5	0.31	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	20	4	159	<1	90	<0.1	<1
GW17-26-12S	21/11/2017	GW17-26-12S	QA	EM1715957	<0.01	-	-	<0.01	<0.01	-	-	-	<5	0.22	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	20	6	163	<1	90	<0.1	<1
GW17-26-12S	28/02/2018	GW17-26-12S	QA	EM1803825	<0.01	-	-	<0.01	<0.01	-	-	-	<5	0.27	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	20	5	136	<1	100	<0.1	<1
GW17-26-13D	1/09/2017	GW17-26-13D	UTAF	EM1711838	<0.01	-	-	<0.01	<0.01	-	-	-	<5	0.28	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	<10	***186***	62	<1	450	<0.1	<1
GW17-26-13D	21/11/2017	GW17-26-13D	UTAF	EM1715957	<0.01	-	-	<0.01	<0.01	-	-	-	<5	0.39	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	<10	***251***	71	<1	130	<0.1	<1
GW17-26-13D	28/02/2018	GW17-26-13D	UTAF	EM1803825	<0.01	-	-	<0.01	<0.01	-	-	-	<5	0.33	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	<10	***264***	72	<1	150	<0.1	1
GW17-26-13S	1/09/2017	GW17-26-13S	QA	EM1711838	<0.01	-	-	<0.01	<0.01	-	-	-	<5	0.08	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	<10	***105***	261	<1	430	<0.1	<1
GW17-26-13S	21/11/2017	GW17-26-13S	QA	EM1715957	<0.01	-	-	<0.01	<0.01	-	-	-	<5	0.16	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	<10	***164***	296	<1	80	<0.1	<1
GW17-26-13S	28/02/2018	GW17-26-13S	QA	EM1803825	<0.01	-	-	<0.01	<0.01	-	-	-	<5	0.11	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	<10	***107***	404	<1	100	<0.1	<1
GW17-26-14D	29/08/2017	GW17-26-14D	UTAF	EM1711637	0.01	-	-	0.02	<0.01	-	-	-	<5	0.4	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	<10	***96***	86	<1	210	<0.1	<1
GW17-26-14D	22/11/2017	GW17-26-14D	UTAF	EM1716035	<0.01	-	-	<0.01	<0.01	-	-	-	<5	0.39	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	<10	***118***	74	<1	190	<0.1	<1
GW17-26-14D	27/02/2018	GW17-26-14D	UTAF	EM1803701	<0.01	-	-	<0.01	<0.01	-	-	-	<5	0.27	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	<10	***101***	92	<1	160	<0.1	<1
GW17-26-14S	30/08/2017	GW17-26-14S	QA	EM1711811	0.01	-	-	0.01	0.02	-	-	-	<5	0.21	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	260	***21***	755	<1	120	<0.1	<1

Table 3A. Groundwater and leachate analytical results summary – broad suite

	Inorganics								Organic	Ammonia	TRH							TPH					BTEX													
	Nitrite (as N)	Nitrogen (Total)	Organic Nitrogen (as N)	Nitrite + Nitrate as N	Reactive Phosphorus as P	TDS	TDS (Filtered)	Total Organic Carbon	Oil and Grease	Ammonia as N	C10 - C16 Fraction	C16 - C34 Fraction	C10 - C40 Fraction (Sum)	C34 - C40 Fraction	C6 - C10 Fraction minus BTEX (F1)	TPH C6 - C10 Fraction	TRH >C10-C16 less Naphthalene (F2)	>C10 - C36 (Sum of total)	C6 - C9 Fraction	C10 - C14 Fraction	C15 - C28 Fraction	C29-C36 Fraction	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Total BTEX	Aluminium (Filtered)	Arsenic (Filtered)	Barium (Filtered)	Beryllium (Filtered)	Boron (Filtered)	Cadmium (Filtered)	Chromium (Filtered)
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	0.01	0.2	0.2	0.01	0.01	10		1	5	0.01	50	100	100	100	20	20	50	50	20	50	100	50	1	1	1	2	1	2	1							
Adopted criteria for buildings and structures																																			
NEPM 2013 Table 1A(4) Rec HSL C GW for Vapour Intrusion, Sand																																			
2-4m															NL		NL						NL	NL	NL			NL							
4-8m															NL		NL						NL	NL	NL			NL							
>8m															NL		NL						NL	NL	NL			NL							
Adopted criteria for maintenance of ecosystems										0.9													950				350			55				370	0.2	
Adopted criteria for potable water supply																							**1**	**800**	**300**			**600**			**10**	**2000**	**60**	**4000**	**2**	
Adopted criteria for primary contact recreation																							*1*	*800*	*300*			*600*			*7*	*700*	*60*	*4000*	*2*	*50*
Adopted criteria for agriculture, parks and garden																															100	2000	60	500	10	100
Adopted criteria for stock watering																							1	800	300			600			500	2000	60	5000	10	100

Location	Date Sampled	Field_ID	Monitoring Zone	Lab Report #																																	
GW17-26-14S	22/11/2017	GW17-26-14S	QA	EM1716035	<0.01	-	-	<0.01	0.01	-	-	-	<5	0.24	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	<10	***13***	*1060*	<1	120	<0.1	<1
GW17-26-14S	27/02/2018	GW17-26-14S	QA	EM1803701	<0.01	-	-	0.01	<0.01	-	-	-	<5	0.13	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	<10	***11***	*782*	<1	140	<0.1	<1
GW17-26-15D	29/08/2017	GW17-26-15D	UTAF	EM1711637	<0.01	-	-	0.02	<0.01	-	-	-	<5	0.31	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	<10	***77***	165	<1	180	<0.1	<1
GW17-26-15D	22/11/2017	GW17-26-15D	UTAF	EM1716035	<0.01	-	-	<0.01	<0.01	-	-	-	<5	0.3	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	<10	***80***	177	<1	160	<0.1	<1
GW17-26-15D	27/02/2018	GW17-26-15D	UTAF	EM1803701	<0.01	-	-	<0.01	<0.01	-	-	-	<5	0.24	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	<10	***78***	159	<1	140	<0.1	<1
GW17-26-15S	1/09/2017	GW17-26-15S	QA	EM1711838	0.01	-	-	0.03	<0.01	-	-	-	<5	0.09	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	<10	2	60	<1	480	<0.1	<1
GW17-26-15S	22/11/2017	GW17-26-15S	QA	EM1716035	<0.01	-	-	0.02	<0.01	-	-	-	<5	0.14	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	10	***20***	70	<1	160	<0.1	<1
GW18-26-16D	2/03/2018	GW18-26-16S	UTAF	EM1803918	0.02	-	-	0.75	<0.01	-	-	-	<5	0.11	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	<10	2	50	<1	<50	<0.1	<1
GW18-26-16S	2/03/2018	GW18-26-16D	UTAF	EM1803918	<0.01	-	-	0.02	<0.01	-	-	-	<5	0.15	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	<10	6	78	<1	90	<0.1	<1
GW18-26-18D	1/03/2018	GW18-26-18D	UTAF	EM1803918	<0.01	-	-	<0.01	<0.01	-	-	-	<5	1	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	<10	***300***	115	<1	170	<0.1	<1
GW18-26-18S	1/03/2018	GW18-26-18S	QA	EM1803918	<0.01	-	-	0.02	<0.01	-	-	-	<5	0.59	<100	180	180	<100	<20	<20	<100	140	<20	<50	140	<50	<1	<2	<2	<2	<2	<2	<1	<10	***14***	177	<1	330	<0.1	<1
GW18-26-22D	28/02/2018	GW18-26-22D	UTAF	EM1803825	<0.01	-	-	<0.01	<0.01	-	-	-	<5	1.88	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	3	<2	<2	<2	<2	3	<10	***22***	207	<1	170	<0.1	<1
GW18-26-22S	28/02/2018	GW18-26-22S	QA	EM1803825	<0.01	-	-	0.01	<0.01	-	-	-	<5	1.01	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	60	***11***	72	<1	220	<0.1	<1
GW18-26-23D	27/02/2018	GW18-26-23D	UTAF	EM1803701	<0.01	-	-	<0.01	<0.01	-	-	-	<5	2.53	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	10	***622***	70	<1	80	<0.1	<1
GW18-26-23S	27/02/2018	GW18-26-23S	QA	EM1803701	<0.01	-	-	<0.01	<0.01	-	-	-	<5	0.64	<100	<100	<100	<100	<20	<20	<100	<50	<20	<50	<100	<50	<1	<2	<2	<2	<2	<2	<1	1300	***14***	97	<1	320	<0.1	2

Table 3A. Groundwater and leachate analytical results summary – broad suite

	Metals														OCP																					
	Chromium (hexavalent) (Filtered)	Cobalt (Filtered)	Copper (Filtered)	Iron (Filtered)	Lead (Filtered)	Manganese (Filtered)	Mercury (Filtered)	Molybdenum (Filtered)	Nickel (Filtered)	Selenium (Filtered)	Silver (Filtered)	Tin (Filtered)	Vanadium (Filtered)	Zinc (Filtered)	4,4-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	b-BHC	chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor
	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL															0.1	0.1	0.1	0.1	0.1	0.5	0.5	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Adopted criteria for buildings and structures																																			
NEPM 2013 Table 1A(4) Rec HSL C GW for Vapour Intrusion, Sand																																			
2-4m																																			
4-8m																																			
>8m																																			
Adopted criteria for maintenance of ecosystems	1		1.4		3.4	1900	0.06		11	5	0.05			8						0.03					0.006						0.01			0.2	0.01
Adopted criteria for potable water supply	**50**		**2000**		**10**	**500**	**1**	**50**	**20**	**10**	**100**							**0.3**		**2**					**9**									**10**	
Adopted criteria for primary contact recreation	*50*		*2000*		*10*	*500*	*1*	*50*	*20*	*10*	*100*			*3000*				*0.3*		*2*					*9*									*10*	
Adopted criteria for agriculture, parks and garden	50		200		2000	200	2		200	20			100	2000				0.3		2					9									10	
Adopted criteria for stock watering	50		2000		10	500	2	50	1000	200	100			20,000				0.3		2					9									10	

Location	Date Sampled	Field_ID	Monitoring Zone	Lab Report #																																		
GW17-26-01	3/10/2017	GW17-26-01	UTAF	EM1713546	-	8	4	-	2	86	<0.1	-	***58***	<10	-	-	<10	892	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-02	3/10/2017	GW17-26-02	UTAF	EM1713546	-	23	1	-	2	39	<0.1	-	***31***	<10	-	-	10	169	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B18-68673 S	3/05/2018	BH18-68673 S	UTAF	EM1807230	<10	2	1	-	<1	366	<0.1	-	9	<10	-	-	<10	16	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
GW17-26-03	23/11/2017	GW17-26-03	UTAF	EM1716152	-	<1	1	-	<1	188	<0.1	-	<1	<10	-	-	<10	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-03	6/03/2018	GW17-26-03	UTAF	EM1804056	-	<1	2	-	<1	125	<0.1	-	<1	<10	-	-	<10	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-04	31/08/2017	GW17-26-04	UTAF	EM1711811	-	24	1	7.81	<1	***989***	<0.1	-	7	<10	-	-	<10	11	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
GW17-26-04	20/11/2017	GW17-26-04	UTAF	EM1715957	-	25	1	-	<1	***996***	<0.1	-	8	<10	-	-	<10	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-04	6/03/2018	GW17-26-04	UTAF	EM1804056	-	23	3	-	<1	***875***	<0.1	-	6	<10	-	-	<10	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-05	31/08/2017	GW17-26-05	UTAF	EM1711811	-	8	<1	6.16	<1	***675***	<0.1	-	3	<10	-	-	<10	6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
GW17-26-05	20/11/2017	GW17-26-05	UTAF	EM1715957	-	9	5	-	<1	***642***	<0.1	-	4	<10	-	-	<10	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-05	2/03/2018	GW17-26-05	UTAF	EM1803918	-	10	2	-	<1	***612***	<0.1	-	6	<10	-	-	<10	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-06	31/08/2017	GW17-26-06	UTAF	EM1711811	-	28	<1	1.03	<1	393	<0.1	-	15	<10	-	-	<10	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
GW17-26-06	20/11/2017	GW17-26-06	UTAF	EM1715957	-	27	<1	-	<1	492	<0.1	-	13	<10	-	-	<10	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-06	2/03/2018	GW17-26-06	UTAF	EM1803918	-	30	4	-	<1	449	<0.1	-	15	<10	-	-	<10	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-07	1/09/2017	GW17-26-07	UTAF	EM1711838	-	7	2	15.9	<1	286	<0.1	-	3	<10	-	-	<10	9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
GW17-26-07	20/11/2017	GW17-26-07	UTAF	EM1715957	-	6	<1	-	<1	386	<0.1	-	<1	<10	-	-	<10	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-07	2/03/2018	GW17-26-07	UTAF	EM1803918	-	10	2	-	<1	350	<0.1	-	3	<10	-	-	<10	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-08	29/08/2017	GW17-26-08	QA	EM1711637	-	858	<1	290	3	***8140***	<0.1	-	***1540***	<10	-	-	<10	178	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
GW17-26-08	23/11/2017	GW17-26-08	QA	EM1716152	-	859	<1	-	2	***8370***	<0.1	-	***1540***	<10	-	-	<10	167	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-08	6/03/2018	GW17-26-08	QA	EM1804056	-	834	2	-	2	***8070***	<0.1	-	***1450***	<10	-	-	<10	164	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-09	29/08/2017	GW17-26-09	QA	EM1711637	-	14	<1	1.6	<1	341	<0.1	-	14	<10	-	-	<10	6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
GW17-26-09	23/11/2017	GW17-26-09	QA	EM1716152	-	16	<1	-	<1	429	<0.1	-	16	<10	-	-	<10	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-09	6/03/2018	GW17-26-09	QA	EM1804056	-	15	2	-	<1	424	<0.1	-	15	<10	-	-	<10	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-10D	30/08/2017	GW17-26-10D	UTAF	EM1711811	-	<1	<1	5.32	<1	61	<0.1	-	<1	<10	-	-	<10	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
GW17-26-10D	22/11/2017	GW17-26-10D	UTAF	EM1716035	-	<1	<1	-	<1	64	<0.1	-	<1	<10	-	-	<10	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-10D	1/03/2018	GW17-26-10D	UTAF	EM1803918	-	<1	<1	-	<1	60	<0.1	-	<1	<10	-	-	<10	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-10S	30/08/2017	GW17-26-10S	QA	EM1711811	-	<1	<1	3.05	<1	145	<0.1	-	1	<10	-	-	<10	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
GW17-26-10S	22/11/2017	GW17-26-10S	QA	EM1716035	-	<1	<1	-	<1	115	<0.1	-	<1	<10	-	-	<10	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-10S	1/03/2018	GW17-26-10S	QA	EM1803918	-	<1	2	-	<1	96	<0.1	-	<1	<10	-	-	<10	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-11D	28/08/2017	GW17-26-11D	UTAF	EM1711637	-	2	1	5.09	<1	479	<0.1	-	2	<10	-	-	<10	8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
GW17-26-11D	23/11/2017	GW17-26-11D	UTAF	EM1716152	-	3	<1	-	<1	499	<0.1	-	2	<10	-	-	<10	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-11D	28/02/2018	GW17-26-11D	UTAF	EM1803825	-	3	<1	-	<1	496	<0.1	-	2	<10	-	-	<10	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-11S	28/08/2017	GW17-26-11S	QA	EM1711637	-	1	<1	9.59	<1	311	<0.1	-	3	<10	-	-	<10	5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
GW17-26-11S	23/11/2017	GW17-26-11S	QA	EM1716152	-	2	<1	-	<1	253	<0.1	-	4	<10	-	-	<10	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-11S	28/02/2018	GW17-26-11S	QA	EM1803825	-	<1	3	-	<1	202	<0.1	-	<1	<10	-	-	<10	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-12D	30/08/2017	GW17-26-12D	UTAF	EM1711811	-	1	<1	15.5	<1	148	<0.1	-	<1	<10	-	-	<10	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
GW17-26-12D	21/11/2017	GW17-26-12D	UTAF	EM1715957	-	<1	<1	-	<1	108	<0.1	-	<1	<10	-	-	<10	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-12D	28/02/2018	GW17-26-12D	UTAF	EM1803825	-	1	<1	-	<1	95	<0.1	-	1	<10	-	-	<10	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-12S	30/08/2017	GW17-26-12S	QA	EM1711811	-	4	<1	11.3	<1	179	<0.1	-	9	<10	-	-	<10	6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
GW17-26-12S	21/11/2017	GW17-26-12S	QA	EM1715957	-	4	<1	-	<1	192	<0.1	-	9	<10	-	-	<10	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-12S	28/02/2018	GW17-26-12S	QA	EM1803825	-	4	1	-	<1	166	<0.1	-	9	<10	-	-	<10	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-13D	1/09/2017	GW17-26-13D	UTAF	EM1711838	-	4	2	10.4	<1	288	<0.1	-	2	<10	-	-	<10	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
GW17-26-13D	21/11/2017	GW17-26-13D	UTAF	EM1715957	-	6	<1	-	<1	442	<0.1	-	2	<10	-	-	<10	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-13D	28/02/2018	GW17-26-13D	UTAF	EM1803825	-	5	<1	-	<1	378	<0.1	-	2	<10	-	-	<10	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-13S	1/09/2017	GW17-26-13S	QA	EM1711838	-	1	2	9.05	<1	35	<0.1	-	2	<10	-	-	<10	7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
GW17-26-13S	21/11/2017	GW17-26-13S	QA	EM1715957	-	2	<1	-	<1	42	<0.1	-	1	<10	-	-	<10	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-13S	28/02/2018	GW17-26-13S	QA	EM1803825	-	2	2	-	<1	40	<0.1	-	1	<10	-	-	<10	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-14D	29/08/2017	GW17-26-14D	UTAF	EM1711637	-	6	<1	2.05	<1	***707***	<0.1	-	2	<10	-	-	<10	6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
GW17-26-14D	22/11/2017	GW17-26-14D	UTAF	EM1716035	-	6	<1	-	<1	***925***	<0.1	-	2	<10	-	-	<10	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-14D	27/02/2018	GW17-26-14D	UTAF	EM1803701	-	7	<1	-	<1	***898***	<0.1	-	4	<10	-	-	<10	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-14S	30/08/2017	GW17-26-14S	QA	EM1711811	-	3	<1	7.35	<1	212	<0.1	-	5	<10	-	-	<10	10	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Table 3A. Groundwater and leachate analytical results summary – broad suite

	Metals														OCP																					
	Chromium (hexavalent) (Filtered)	Cobalt (Filtered)	Copper (Filtered)	Iron (Filtered)	Lead (Filtered)	Manganese (Filtered)	Mercury (Filtered)	Molybdenum (Filtered)	Nickel (Filtered)	Selenium (Filtered)	Silver (Filtered)	Tin (Filtered)	Vanadium (Filtered)	Zinc (Filtered)	4,4-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	b-BHC	chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor
	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL															0.1	0.1	0.1	0.1	0.1	0.5	0.5	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Adopted criteria for buildings and structures																																			
NEPM 2013 Table 1A(4) Rec HSL C GW for Vapour Intrusion, Sand																																			
2-4m																																			
4-8m																																			
>8m																																			
Adopted criteria for maintenance of ecosystems	1		1.4		3.4	1900	0.06		11	5	0.05			8						0.03					0.006						0.01			0.2	0.01
Adopted criteria for potable water supply	**50**		**2000**		**10**	**500**	**1**	**50**	**20**	**10**	**100**							**0.3**		**2**					**9**									**10**	
Adopted criteria for primary contact recreation	*50*		*2000*		*10*	*500*	*1*	*50*	*20*	*10*	*100*			*3000*				*0.3*		*2*					*9*									*10*	
Adopted criteria for agriculture, parks and garden	50		200		2000	200	2		200	20			100	2000				0.3		2					9									10	
Adopted criteria for stock watering	50		2000		10	500	2	50	1000	200	100			20,000				0.3		2					9									10	

Location	Date Sampled	Field_ID	Monitoring Zone	Lab Report #																																		
GW17-26-14S	22/11/2017	GW17-26-14S	QA	EM1716035	-	3	3	-	<1	253	<0.1	-	2	<10	-	-	<10	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-14S	27/02/2018	GW17-26-14S	QA	EM1803701	-	2	4	-	<1	248	<0.1	-	2	<10	-	-	<10	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-15D	29/08/2017	GW17-26-15D	UTAF	EM1711637	-	7	<1	7.35	<1	***664***	<0.1	-	3	<10	-	-	<10	6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
GW17-26-15D	22/11/2017	GW17-26-15D	UTAF	EM1716035	-	8	<1	-	<1	***771***	<0.1	-	3	<10	-	-	<10	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-15D	27/02/2018	GW17-26-15D	UTAF	EM1803701	-	8	<1	-	<1	***710***	<0.1	-	3	<10	-	-	<10	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-15S	1/09/2017	GW17-26-15S	QA	EM1711838	-	6	2	0.83	<1	351	<0.1	-	9	<10	-	-	<10	8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
GW17-26-15S	22/11/2017	GW17-26-15S	QA	EM1716035	-	10	<1	-	<1	***530***	<0.1	-	13	<10	-	-	<10	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW18-26-16D	2/03/2018	GW18-26-16S	UTAF	EM1803918	-	6	2	-	<1	***822***	<0.1	-	***25***	<10	-	-	<10	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW18-26-16S	2/03/2018	GW18-26-16D	UTAF	EM1803918	-	8	1	-	<1	***1310***	<0.1	-	***26***	<10	-	-	<10	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW18-26-18D	1/03/2018	GW18-26-18D	UTAF	EM1803918	-	1	2	-	<1	214	<0.1	-	2	<10	-	-	<10	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW18-26-18S	1/03/2018	GW18-26-18S	QA	EM1803918	-	<1	3	-	<1	68	<0.1	-	2	<10	-	-	<10	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW18-26-22D	28/02/2018	GW18-26-22D	UTAF	EM1803825	-	1	<1	-	<1	86	<0.1	-	2	<10	-	-	<10	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW18-26-22S	28/02/2018	GW18-26-22S	QA	EM1803825	-	6	5	-	<1	195	<0.1	-	8	<10	-	-	<10	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW18-26-23D	27/02/2018	GW18-26-23D	UTAF	EM1803701	-	2	<1	-	<1	359	<0.1	-	1	<10	-	-	<10	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW18-26-23S	27/02/2018	GW18-26-23S	QA	EM1803701	-	3	3	-	2	56	<0.1	-	5	<10	-	-	20	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 3A. Groundwater and leachate analytical results summary – broad suite

					OPP																					PAH												
					Heptachlor epoxide	Hexachlorobenzene	Methoxychlor	Toxaphene	Atrazine	Azinophos methyl	Bifenthrin	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Demeton-S-methyl	Diazinon	Dichlorvos	Dimethoate	Ethion	Fenamiphos	Fenthion	Malathion	Methyl parathion	Monocrotophos	Parathion	Pirimphos-ethyl	Prothiofos	Acenaphthene	Acenaphthylene	Anthracene	Benzo(b&j)fluoranthene	Benzo(a)anthracene	Benzo(a) pyrene	Benzo(a)pyrene TEQ calc (Zero)	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene
					µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL					0.1	0.1	0.1	10	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	2	2	2	0.5	0.5	1	1	1	1	1	0.5	0.5	1	1	1	1	1	1
Adopted criteria for buildings and structures																																									
NEPM 2013 Table 1A(4) Rec HSL C GW for Vapour Intrusion, Sand																																									
2-4m																																									
4-8m																																									
>8m																																									
Adopted criteria for maintenance of ecosystems								0.1	13						0.01			0.01		0.15				0.05			0.004														
Adopted criteria for potable water supply					**0.3**				**20**	**30**				**2**	**10**			**4**	**5**	**7**	**4**	**0.5**	**7**	**70**	**0.7**		**20**								**0.01**						
Adopted criteria for primary contact recreation					*0.3*				*20*	*30*				*2*	*10*			*4*	*5*	*7*	*4*	*0.5*	*7*	*70*	*0.7*		*20*								*0.01*						
Adopted criteria for agriculture, parks and garden					0.3				20	30				2	10			4	5	7	4	0.5	7	70	0.7		20								0.01						
Adopted criteria for stock watering					0.3				20	30				2	10			4	5	7	4	0.5	7	70	0.7		20								0.01						
Location	**Date Sampled**	**Field_ID**	**Monitoring Zone**	**Lab Report #**																																						
GW17-26-01	3/10/2017	GW17-26-01	UTAF	EM1713546	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1
GW17-26-02	3/10/2017	GW17-26-02	UTAF	EM1713546	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1	<1
B18-68673 S	3/05/2018	BH18-68673 S	UTAF	EM1807230	<0.5	<0.5	<2	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<2	<2	<0.5	<0.5	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1	<1	<1	<1
GW17-26-03	23/11/2017	GW17-26-03	UTAF	EM1716152	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-03	6/03/2018	GW17-26-03	UTAF	EM1804056	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-04	31/08/2017	GW17-26-04	UTAF	EM1711811	<0.5	<0.5	<2	-	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<2	<2	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-04	20/11/2017	GW17-26-04	UTAF	EM1715957	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-04	6/03/2018	GW17-26-04	UTAF	EM1804056	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-05	31/08/2017	GW17-26-05	UTAF	EM1711811	<0.5	<0.5	<2	-	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<2	<2	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-05	20/11/2017	GW17-26-05	UTAF	EM1715957	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-05	2/03/2018	GW17-26-05	UTAF	EM1803918	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-06	31/08/2017	GW17-26-06	UTAF	EM1711811	<0.5	<0.5	<2	-	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<2	<2	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-06	20/11/2017	GW17-26-06	UTAF	EM1715957	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-06	2/03/2018	GW17-26-06	UTAF	EM1803918	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-07	1/09/2017	GW17-26-07	UTAF	EM1711838	<0.5	<0.5	<2	-	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<2	<2	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-07	20/11/2017	GW17-26-07	UTAF	EM1715957	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-07	2/03/2018	GW17-26-07	UTAF	EM1803918	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-08	29/08/2017	GW17-26-08	QA	EM1711637	<0.5	<0.5	<2	-	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<2	<2	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-08	23/11/2017	GW17-26-08	QA	EM1716152	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-08	6/03/2018	GW17-26-08	QA	EM1804056	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-09	29/08/2017	GW17-26-09	QA	EM1711637	<0.5	<0.5	<2	-	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<2	<2	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-09	23/11/2017	GW17-26-09	QA	EM1716152	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-09	6/03/2018	GW17-26-09	QA	EM1804056	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-10D	30/08/2017	GW17-26-10D	UTAF	EM1711811	<0.5	<0.5	<2	-	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<2	<2	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-10D	22/11/2017	GW17-26-10D	UTAF	EM1716035	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-10D	1/03/2018	GW17-26-10D	UTAF	EM1803918	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-10S	30/08/2017	GW17-26-10S	QA	EM1711811	<0.5	<0.5	<2	-	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<2	<2	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-10S	22/11/2017	GW17-26-10S	QA	EM1716035	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-10S	1/03/2018	GW17-26-10S	QA	EM1803918	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-11D	28/08/2017	GW17-26-11D	UTAF	EM1711637	<0.5	<0.5	<2	-	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<2	<2	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-11D	23/11/2017	GW17-26-11D	UTAF	EM1716152	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-11D	28/02/2018	GW17-26-11D	UTAF	EM1803825	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-11S	28/08/2017	GW17-26-11S	QA	EM1711637	<0.5	<0.5	<2	-	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<2	<2	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-11S	23/11/2017	GW17-26-11S	QA	EM1716152	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-11S	28/02/2018	GW17-26-11S	QA	EM1803825	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-12D	30/08/2017	GW17-26-12D	UTAF	EM1711811	<0.5	<0.5	<2	-	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<2	<2	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-12D	21/11/2017	GW17-26-12D	UTAF	EM1715957	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-12D	28/02/2018	GW17-26-12D	UTAF	EM1803825	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-12S	30/08/2017	GW17-26-12S	QA	EM1711811	<0.5	<0.5	<2	-	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<2	<2	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-12S	21/11/2017	GW17-26-12S	QA	EM1715957	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-12S	28/02/2018	GW17-26-12S	QA	EM1803825	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-13D	1/09/2017	GW17-26-13D	UTAF	EM1711838	<0.5	<0.5	<2	-	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<2	<2	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-13D	21/11/2017	GW17-26-13D	UTAF	EM1715957	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-13D	28/02/2018	GW17-26-13D	UTAF	EM1803825	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-13S	1/09/2017	GW17-26-13S	QA	EM1711838	<0.5	<0.5	<2	-	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<2	<2	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-13S	21/11/2017	GW17-26-13S	QA	EM1715957	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-13S	28/02/2018	GW17-26-13S	QA	EM1803825	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-14D	29/08/2017	GW17-26-14D	UTAF	EM1711637	<0.5	<0.5	<2	-	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<2	<2	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-14D	22/11/2017	GW17-26-14D	UTAF	EM1716035	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-14D	27/02/2018	GW17-26-14D	UTAF	EM1803701	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-14S	30/08/2017	GW17-26-14S	QA	EM1711811	<0.5	<0.5	<2	-	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<2	<2	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-

Table 3A. Groundwater and leachate analytical results summary – broad suite

					OPP																				PAH												
	Heptachlor epoxide	Hexachlorobenzene	Methoxychlor	Toxaphene	Atrazine	Azinophos methyl	Bifenthrin	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Demeton-S-methyl	Diazinon	Dichlorvos	Dimethoate	Ethion	Fenamiphos	Fenthion	Malathion	Methyl parathion	Monocrotophos	Parathion	Pirimphos-ethyl	Prothiofos	Acenaphthene	Acenaphthylene	Anthracene	Benzo(b&j)fluoranthene	Benzo(a)anthracene	Benzo(a) pyrene	Benzo(a)pyrene TEQ calc (Zero)	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	0.1	0.1	0.1	10	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	2	2	2	0.5	0.5	1	1	1	1	1	0.5	0.5	1	1	1	1	1	1
Adopted criteria for buildings and structures																																						
NEPM 2013 Table 1A(4) Rec HSL C GW for Vapour Intrusion, Sand																																						
2-4m																																						
4-8m																																						
>8m																																						
Adopted criteria for maintenance of ecosystems				0.1	13						0.01			0.01		0.15				0.05			0.004																
Adopted criteria for potable water supply	**0.3**				**20**	**30**				**2**	**10**			**4**	**5**	**7**	**4**	**0.5**	**7**	**70**	**0.7**		**20**									**0.01**						
Adopted criteria for primary contact recreation	*0.3*				*20*	*30*				*2*	*10*			*4*	*5*	*7*	*4*	*0.5*	*7*	*70*	*0.7*		*20*									*0.01*						
Adopted criteria for agriculture, parks and garden	0.3				20	30				2	10			4	5	7	4	0.5	7	70	0.7		20									0.01						
Adopted criteria for stock watering	0.3				20	30				2	10			4	5	7	4	0.5	7	70	0.7		20									0.01						

Location	Date Sampled	Field_ID	Monitoring Zone	Lab Report #																																			
GW17-26-14S	22/11/2017	GW17-26-14S	QA	EM1716035	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-14S	27/02/2018	GW17-26-14S	QA	EM1803701	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-15D	29/08/2017	GW17-26-15D	UTAF	EM1711637	<0.5	<0.5	<2	-	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<2	<2	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-
GW17-26-15D	22/11/2017	GW17-26-15D	UTAF	EM1716035	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-15D	27/02/2018	GW17-26-15D	UTAF	EM1803701	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-15S	1/09/2017	GW17-26-15S	QA	EM1711838	<0.5	<0.5	<2	-	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<2	<2	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-
GW17-26-15S	22/11/2017	GW17-26-15S	QA	EM1716035	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW18-26-16D	2/03/2018	GW18-26-16S	UTAF	EM1803918	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW18-26-16S	2/03/2018	GW18-26-16D	UTAF	EM1803918	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW18-26-18D	1/03/2018	GW18-26-18D	UTAF	EM1803918	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW18-26-18S	1/03/2018	GW18-26-18S	QA	EM1803918	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW18-26-22D	28/02/2018	GW18-26-22D	UTAF	EM1803825	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW18-26-22S	28/02/2018	GW18-26-22S	QA	EM1803825	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW18-26-23D	27/02/2018	GW18-26-23D	UTAF	EM1803701	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW18-26-23S	27/02/2018	GW18-26-23S	QA	EM1803701	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 3A. Groundwater and leachate analytical results summary – broad suite

| | | | | | | PCB | | | | | | | | Phenols | | | | | | | |

Table 3A. Groundwater and leachate analytical results summary – broad suite

| | | | | | | PCB | | | | | | | | Phenols | | | | | | | |

Table 3A. Groundwater and leachate analytical results summary – broad suite

	VOC																																									
	1,2,3-trichloropropane	1,2,4-trichlorobenzene	1,2,4-trimethylbenzene	1,2-dibromo-3-chloropropane	1,2-dibromoethane	1,2-dichlorobenzene	1,2-dichloroethane	1,2-dichloropropane	1,3,5-trimethylbenzene	1,3-dichlorobenzene	1,3-dichloropropane	1,4-dichlorobenzene	2,2-dichloropropane	2-butanone (MEK)	2-chlorotoluene	2-hexanone (MBK)	4-chlorotoluene	4-methyl-2-pentanone (MIBK)	Bromobenzene	Bromodichloromethane	Bromoform	Bromomethane	Carbon disulfide	Carbon tetrachloride	Chlorobenzene	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	cis-1,4-Dichloro-2-butene	Dibromomethane	Dichlorodifluoromethane	Hexachlorobutadiene	Iodomethane	Isopropylbenzene	n-butylbenzene	n-propylbenzene	Pentachloroethane	p-isopropyltoluene	sec-butylbenzene
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	5	5	5	5	5	5	5	5	5	5	5	5	5	50	5	50	5	50	5	5	5	50	5	5	5	5	50	5	50	5	5	5	5	50	5	5	5	5	5	5	5	5
Adopted criteria for buildings and structures																																										
NEPM 2013 Table 1A(4) Rec HSL C GW for Vapour Intrusion, Sand																																										
2-4m																																										
4-8m																																										
>8m																																										
Adopted criteria for maintenance of ecosystems		85				160				260		60																														
Adopted criteria for potable water supply		**30**				**1500**	**3**					**40**											**1**		**3**	**300**									**0.7**							
Adopted criteria for primary contact recreation		*30*				*1500*	*3*					*40*											*1*		*3*	*300*									*0.7*							
Adopted criteria for agriculture, parks and garden		30				1500	3					40											1		3	300									0.7							
Adopted criteria for stock watering		30				1500	3					40											1		3	300									0.7							
Location	**Date Sampled**	**Field_ID**	**Monitoring Zone**	**Lab Report #**																																							
GW17-26-01	3/10/2017	GW17-26-01	UTAF	EM1713546	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5	<50	<5	<50	<5	<5	<5	<50	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	<50	<5	<5	<5	<5	<5	<5
GW17-26-02	3/10/2017	GW17-26-02	UTAF	EM1713546	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5	<50	<5	<50	<5	<5	<5	<50	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	<50	<5	<5	<5	<5	<5	<5
B18-68673 S	3/05/2018	BH18-68673 S	UTAF	EM1807230	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-03	23/11/2017	GW17-26-03	UTAF	EM1716152	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-03	6/03/2018	GW17-26-03	UTAF	EM1804056	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-04	31/08/2017	GW17-26-04	UTAF	EM1711811	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-04	20/11/2017	GW17-26-04	UTAF	EM1715957	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-04	6/03/2018	GW17-26-04	UTAF	EM1804056	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-05	31/08/2017	GW17-26-05	UTAF	EM1711811	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-05	20/11/2017	GW17-26-05	UTAF	EM1715957	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-05	2/03/2018	GW17-26-05	UTAF	EM1803918	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-06	31/08/2017	GW17-26-06	UTAF	EM1711811	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-06	20/11/2017	GW17-26-06	UTAF	EM1715957	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-06	2/03/2018	GW17-26-06	UTAF	EM1803918	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-07	1/09/2017	GW17-26-07	UTAF	EM1711838	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-07	20/11/2017	GW17-26-07	UTAF	EM1715957	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-07	2/03/2018	GW17-26-07	UTAF	EM1803918	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-08	29/08/2017	GW17-26-08	QA	EM1711637	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-08	23/11/2017	GW17-26-08	QA	EM1716152	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-08	6/03/2018	GW17-26-08	QA	EM1804056	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-09	29/08/2017	GW17-26-09	QA	EM1711637	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-09	23/11/2017	GW17-26-09	QA	EM1716152	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-09	6/03/2018	GW17-26-09	QA	EM1804056	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-10D	30/08/2017	GW17-26-10D	UTAF	EM1711811	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-10D	22/11/2017	GW17-26-10D	UTAF	EM1716035	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-10D	1/03/2018	GW17-26-10D	UTAF	EM1803918	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-10S	30/08/2017	GW17-26-10S	QA	EM1711811	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-10S	22/11/2017	GW17-26-10S	QA	EM1716035	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-10S	1/03/2018	GW17-26-10S	QA	EM1803918	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-11D	28/08/2017	GW17-26-11D	UTAF	EM1711637	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-11D	23/11/2017	GW17-26-11D	UTAF	EM1716152	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-11D	28/02/2018	GW17-26-11D	UTAF	EM1803825	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-11S	28/08/2017	GW17-26-11S	QA	EM1711637	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-11S	23/11/2017	GW17-26-11S	QA	EM1716152	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-11S	28/02/2018	GW17-26-11S	QA	EM1803825	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-12D	30/08/2017	GW17-26-12D	UTAF	EM1711811	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-12D	21/11/2017	GW17-26-12D	UTAF	EM1715957	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-12D	28/02/2018	GW17-26-12D	UTAF	EM1803825	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-12S	30/08/2017	GW17-26-12S	QA	EM1711811	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-12S	21/11/2017	GW17-26-12S	QA	EM1715957	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-12S	28/02/2018	GW17-26-12S	QA	EM1803825	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-13D	1/09/2017	GW17-26-13D	UTAF	EM1711838	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-13D	21/11/2017	GW17-26-13D	UTAF	EM1715957	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-13D	28/02/2018	GW17-26-13D	UTAF	EM1803825	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-13S	1/09/2017	GW17-26-13S	QA	EM1711838	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-13S	21/11/2017	GW17-26-13S	QA	EM1715957	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-13S	28/02/2018	GW17-26-13S	QA	EM1803825	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-14D	29/08/2017	GW17-26-14D	UTAF	EM1711637	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-14D	22/11/2017	GW17-26-14D	UTAF	EM1716035	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-14D	27/02/2018	GW17-26-14D	UTAF	EM1803701	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-14S	30/08/2017	GW17-26-14S	QA	EM1711811	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 3A. Groundwater and leachate analytical results summary – broad suite

						VOC																																					
						1,2,3-trichloropropane	1,2,4-trichlorobenzene	1,2,4-trimethylbenzene	1,2-dibromo-3-chloropropane	1,2-dibromoethane	1,2-dichlorobenzene	1,2-dichloroethane	1,2-dichloropropane	1,3,5-trimethylbenzene	1,3-dichlorobenzene	1,3-dichloropropane	1,4-dichlorobenzene	2,2-dichloropropane	2-butanone (MEK)	2-chlorotoluene	2-hexanone (MBK)	4-chlorotoluene	4-methyl-2-pentanone (MIBK)	Bromobenzene	Bromodichloromethane	Bromoform	Bromomethane	Carbon disulfide	Carbon tetrachloride	Chlorobenzene	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	cis-1,4-Dichloro-2-butene	Dibromomethane	Dichlorodifluoromethane	Hexachlorobutadiene	Iodomethane	Isopropylbenzene	n-butylbenzene	n-propylbenzene	Pentachloroethane	p-isopropyltoluene	sec-butylbenzene
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL						5	5	5	5	5	5	5	5	5	5	5	5	5	50	5	50	5	50	5	5	5	50	5	5	5	50	5	50	5	5	5	5	50	5	5	5	5	5	5	5
Adopted criteria for buildings and structures																																												
NEPM 2013 Table 1A(4) Rec HSL C GW for Vapour Intrusion, Sand																																												
2-4m																																												
4-8m																																												
>8m																																												
Adopted criteria for maintenance of ecosystems							85				160				260		60																											
Adopted criteria for potable water supply							**30**				**1500**	**3**					**40**									**1**		**3**	**300**									**0.7**						
Adopted criteria for primary contact recreation							*30*				*1500*	*3*					*40*									*1*		*3*	*300*									*0.7*						
Adopted criteria for agriculture, parks and garden							30				1500	3					40									1		3	300									0.7						
Adopted criteria for stock watering							30				1500	3					40									1		3	300									0.7						
Location	**Date Sampled**	**Field_ID**	**Monitoring Zone**	**Lab Report #**																																								
GW17-26-14S	22/11/2017	GW17-26-14S	QA	EM1716035	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-14S	27/02/2018	GW17-26-14S	QA	EM1803701	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-15D	29/08/2017	GW17-26-15D	UTAF	EM1711637	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-15D	22/11/2017	GW17-26-15D	UTAF	EM1716035	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-15D	27/02/2018	GW17-26-15D	UTAF	EM1803701	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-15S	1/09/2017	GW17-26-15S	QA	EM1711838	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW17-26-15S	22/11/2017	GW17-26-15S	QA	EM1716035	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW18-26-16D	2/03/2018	GW18-26-16S	UTAF	EM1803918	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW18-26-16S	2/03/2018	GW18-26-16D	UTAF	EM1803918	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW18-26-18D	1/03/2018	GW18-26-18D	UTAF	EM1803918	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW18-26-18S	1/03/2018	GW18-26-18S	QA	EM1803918	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW18-26-22D	28/02/2018	GW18-26-22D	UTAF	EM1803825	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW18-26-22S	28/02/2018	GW18-26-22S	QA	EM1803825	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW18-26-23D	27/02/2018	GW18-26-23D	UTAF	EM1803701	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW18-26-23S	27/02/2018	GW18-26-23S	QA	EM1803701	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 3A. Groundwater and leachate analytical results summary – broad suite

	Styrene	TCE	tert-butylbenzene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	trans-1,4-Dichloro-2-butene	Trichlorofluoromethane	Vinyl acetate	Vinyl chloride
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	5	5	5	5	5	5	5	50	50	50
Adopted criteria for buildings and structures										
NEPM 2013 Table 1A(4) Rec HSL C GW for Vapour Intrusion, Sand										
2-4m										
4-8m										
>8m										
Adopted criteria for maintenance of ecosystems										
Adopted criteria for potable water supply	**30**			**50**						**0.3**
Adopted criteria for primary contact recreation	*30*			*50*						*0.3*
Adopted criteria for agriculture, parks and garden	30			50						0.3
Adopted criteria for stock watering	30			50						0.3

Location	Date Sampled	Field_ID	Monitoring Zone	Lab Report #										
GW17-26-01	3/10/2017	GW17-26-01	UTAF	EM1713546	<5	<5	<5	<5	<5	<5	<5	<50	<50	<50
GW17-26-02	3/10/2017	GW17-26-02	UTAF	EM1713546	<5	<5	<5	<5	<5	<5	<5	<50	<50	<50
B18-68673 S	3/05/2018	BH18-68673 S	UTAF	EM1807230	-	-	-	-	-	-	-	-	-	-
GW17-26-03	23/11/2017	GW17-26-03	UTAF	EM1716152	-	-	-	-	-	-	-	-	-	-
GW17-26-03	6/03/2018	GW17-26-03	UTAF	EM1804056	-	-	-	-	-	-	-	-	-	-
GW17-26-04	31/08/2017	GW17-26-04	UTAF	EM1711811	-	-	-	-	-	-	-	-	-	-
GW17-26-04	20/11/2017	GW17-26-04	UTAF	EM1715957	-	-	-	-	-	-	-	-	-	-
GW17-26-04	6/03/2018	GW17-26-04	UTAF	EM1804056	-	-	-	-	-	-	-	-	-	-
GW17-26-05	31/08/2017	GW17-26-05	UTAF	EM1711811	-	-	-	-	-	-	-	-	-	-
GW17-26-05	20/11/2017	GW17-26-05	UTAF	EM1715957	-	-	-	-	-	-	-	-	-	-
GW17-26-05	2/03/2018	GW17-26-05	UTAF	EM1803918	-	-	-	-	-	-	-	-	-	-
GW17-26-06	31/08/2017	GW17-26-06	UTAF	EM1711811	-	-	-	-	-	-	-	-	-	-
GW17-26-06	20/11/2017	GW17-26-06	UTAF	EM1715957	-	-	-	-	-	-	-	-	-	-
GW17-26-06	2/03/2018	GW17-26-06	UTAF	EM1803918	-	-	-	-	-	-	-	-	-	-
GW17-26-07	1/09/2017	GW17-26-07	UTAF	EM1711838	-	-	-	-	-	-	-	-	-	-
GW17-26-07	20/11/2017	GW17-26-07	UTAF	EM1715957	-	-	-	-	-	-	-	-	-	-
GW17-26-07	2/03/2018	GW17-26-07	UTAF	EM1803918	-	-	-	-	-	-	-	-	-	-
GW17-26-08	29/08/2017	GW17-26-08	QA	EM1711637	-	-	-	-	-	-	-	-	-	-
GW17-26-08	23/11/2017	GW17-26-08	QA	EM1716152	-	-	-	-	-	-	-	-	-	-
GW17-26-08	6/03/2018	GW17-26-08	QA	EM1804056	-	-	-	-	-	-	-	-	-	-
GW17-26-09	29/08/2017	GW17-26-09	QA	EM1711637	-	-	-	-	-	-	-	-	-	-
GW17-26-09	23/11/2017	GW17-26-09	QA	EM1716152	-	-	-	-	-	-	-	-	-	-
GW17-26-09	6/03/2018	GW17-26-09	QA	EM1804056	-	-	-	-	-	-	-	-	-	-
GW17-26-10D	30/08/2017	GW17-26-10D	UTAF	EM1711811	-	-	-	-	-	-	-	-	-	-
GW17-26-10D	22/11/2017	GW17-26-10D	UTAF	EM1716035	-	-	-	-	-	-	-	-	-	-
GW17-26-10D	1/03/2018	GW17-26-10D	UTAF	EM1803918	-	-	-	-	-	-	-	-	-	-
GW17-26-10S	30/08/2017	GW17-26-10S	QA	EM1711811	-	-	-	-	-	-	-	-	-	-
GW17-26-10S	22/11/2017	GW17-26-10S	QA	EM1716035	-	-	-	-	-	-	-	-	-	-
GW17-26-10S	1/03/2018	GW17-26-10S	QA	EM1803918	-	-	-	-	-	-	-	-	-	-
GW17-26-11D	28/08/2017	GW17-26-11D	UTAF	EM1711637	-	-	-	-	-	-	-	-	-	-
GW17-26-11D	23/11/2017	GW17-26-11D	UTAF	EM1716152	-	-	-	-	-	-	-	-	-	-
GW17-26-11D	28/02/2018	GW17-26-11D	UTAF	EM1803825	-	-	-	-	-	-	-	-	-	-
GW17-26-11S	28/08/2017	GW17-26-11S	QA	EM1711637	-	-	-	-	-	-	-	-	-	-
GW17-26-11S	23/11/2017	GW17-26-11S	QA	EM1716152	-	-	-	-	-	-	-	-	-	-
GW17-26-11S	28/02/2018	GW17-26-11S	QA	EM1803825	-	-	-	-	-	-	-	-	-	-
GW17-26-12D	30/08/2017	GW17-26-12D	UTAF	EM1711811	-	-	-	-	-	-	-	-	-	-
GW17-26-12D	21/11/2017	GW17-26-12D	UTAF	EM1715957	-	-	-	-	-	-	-	-	-	-
GW17-26-12D	28/02/2018	GW17-26-12D	UTAF	EM1803825	-	-	-	-	-	-	-	-	-	-
GW17-26-12S	30/08/2017	GW17-26-12S	QA	EM1711811	-	-	-	-	-	-	-	-	-	-
GW17-26-12S	21/11/2017	GW17-26-12S	QA	EM1715957	-	-	-	-	-	-	-	-	-	-
GW17-26-12S	28/02/2018	GW17-26-12S	QA	EM1803825	-	-	-	-	-	-	-	-	-	-
GW17-26-13D	1/09/2017	GW17-26-13D	UTAF	EM1711838	-	-	-	-	-	-	-	-	-	-
GW17-26-13D	21/11/2017	GW17-26-13D	UTAF	EM1715957	-	-	-	-	-	-	-	-	-	-
GW17-26-13D	28/02/2018	GW17-26-13D	UTAF	EM1803825	-	-	-	-	-	-	-	-	-	-
GW17-26-13S	1/09/2017	GW17-26-13S	QA	EM1711838	-	-	-	-	-	-	-	-	-	-
GW17-26-13S	21/11/2017	GW17-26-13S	QA	EM1715957	-	-	-	-	-	-	-	-	-	-
GW17-26-13S	28/02/2018	GW17-26-13S	QA	EM1803825	-	-	-	-	-	-	-	-	-	-
GW17-26-14D	29/08/2017	GW17-26-14D	UTAF	EM1711637	-	-	-	-	-	-	-	-	-	-
GW17-26-14D	22/11/2017	GW17-26-14D	UTAF	EM1716035	-	-	-	-	-	-	-	-	-	-
GW17-26-14D	27/02/2018	GW17-26-14D	UTAF	EM1803701	-	-	-	-	-	-	-	-	-	-
GW17-26-14S	30/08/2017	GW17-26-14S	QA	EM1711811	-	-	-	-	-	-	-	-	-	-

Table 3A. Groundwater and leachate analytical results summary – broad suite

	Styrene	TCE	tert-butylbenzene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	trans-1,4-Dichloro-2-butene	Trichlorofluoromethane	Vinyl acetate	Vinyl chloride
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	5	5	5	5	5	5	5	50	50	50
Adopted criteria for buildings and structures										
NEPM 2013 Table 1A(4) Rec HSL C GW for Vapour Intrusion, Sand										
2-4m										
4-8m										
>8m										
Adopted criteria for maintenance of ecosystems										
Adopted criteria for potable water supply	**30**			**50**						**0.3**
Adopted criteria for primary contact recreation	*30*			*50*						*0.3*
Adopted criteria for agriculture, parks and garden	30			50						0.3
Adopted criteria for stock watering	30			50						0.3
Location	**Date Sampled**	**Field_ID**	**Monitoring Zone**	**Lab Report #**						
GW17-26-14S	22/11/2017	GW17-26-14S	QA	EM1716035	-	-	-	-	-	-	-	-	-	-
GW17-26-14S	27/02/2018	GW17-26-14S	QA	EM1803701	-	-	-	-	-	-	-	-	-	-
GW17-26-15D	29/08/2017	GW17-26-15D	UTAF	EM1711637	-	-	-	-	-	-	-	-	-	-
GW17-26-15D	22/11/2017	GW17-26-15D	UTAF	EM1716035	-	-	-	-	-	-	-	-	-	-
GW17-26-15D	27/02/2018	GW17-26-15D	UTAF	EM1803701	-	-	-	-	-	-	-	-	-	-
GW17-26-15S	1/09/2017	GW17-26-15S	QA	EM1711838	-	-	-	-	-	-	-	-	-	-
GW17-26-15S	22/11/2017	GW17-26-15S	QA	EM1716035	-	-	-	-	-	-	-	-	-	-
GW18-26-16D	2/03/2018	GW18-26-16S	UTAF	EM1803918	-	-	-	-	-	-	-	-	-	-
GW18-26-16S	2/03/2018	GW18-26-16D	UTAF	EM1803918	-	-	-	-	-	-	-	-	-	-
GW18-26-18D	1/03/2018	GW18-26-18D	UTAF	EM1803918	-	-	-	-	-	-	-	-	-	-
GW18-26-18S	1/03/2018	GW18-26-18S	QA	EM1803918	-	-	-	-	-	-	-	-	-	-
GW18-26-22D	28/02/2018	GW18-26-22D	UTAF	EM1803825	-	-	-	-	-	-	-	-	-	-
GW18-26-22S	28/02/2018	GW18-26-22S	QA	EM1803825	-	-	-	-	-	-	-	-	-	-
GW18-26-23D	27/02/2018	GW18-26-23D	UTAF	EM1803701	-	-	-	-	-	-	-	-	-	-
GW18-26-23S	27/02/2018	GW18-26-23S	QA	EM1803701	-	-	-	-	-	-	-	-	-	-

Table 3B. Groundwater and leachate analytical results summary – PFAS

					Per- and Polyfluoroalkyl Subst						PFOS and PFOA						
					10:2 Fluorotelomer sulfonic acid (10:2 FTS)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	Perfluorobutanoic acid (PFBA)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoropentanoic acid (PFPeA)	Sum of PFHxS and PFOS	6:2 Fluorotelomer Sulfonate (6:2 FtS)	8:2 Fluorotelomer sulfonate	Perfluorooctane sulfonic acid (PFOS)	PFOA	PFBS	PFHpA	PFHxA
					µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL					0.05	0.05	0.1	0.02	0.02	0.01	0.05	0.05	0.01	0.01	0.02	0.02	0.02
Adopted criteria for maintenance of ecosystem guidance values (99% protection)													0.00023	19			
Adopted criteria for potable water supply								0.07					0.07	0.56			
Adopted criteria for agriculture, parks and garden								0.07					0.07	0.56			
Adopted criteria for stock watering								0.07					0.07	0.56			
Adopted criteria for primary contact recreation								0.7					0.7	5.6			
Location_Code	Date sampled	Field_ID	Monitoring_Zone	Lab_Report_Number													
GW17-26-01	29/03/2018	GW17-26-01/290318/4W	Site 26	EM1805503	<0.05	<0.05	<0.1	<0.02	<0.02	<0.01	<0.05	<0.05	<0.01	<0.01	<0.02	<0.02	<0.02
GW17-26-02	29/03/2018	GW17-26-02/290318/2W	Site 26	EM1805503	<0.05	<0.05	<0.1	<0.02	<0.02	<0.01	<0.05	<0.05	<0.01	<0.01	0.02	<0.02	<0.02
GW17-26-03	29/03/2018	GW17-26-03/290318/1W	Site 26	EM1805503	<0.05	<0.05	<0.1	<0.02	<0.02	0.02	<0.05	<0.05	0.02	0.02	<0.02	<0.02	<0.02
LW17-26-01	29/03/2018	LW17-26-01/290318/3W	Site 26	EM1805503	<0.05	<0.05	0.2	0.07	0.03	0.24	<0.05	<0.05	0.17	0.2	<0.02	<0.02	0.09
SW1_Dunlop	29/03/2018	SW1/290318/5W	Site 26	EM1805503	<0.05	<0.05	<0.1	<0.02	<0.02	0.03	<0.05	<0.05	0.03	0.02	<0.02	<0.02	<0.02
SW2_Dunlop	29/03/2018	SW2/290318/6W	Site 26	EM1805503	<0.05	<0.05	<0.1	<0.02	<0.02	0.02	<0.05	<0.05	0.02	0.02	<0.02	<0.02	<0.02

Table 4A. Landfill Gas monitoring data – October 2017

Bore Number	Bore depth (m)	Location	Field data						Laboratory data									
			Date Sampled	Peak Gas Concentrations (LFG readings)					Date Sampled	Concentrations in %Mol or %v/v						Concentrations in µg/m3		
				CH_4 (%)	CO_2 (%)	CO (ppm)	O_2 (%)	H_2S (ppm)		CH_4	CO_2	CO	H_2	O_2	He	HCN	NH_3	CO
Adopted assessment criteria (BPEM)				1.0	1.5					1.0	1.5					3	500	29000
GB17-26-01	3	Northwest of former landfill, along Dingley Bypass	20/10/2017	0.0	3.7	12.0	20.1	0.0	20/10/2017	<0.1	0.54	<0.0010	<0.010	20.6	<0.010	<0.50	<1.0	<10000
GB17-26-02	3	Northeast of former landfill, along Dingley Bypass	20/10/2017	0.0	9.3	0.0	2.3	0.0	20/10/2017	<0.1	8.38	<0.0010	<0.010	4.9	<0.010	<0.5	<1.0	<10000
GB17-26-03	4	North of former landfilled area	9/10/2017	0.0	4.9	0.0	14.4	0.0	9/10/2017	<0.10	4.09	<0.0010	<0.010	14.9	<0.010	<0.5	<1.0	<10000
GB17-26-04	2.4	Inside northern boundary of Enviromix	9/10/2017	54.7	27.2	0.0	0.5	2.0	9/10/2017	50.1	28.5	<0.0010	<0.010	<0.20	<0.010	<0.5	<1.0	<10000
GB17-26-05	2	Central to Enviromix	9/10/2017	67.4	34.1	0.0	0.2	5.0	9/10/2017	59.5	36	<0.0010	<0.010	<0.20	0.025	<0.5	<1.0	<10000
GB17-26-06	4	Inside southern boundary of Enviromix	9/10/2017	52.9	40.2	16.0	0.1	0.0	9/10/2017	47.3	42.4	<0.0010	<0.010	<0.20	<0.010	<0.5	<1.0	<10000
GB17-26-07	4	Southern boundary of Nursery, west of former Din San landfills	9/10/2017	0.1	0.2	0.0	19.1	0.0	9/10/2017	<0.10	<0.010	<0.0010	<0.010	18.5	<0.010	<0.5	<1.0	<10000
GB17-26-08	4	South of Nursery, within open plot of land, west of former Din San landfill	9/10/2017	0.1	17.3	75.0	6.3	0.0	9/10/2017	<0.10	19	0.0031	0.011	6.96	<0.010	<0.5	<1.0	35000
GB17-26-09	3	South of GB17-26-08, west of former landfills	9/10/2017	1.0	13.9	0.0	0.1	0.0	9/10/2017	0.92	14.3	<0.0010	<0.010	<0.20	<0.010	<0.5	<1.0	<10000
GB17-26-10	3	Open plot of land, to the west of 366 Old Dandenong Rd and former landfills	9/10/2017	0.0	3.8	0.0	18.1	0.0	9/10/2017	<0.10	4.09	<0.0010	<0.010	18	<0.010	<0.5	<1.0	<10000

Table 4B. Landfill Gas monitoring data – May 2018

Location	Time	Atm Pressure	Rel Pressure	Flow Rate (L/hr)					CH4 (%V/V)		CO2 (%V/V)		O2 (%V/V)		CO (ppm)		H2S (ppm)		GW Level (mbTOC)	Comments
		mBAr	mBar	0 sec	30 sec	60 sec	90 sec	120 sec	Max.	Stable	Max.	Stable	Min.	Stable	Max.	Stable	Max.	Stable		
Adopted assessment criteria (BPEM)									**1.0**		**1.5**									
WSP Installed bores																				
GB17-26-01	14:15	1011	0.09	-26	-25.4	-22.3	-15.4	-10.9	0.0	0.0	0.7	0.7	12.8	12.9	3.0	3.0	0.0	0.0	2.335	
GB17-26-02	14:30	1011	-0.02	0	0	0	0	0	0.0	0.0	**5.9**	5.8	21.2	21.2	1.0	1.0	0.0	0.0	Dry	
GB17-26-03	14:43	DNR	0.03	0	0	0	0	0	0.0	0.0	**4.4**	3.8	17.8	17.8	4.4	4.0	0.0	0.0	Dry	
GB17-26-04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Lost or destroyed
GB17-26-05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Lost or destroyed
GB17-26-06	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Lost or destroyed
GB17-26-07	10:25	1013	-0.05	0	0	0	0	0	0.0	0.0	**7.0**	0.7	18.5	20.0	2.0	2.0	0.0	0.0	1.205	Cap loose, GB location assumed to be GW location as well, as GW had a gas cap
GB17-26-08	10:57	1015	0.06	0.1	-0.6	-0.7	-0.6	-0.6	0.0	0.0	**22.4**	22.9	0.0	0.0	2.0	2.0	0.0	0.0	3.75	
GB17-26-09	11:06	1015	-0.29	0	0	0	0	0	0.4	0.4	**22.8**	17.4	0 (max 20.3)	0.0	4.0	4.0	0.0	0.0	Dry	
GB17-26-10	12:33	1013	0.02	0	0	0	0	0	0.0	0.0	**10.0**	10.0	0.0	0.0	2.0	2.0	0.0	0.0	Dry	
Existing wells west of Din San Landfill																				
GB01	15:20	DNR	-0.05	0	0	0	0	0	0.0	0.0	0.4	0.4	20.2	21.7	1.0	1.0	0.0	0.0	2.235	Missing cap (used cap from another bore to collect indicative readings)
GB02	15:05	DNR	-0.05	-0.1	0	0	0	0	0.0	0.0	1.7	1.7	20.9	21.7	1.0	1.0	0.0	0.0	Dry	Missing cap (used cap from another bore to collect indicative readings)
GB03	11:51	DNR	0.03	0	0	0	0	0	0.0	0.0	**3.5**	0.7	16.4	18.9	0.0	0.0	0.0	0.0	Dry	
GB04	11:40	1015	0.03	0	0	0	0	0	0.0	0.0	**5.3**	2.5	4.3	16.7	2.0	0.0	0.0	0.0	Dry	
GB30	11:29	1015	0.05	0	0	0	0	0	0.3	0.0	**10.0**	5.0	18.2	18.2	4.0	2.0	0.0	0.0	Dry	
GB41	15:00	DNR	0.02	0	0	0	0	0	0.0	0.0	0.2	0.1	18.8	20.3	1.0	1.0	0.0	0.0	Dry	Missing cap (used cap from another bore to collect indicative readings)

Site Location: Mordialloc Bypass	Comments:
Project No: 2135645A	
Sampler: Liam High	
Date: 2/5/2018	
Gas Meter: GA5000 (Serial number GA500852)	
Weather Conditions: moderately cloudy, still	

	CH4	HCN	H2S	Canister Sampling - Field Data				Permanent Gases and Light Hydrocarbons (mass/volume)																												
	Ammonia	Hydrogen Cyanide	Hydrogen sulfide	Pressure - As received	Pressure - Laboratory Atmosphere	Vacuum - As received	Temperature (Field)	Carbon Dioxide	Carbon Monoxide	Helium	Hydrogen	Methane	Oxygen	2-isopropyltoluene	Freon 114	tert-Amyl Methyl Ether (TAME)	tert-Butyl alcohol	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,2,4-trichlorobenzene	1,2,4-trimethylbenzene	1,2-dibromoethane	1,2-dichlorobenzene	1,2-dichloroethane	1,2-dichloropropane	1,3,5-trimethylbenzene	1,3-Butadiene	1,3-dichlorobenzene	1,4-dichlorobenzene	1,4-Dioxane	1-methyl-4 ethyl benzene	2-butanone (MEK)
	µg/m3	µg/m3	µg/m3	kPa	kPa	Inchs Hg	°C	µg/m3	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	ug/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3
EQL	1	0.5	30	0.1	0.1	0.03	0.1	90000	5000	8000	4000	330000	1310000	270	350	210	150	340	270	340	270	200	200	370	240	380	300	200	230	240	110	300	300	180	240	150
NEPM 2013 Table 1A(2) Rec C Soil Vap VOCC HILs																			1200000																	
NEPM 2013 Table 1A(5) Rec C Soil Vapour HSL for Vapour Intrusion, Sand																																				
0-1m																																				
1-2m																																				
2-4m																																				
4-8m																																				
>8m																																				
CRC Care Intrusive Maintenance Worker (Shallow Trench, Sand)																																				
0 to <2m																																				
2 to <4m																																				
4 to <8m																																				
8m+																																				
Adopted assessment criteria from non-NEPM or CRC CARE guidelines																																				
Other international guidelines	500(a)	3(b)	150(c)						29000(d)																												
USEPA RSLs Industrial Air THQ=0.1			0.88															1.7	2200	0.21	0.088	7.7	88	0.88	26	0.02	88	0.47	0.33	26	0.41		1.1	2.5		2200
USEPA RSLs Resident Air THQ=0.1			0.21															0.38	520	0.048	0.021	1.8	21	0.21	6.3	0.0047	21	0.11	0.076	6.3	0.094		0.26	0.56		520

Field_ID	Gas Bore ID	Sampled_Date_Time																																			
GB1	GB17-26-01	20/10/2017	<1	<0.5	<80	91.7	102	2.98	21	9,710,000	<10,000	<16,000	<8000	<660,000	269,000,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GB2	GB17-26-02	20/10/2017	<1	<0.5	<80	82.8 - 90.7	102	3.31 - 5.64	21	151,000,000	<10,000	<16,000	<8000	<660,000	64,100,000	<270	<350	<210	<150	<340	<270	<340	<270	<200	<200	<370	<240	<380	<300	<200	<230	<240	<110	<300	<300	<180	<240	<150
GB3	GB17-26-03	10/10/2017	<1	<0.5	<30	96.3	102	1.59	21	73,600,000	<10,000	<16,000	<8000	<660,000	195,000,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GB4	GB17-26-04	9/10/2017	<1	<0.5	<30	74.6 - 84.3	102	5.14 - 8.03	21	512,000,000	<10,000	<16,000	<8000	328,000,000	<2,620,000	<270	<350	<210	<150	<340	<270	<340	<270	<200	<200	<370	1180	<380	<300	<200	<230	496	<110	<300	<300	<180	<240	<150
GB5	GB17-26-05	9/10/2017	<1	<0.5	<30	82 - 84.2	102	5.17 - 5.85	21	646,000,000	<10,000	41,000	<8000	389,000,000	<2,620,000	<270	<350	<210	<150	<340	<270	<340	<270	<200	<200	<370	658	<380	<300	<200	<230	276	<110	<300	<300	<180	<240	<150
GB06	GB17-26-06	9/10/2017	<1	<0.5	<30	73.4	102	8.39	21	763,000,000	<10,000	<16,000	<8000	309,000,000	<2,620,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GB07	GB17-26-07	9/10/2017	<1	<0.5	<30	72	102	8.8	21	<180,000	<10,000	<16,000	<8000	<660,000	242,000,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GB8	GB17-26-08	10/10/2017	<1	<0.5	<30	74.2 - 88.6	102	3.87 - 8.12	21	341,000,000	35,000	<16,000	9000	<660,000	91,000,000	<270	<350	<210	<150	<340	<270	<340	<270	<200	<200	<370	<240	<380	<300	<200	<230	<240	<110	<300	<300	<180	<240	<150
GB9	GB17-26-09	10/10/2017	<1	<0.5	<30	81.6	102	5.96	21	258,000,000	<10,000	<16,000	<8000	6,020,000	<2,620,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GB10	GB17-26-10	10/10/2017	<1	<0.5	<30	79.2 - 97	102	1.42 - 6.64	21	73,500,000	<10,000	<16,000	<8000	<660,000	236,000,000	<270	<350	<210	<150	<340	<270	<340	<270	<200	<200	<370	<240	<380	<300	<200	<230	<240	<110	<300	<300	<180	<240	<150

References:
(a) US EPA (2016), Toxicological Review of Ammonia Noncancer Inhalation [CASRN 7664-41-7
(b) NSW EPA (2012) Guidelines for the Assessment and Management of Sites Impacted by Hazardous Ground Gases
(c) WHO (2000) Guidelines for Air Quality
(d) State Environment Protection Policy (Air Quality Management) No. S 240, December 2001) (SEPP AQM).
(e) CRC CARE Technical Report No. 23 petroleum hydrocarbon vapour Intrusion assessment: Australian guidance. Table C1. Chronic air guidelines for hexane, heptane and cyclohexane

	VOCs in Air by USEPA TO15r - Extended Suite (mass/																																				
	2-Chloro-1,3-butadiene	2-chlorotoluene	2-hexanone (MBK)	4-methyl-2-pentanone (MIBK)	Acetone	Acetonitrile	Acrolein	Acrylonitrile	Allyl chloride	Benzyl chloride	Bromodichloromethane	Bromoform	Bromomethane	Carbon disulfide	Carbon tetrachloride	Chlorobenzene	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Cyclohexane	Dichlorodifluoromethane	Dichloromethane	Diisopropyl ether	Ethanol	Ethyl acetate	Ethyl-tert-butyl ether	Freon 113	Heptane	Hexachlorobutadiene	Hexane	Isooctane	Iso-propanol	Isopropylbenzene
	µg/m3	µg/m3	ug/m3	ug/m3	ug/m3	µg/m3	ug/m3	µg/m3	µg/m3	ug/m3	ug/m3	ug/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	ug/m3	ug/m3	ug/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	ug/m3	mg/m³	µg/m3	ug/m3	µg/m3
EQL	180	260	200	200	120	80	110	110	160	260	340	520	190	160	310	230	430	130	240	100	20	230	170	250	170	210	90	180	210	380	200	530	0.18	230	120	250
NEPM 2013 Table 1A(2) Rec C Soil Vap VOCC HILs																					2000		6000[e]								26000[e]		700[e]			
NEPM 2013 Table 1A(5) Rec C Soil Vapour HSL for Vapour Intrusio																																				
0-1m																																				
1-2m																																				
2-4m																																				
4-8m																																				
>8m																																				
CRC Care Intrusive Maintenance Worker (Shallow Trench, Sand)																																				
0 to <2m																																				
2 to <4m																																				
4 to <8m																																				
8m+																																				
Adopted assessment criteria from non-NEPM or CRC CARE guideli																																				
Other international guidelines																																				
USEPA RSLs Industrial Air THQ=0.1	0.041		13	1300	14000	26	0.0088	0.18	0.44	0.25	0.33	11	2.2	310	2	22		4400	0.53	39			2600	44	260	310		31		2200	180	0.56			88	180
USEPA RSLs Resident Air THQ=0.1	0.0094		3.1	310	3200	6.3	0.0021	0.041	0.1	0.057	0.076	2.6	0.52	73	0.47	5.2		1000	0.12	9.4			630	10	63	73		7.3		520	42	0.13			21	42
Field_ID	Gas Bore ID	Sampled_Date_Time																																			
GB1	GB17-26-01	20/10/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GB2	GB17-26-02	20/10/2017	<180	<260	<200	<200	<120	<80	<110	132	<160	<260	<340	<520	1120	<160	<310	<230	<430	<130	<240	<100	<20	<230	<170	<250	<170	<210	<90	<180	<210	<380	<200	<530	<0.18	<230	127	<250
GB3	GB17-26-03	10/10/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GB4	GB17-26-04	9/10/2017	<180	<260	<200	<200	<120	<80	<110	<110	<160	<260	<340	<520	<190	<160	<310	<230	<430	<130	<240	<100	44.4	<230	9180	<250	<170	<210	<90	<180	<210	<380	11,100	<530	16.8	2260	538	1940
GB5	GB17-26-05	9/10/2017	<180	<260	<200	<200	<120	<80	<110	<110	<160	<260	<340	<520	<190	<160	<310	4880	<430	<130	<240	<100	<40	<230	5440	277	<170	<210	<90	<180	<210	<380	5820	<530	4.3	1800	334	5800
GB06	GB17-26-06	9/10/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GB07	GB17-26-07	9/10/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GB8	GB17-26-08	10/10/2017	<180	<260	<200	<200	<120	<80	<110	<110	<160	<260	<340	<520	1440	<160	<310	<230	<430	<130	<240	108	<20	<230	<170	<250	<170	<210	<90	<180	<210	<380	<200	<530	<0.18	<230	1950	<250
GB9	GB17-26-09	10/10/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GB10	GB17-26-10	10/10/2017	<180	<260	<200	<200	<120	<80	<110	<110	<160	<260	<340	<520	1020	<160	<310	<230	<430	<130	<240	<100	<20	<230	<170	<250	<170	<210	<90	<180	<210	<380	<200	<530	<0.18	<230	1800	<250

References:
(a) US EPA (2016), Toxicological Review of Ammonia Noncancer Ir
(b) NSW EPA (2012) Guidelines for the Assessment and Managem
(c) WHO (2000) Guidelines for Air Quality
(d) State Environment Protection Policy (Air Quality Management)
(e) CRC CARE Technical Report No. 23 petroleum hydrocarbon vap

																		BTEXN							TPH/TRH											
																		Naphthalene	Benzene	Ethylbenzene	Toluene	Xylene (m & p)	Xylene (o)	Xylene Total	TPH C6 - C10 Fraction	C6- C10 minus BTEX (F1)	C6 - C9 Fraction	C10 - C14 Fraction	C10 - C16 Fraction	C10 - C16 minus naphthalene (F2) Fraction	TPH C6 - C10 Fraction	C6 - C10 Fraction minus BTEX (F1)	C6 - C9 Fraction	C10 - C16 Fraction	C10 - C14 Fraction	TRH >C10-C16 less Naphthalene (F2)
	Methyl Methacrylate	Methyltributyl Ether	n-butylbenzene	n-propylbenzene	Propene	sec-butylbenzene	Styrene	TCE	tert-butylbenzene	Tetrachloroethene	Tetrahydrofuran	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Trichlorofluoromethane	Vinyl acetate	Vinyl bromide (bromoethene)	Vinyl chloride																			
	ug/m3	ug/m3	µg/m3	µg/m3	µg/m3	µg/m3	ug/m3	ug/m3	µg/m3	ug/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ppmV	ppmV	ppmV	ppmV	ppmV	ppmV	µg/m3	µg/m3	ug/m3	ug/m3	ug/m3	µg/m3
EQL	210	180	270	250	90	270	210	5.4	270	340	150	200	230	280	180	220	5.1	100	100	220	190	430	220	650	5	5	5	5	5	5	0.02	20000	20000	40000	35000	40000
NEPM 2013 Table 1A(2) Rec C Soil Vap VOCC HILs								400		40000							500																			
NEPM 2013 Table 1A(5) Rec C Soil Vapour HSL for Vapour Intrusio																																			
0-1m																		NL	360000	NL	NL			NL							86000000				NL
1-2m																		NL	2400000	NL	NL			NL							NL				NL
2-4m																		NL	4700000	NL	NL			NL							NL				NL
4-8m																		NL	9500000	NL	NL			NL							NL				NL
>8m																		NL	19000000	NL	NL			NL							NL				NL
CRC Care Intrusive Maintenance Worker (Shallow Trench, Sand)																																			
0 to <2m																		880000	760000	NL	NL			NL							180000000				NL
2 to <4m																		NL	5100000	NL	NL			NL							NL				NL
4 to <8m																		NL	15000000	NL	NL			NL							NL				NL
8m+																		NL	36000000	NL	NL			NL							NL				NL
Adopted assessment criteria from non-NEPM or CRC CARE guideli																																			
Other international guidelines																																			
USEPA RSLs Industrial Air THQ=0.1	310	47		440	1300		440	0.88		18	880				88	0.38	2.8	0.36	1.6	4.9	2200		44	44												
USEPA RSLs Resident Air THQ=0.1	73	11		100	310		100	0.21		4.2	210				21	0.088	0.17	0.083	0.36	1.1	520		10	10												

Field_ID	Gas Bore ID	Sampled_Date_Time																																			
GB1	GB17-26-01	20/10/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GB2	GB17-26-02	20/10/2017	<210	<180	<270	<250	<90	<270	<210	<5.4	<270	<340	<150	<200	<230	<280	<180	<220	263	<100	<100	<220	<190	<430	<220	<650	<5	<5	<5	<5	<5	<5	<20	<20,000	<20,000	<40,000	<35,000	<40,000
GB3	GB17-26-03	10/10/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GB4	GB17-26-04	9/10/2017	<210	<180	<270	386	6900	<270	222	<54	<270	<340	<150	<200	<230	<280	<180	<220	163	<100	2260	1040	226	1380	390	1770	66.2	65	77	11	<5	<5	270	265,000	316,000	<40,000	75,000	<40,000
GB5	GB17-26-05	9/10/2017	<210	<180	<270	1080	2790	<270	<210	<54	<270	<340	<150	<200	<230	<280	510	<220	159	<100	2590	402	<190	<430	<220	<650	59.2	58	62	16	8	8	242	238,000	252,000	60,800	113,000	60,800
GB06	GB17-26-06	9/10/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GB07	GB17-26-07	9/10/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GB8	GB17-26-08	10/10/2017	<210	<180	<270	<250	504	<270	<210	<5.4	<270	<340	<150	<200	<230	<280	<180	<220	488	<100	<100	<220	<190	<430	<220	<650	<5	<5	<5	<5	<5	<5	<20	<20,000	<20,000	<40,000	<35,000	<40,000
GB9	GB17-26-09	10/10/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GB10	GB17-26-10	10/10/2017	<210	<180	<270	<250	<90	<270	<210	<5.4	<270	<340	<150	<200	<230	<280	<180	<220	43.7	<100	<100	<220	<190	<430	<220	<650	<5	<5	<5	<5	<5	<5	<20	<20,000	<20,000	<40,000	<35,000	<40,000

References:
(a) US EPA (2016), Toxicological Review of Ammonia Noncancer Ir
(b) NSW EPA (2012) Guidelines for the Assessment and Managem
(c) WHO (2000) Guidelines for Air Quality
(d) State Environment Protection Policy (Air Quality Management)
(e) CRC CARE Technical Report No. 23 petroleum hydrocarbon vap

Table 6. Field Duplicates (SOIL)

	Lab Report Number		EM1706717	EM1706717		EM1706717	547924		EM1706717	EM1706717		EM1706717	547925	
	Field ID		TP17-26-64/0.5	DUPA TP17-26-64/0.5	**RPD**	TP17-26-64/0.5	DUPB TP17-26-64/0.5	**RPD**	TP17-26-70/0.7	DUPA TP17-26-70/0.1	**RPD**	TP17-26-70/0.7	DUPB TP17-26-70/0.7	**RPD**
	Sample Type		Primary	Blind Duplicate		Primary	Split Duplicate		Primary	Blind Duplicate		Primary	Split Duplicate	
	Sampled Date/Time		24/05/2017 15:00	24/05/2017 15:00		24/05/2017 15:00	24/05/2017 15:00		25/05/2017 15:00	25/05/2017 15:00		25/05/2017 15:00	25/05/2017 15:00	
Chemical Group	**ChemName**	**Units**	**EQL**											
	Benzo(a)pyrene TEQ calc (Zero)	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Benzo(b+j+k)fluoranthene	mg/kg	0.5												
	Chlorinated hydrocarbons EPA448	mg/kg	0.01	<0.01	<0.01	0	<0.01			<0.01	<0.01	0	<0.01		
	Moisture Content	%	1												
	Monocylic aromatic hydrocarbons EPA448	mg/kg	0.2	<0.2	<0.2	0	<0.2			<0.2	<0.2	0	<0.2		
	Organochlorine pesticides EPA448	mg/kg	0.03	<0.03	<0.03	0	<0.03			<0.03	<0.03	0	<0.03		
	Other chlorinated hydrocarbons EPA448	mg/kg	0.01	<0.01	<0.01	0	<0.01			<0.01	<0.01	0	<0.01		
	Other organochlorine pesticides EPA448	mg/kg	0.03	<0.03	<0.03	0	<0.03			<0.03	<0.03	0	<0.03		
	pH (CaCl2)	pH Unit	0.1	4.4	4.3	2	4.4			6.1	6	2	6.1		
	Phenols (non-halogenated) EPA448	mg/kg	1	<1	<1	0	<1			<1	<1	0	<1		
	Phenols(halogenated) EPA448	mg/kg	0.03	<0.03	<0.03	0	<0.03			<0.03	<0.03	0	<0.03		
PAH/Phenols	Polycylic aromatic hydrocarbons EPA448	mg/kg	0.5	<0.5	<0.5	0	<0.5			<0.5	<0.5	0	<0.5		
Per- and Polyfluoroalk	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	mg/kg	0.0005 : 0.005 (Interlab)												
	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	mg/kg	0.0005 : 0.005 (Interlab)												
	Perfluorobutanoic acid (PFBA)	mg/kg	0.001 : 0.005 (Interlab)												
	Perfluorohexane sulfonic acid (PFHxS)	mg/kg	0.0002 : 0.005 (Interlab)												
	Perfluoropentanoic acid (PFPeA)	mg/kg	0.0002 : 0.005 (Interlab)												
	Sum of PFHxS and PFOS	mg/kg	0.0002 : 0.005 (Interlab)												
	Sum of PFAS (WA DER List)	mg/kg	0.0002 : 0.01 (Interlab)												
PFOS and PFOA	6:2 Fluorotelomer Sulfonate (6:2 FtS)	mg/kg	0.0005 : 0.01 (Interlab)												
	8:2 Fluorotelomer sulfonate	mg/kg	0.0005 : 0.005 (Interlab)												
	Perfluorooctane sulfonic acid (PFOS)	mg/kg	0.0002 : 0.005 (Interlab)												
	PFOA	mg/kg	0.0002 : 0.005 (Interlab)												
	PFBS	mg/kg	0.0002 : 0.005 (Interlab)												
	PFHpA	mg/kg	0.0002 : 0.005 (Interlab)												
	PFHxA	mg/kg	0.0002 : 0.005 (Interlab)												
TRH	C10 - C16 Fraction	mg/kg	50	<50	<50	0	<50	<50	0	<50	<50	0	<50	<50	0
	C16 - C34 Fraction	mg/kg	100	<100	<100	0	<100	<100	0	<100	<100	0	<100	<100	0
	C10 - C40 Fraction (Sum)	mg/kg	50	<50	<50	0	<50			<50	<50	0	<50		
	C34 - C40 Fraction	mg/kg	100	<100	<100	0	<100	<100	0	<100	<100	0	<100	<100	0
	C6 - C10 Fraction minus BTEX (F1)	mg/kg	10 : 20 (Interlab)	<10	<10	0	<10	<20	0	<10	<10	0	<10	<20	0
	TPH C6 - C10 Fraction	mg/kg	10 : 20 (Interlab)	<10	<10	0	<10	<20	0	<10	<10	0	<10	<20	0
	TRH >C10-C16 less Naphthalene (F2)	mg/kg	50	<50	<50	0	<50	<50	0	<50	<50	0	<50	<50	0
TPH	+C10 - C36 (Sum of total)	mg/kg	50	<50	<50	0	<50	<50	0	<50	<50	0	<50	<50	0
	C6 - C9 Fraction	mg/kg	10 : 20 (Interlab)	<10	<10	0	<10	<20	0	<10	<10	0	<10	<20	0
	C10 - C14 Fraction	mg/kg	50 : 20 (Interlab)	<50	<50	0	<50	<20	0	<50	<50	0	<50	<20	0
	C15 - C28 Fraction	mg/kg	100 : 50 (Interlab)	<100	<100	0	<100	<50	0	<100	<100	0	<100	<50	0
	C29-C36 Fraction	mg/kg	100 : 50 (Interlab)	<100	<100	0	<100	<50	0	<100	<100	0	<100	<50	0
BTEX	Benzene	mg/kg	0.2 : 0.1 (Interlab)	<0.2	<0.2	0	<0.2	<0.1	0	<0.2	<0.2	0	<0.2	<0.1	0
	Toluene	mg/kg	0.5 : 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.5	0	<0.5	<0.1	0
	Ethylbenzene	mg/kg	0.5 : 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.5	0	<0.5	<0.1	0
	Xylene (m & p)	mg/kg	0.5 : 0.2 (Interlab)	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0
	Xylene (o)	mg/kg	0.5 : 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.5	0	<0.5	<0.1	0
	Xylene Total	mg/kg	0.5 : 0.3 (Interlab)	<0.5	<0.5	0	<0.5	<0.3	0	<0.5	<0.5	0	<0.5	<0.3	0
Inorganics	Cyanide Total	mg/kg	1 : 5 (Interlab)	1	1	0	1	<5	0	<1	<1	0	<1	<5	0
	Fluoride	mg/kg	40 : 100 (Interlab)	<40	<40	0	<40	<100	0	<40	<40	0	<40	210	136
	Moisture	%	1	4.5	4.1	9	4.5			2	2.7	30	2		
Metals	Arsenic	mg/kg	5 : 2 (Interlab)	<5	<5	0	<5	<2	0	<5	<5	0	<5	<2	0
	Cadmium	mg/kg	1 : 0.4 (Interlab)	<1	<1	0	<1	<0.4	0	<1	<1	0	<1	<0.4	0
	Chromium (hexavalent)	mg/kg	0.5 : 1 (Interlab)	<0.5	<0.5	0	<0.5	<1	0	<0.5	<0.5	0	<0.5	<1	0
	Copper	mg/kg	5	<5	<5	0	<5	<5	0	<5	<5	0	<5	<5	0
	Lead	mg/kg	5	8	7	13	8	8.5	6	<5	<5	0	<5	<5	0
	Mercury	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0
	Molybdenum	mg/kg	2 : 5 (Interlab)	<2	<2	0	<2	<5	0	<2	<2	0	<2	<5	0
	Nickel	mg/kg	2 : 5 (Interlab)	<2	<2	0	<2	<5	0	<2	<2	0	<2	<5	0
	Selenium	mg/kg	5 : 2 (Interlab)	<5	<5	0	<5	<2	0	<5	<5	0	<5	<2	0
	Silver	mg/kg	2 : 0.2 (Interlab)	<2	<2	0	<2	<0.2	0	<2	<2	0	<2	<0.2	0
	Tin	mg/kg	5 : 10 (Interlab)	<5	<5	0	<5	<10	0	<5	<5	0	<5	<10	0
	Zinc	mg/kg	5	7	7	0	7	7.9	12	<5	<5	0	<5	<5	0
OCP	4,4-DDE	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
	a-BHC	mg/kg	0.03 : 0.05 (Interlab)	<0.03	<0.03	0	<0.03	<0.05	0	<0.03	<0.03	0	<0.03	<0.05	0
	Aldrin	mg/kg	0.03 : 0.05 (Interlab)	<0.03	<0.03	0	<0.03	<0.05	0	<0.03	<0.03	0	<0.03	<0.05	0
	Aldrin + Dieldrin	mg/kg	0.03 : 0.05 (Interlab)	<0.03	<0.03	0	<0.03			<0.03	<0.03	0	<0.03		
	b-BHC	mg/kg	0.03 : 0.05 (Interlab)	<0.03	<0.03	0	<0.03	<0.05	0	<0.03	<0.03	0	<0.03	<0.05	0
	chlordane	µg/kg	30 : 100 (Interlab)	<30	<30	0	<30	<100	0	<30	<30	0	<30	<100	0
	Chlordane (cis)	mg/kg	0.03	<0.03	<0.03	0	<0.03			<0.03	<0.03	0	<0.03		
	Chlordane (trans)	mg/kg	0.03	<0.03	<0.03	0	<0.03			<0.03	<0.03	0	<0.03		
	d-BHC	mg/kg	0.03 : 0.05 (Interlab)	<0.03	<0.03	0	<0.03	<0.05	0	<0.03	<0.03	0	<0.03	<0.05	0
	DDD	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
	DDT	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0

Table 6. Field Duplicates (SOIL)

				Lab Report Number	EM1706717	EM1706717		EM1706717	547924		EM1706717	EM1706717		EM1706717	547925	
				Field ID	TP17-26-64/0.5	DUPA TP17-26-64/0.5	RPD	TP17-26-64/0.5	DUPB TP17-26-64/0.5	RPD	TP17-26-70/0.7	DUPA TP17-26-70/0.1	RPD	TP17-26-70/0.7	DUPB TP17-26-70/0.7	RPD
				Sample Type	Primary	Blind Duplicate		Primary	Split Duplicate		Primary	Blind Duplicate		Primary	Split Duplicate	
				Sampled Date/Time	24/05/2017 15:00	24/05/2017 15:00		24/05/2017 15:00	24/05/2017 15:00		25/05/2017 15:00	25/05/2017 15:00		25/05/2017 15:00	25/05/2017 15:00	
	DDT+DDE+DDD	mg/kg	0.05	<0.05	<0.05	0	<0.05			<0.05	<0.05	0	<0.05		
	Dieldrin	mg/kg	0.03 : 0.05 (Interlab)	<0.03	<0.03	0	<0.03	<0.05	0	<0.03	<0.03	0	<0.03	<0.05	0
	Endosulfan I	mg/kg	0.03 : 0.05 (Interlab)	<0.03	<0.03	0	<0.03	<0.05	0	<0.03	<0.03	0	<0.03	<0.05	0
	Endosulfan II	mg/kg	0.03 : 0.05 (Interlab)	<0.03	<0.03	0	<0.03	<0.05	0	<0.03	<0.03	0	<0.03	<0.05	0
	Endosulfan sulphate	mg/kg	0.03 : 0.05 (Interlab)	<0.03	<0.03	0	<0.03	<0.05	0	<0.03	<0.03	0	<0.03	<0.05	0
	Endrin	mg/kg	0.03 : 0.05 (Interlab)	<0.03	<0.03	0	<0.03	<0.05	0	<0.03	<0.03	0	<0.03	<0.05	0
	Endrin aldehyde	µg/kg	30 : 50 (Interlab)	<30	<30	0	<30	<50	0	<30	<30	0	<30	<50	0
	g-BHC (Lindane)	mg/kg	0.03 : 0.05 (Interlab)	<0.03	<0.03	0	<0.03	<0.05	0	<0.03	<0.03	0	<0.03	<0.05	0
	Heptachlor	mg/kg	0.03 : 0.05 (Interlab)	<0.03	<0.03	0	<0.03	<0.05	0	<0.03	<0.03	0	<0.03	<0.05	0
	Heptachlor epoxide	mg/kg	0.03 : 0.05 (Interlab)	<0.03	<0.03	0	<0.03	<0.05	0	<0.03	<0.03	0	<0.03	<0.05	0
	Hexachlorobenzene	mg/kg	0.03 : 0.05 (Interlab)	<0.03	<0.03	0	<0.03	<0.05	0	<0.03	<0.03	0	<0.03	<0.05	0
	Methoxychlor	mg/kg	0.03 : 0.05 (Interlab)	<0.03	<0.03	0	<0.03	<0.05	0	<0.03	<0.03	0	<0.03	<0.05	0
PAH	Acenaphthene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Acenaphthylene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Anthracene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Benz(a)anthracene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Benzo(a) pyrene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Benzo(b+j) & Benzo(k)fluoranthene	mg/kg	0.5	<0.5	<0.5	0	<0.5			<0.5	<0.5	0	<0.5		
	Benzo(g,h,i)perylene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Benzo(a)pyrene TEQ (medium bound) *	mg/kg	0.5	0.6	0.6	0	0.6	0.6	0	0.6	0.6	0	0.6	0.6	0
	Benzo(a)pyrene TEQ (upper bound) *	mg/kg	0.5	1.2	1.2	0	1.2	1.2	0	1.2	1.2	0	1.2	1.2	0
	Chrysene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Dibenz(a,h)anthracene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Fluoranthene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Fluorene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Naphthalene	mg/kg	1 : 0.5 (Interlab)	<1	<1	0	<1	<0.5	0	<1	<1	0	<1	<0.5	0
	Naphthalene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Phenanthrene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Pyrene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
PCB	PCBs (Sum of total)	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0
Phenols	2,3,5,6-Tetrachlorophenol	mg/kg	0.03	<0.03	<0.03	0	<0.03			<0.03	<0.03	0	<0.03		
	2,4,5-trichlorophenol	mg/kg	0.05 : 1 (Interlab)	<0.05	<0.05	0	<0.05	<1	0	<0.05	<0.05	0	<0.05	<1	0
	2.4.6-Trichlorophenol	mg/kg	0.05 : 1 (Interlab)	<0.05	<0.05	0	<0.05	<1	0	<0.05	<0.05	0	<0.05	<1	0
	2,4-dichlorophenol	mg/kg	0.03 : 0.5 (Interlab)	<0.03	<0.03	0	<0.03	<0.5	0	<0.03	<0.03	0	<0.03	<0.5	0
	2,4-dimethylphenol	mg/kg	1 : 0.5 (Interlab)	<1	<1	0	<1	<0.5	0	<1	<1	0	<1	<0.5	0
	2,4-dinitrophenol	mg/kg	5	<5	<5	0	<5	<5	0	<5	<5	0	<5	<5	0
	2,6-dichlorophenol	mg/kg	0.03 : 0.5 (Interlab)	<0.03	<0.03	0	<0.03	<0.5	0	<0.03	<0.03	0	<0.03	<0.5	0
	2.3.4.5 & 2.3.4.6-Tetrachlorophenol	mg/kg	0.05	<0.05	<0.05	0	<0.05			<0.05	<0.05	0	<0.05		
	2-chlorophenol	mg/kg	0.03 : 0.5 (Interlab)	<0.03	<0.03	0	<0.03	<0.5	0	<0.03	<0.03	0	<0.03	<0.5	0
	2-methylphenol	mg/kg	1 : 0.2 (Interlab)	<1	<1	0	<1	<0.2	0	<1	<1	0	<1	<0.2	0
	2-nitrophenol	mg/kg	1	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0
	3-&4-methylphenol	mg/kg	1 : 0.4 (Interlab)	<1	<1	0	<1	<0.4	0	<1	<1	0	<1	<0.4	0
	4,6-Dinitro-2-methylphenol	mg/kg	5	<5	<5	0	<5	<5	0	<5	<5	0	<5	<5	0
	4,6-Dinitro-o-cyclohexyl phenol	mg/kg	5 : 20 (Interlab)	<5	<5	0	<5	<20	0	<5	<5	0	<5	<20	0
	4-chloro-3-methylphenol	mg/kg	0.03 : 1 (Interlab)	<0.03	<0.03	0	<0.03	<1	0	<0.03	<0.03	0	<0.03	<1	0
	4-nitrophenol	mg/kg	5	<5	<5	0	<5	<5	0	<5	<5	0	<5	<5	0
	Dinoseb	mg/kg	5 : 20 (Interlab)	<5	<5	0	<5	<20	0	<5	<5	0	<5	<20	0
	Pentachlorophenol	mg/kg	0.2 : 1 (Interlab)	<0.2	<0.2	0	<0.2	<1	0	<0.2	<0.2	0	<0.2	<1	0
	Phenol	mg/kg	1 : 0.5 (Interlab)	<1	<1	0	<1	<0.5	0	<1	<1	0	<1	<0.5	0
VOC	1,1,1,2-tetrachloroethane	mg/kg	0.01 : 0.5 (Interlab)	<0.01	<0.01	0	<0.01	<0.5	0	<0.01	<0.01	0	<0.01	<0.5	0
	1,1,1-trichloroethane	mg/kg	0.01 : 0.5 (Interlab)	<0.01	<0.01	0	<0.01	<0.5	0	<0.01	<0.01	0	<0.01	<0.5	0
	1,1,2,2-tetrachloroethane	mg/kg	0.02 : 0.5 (Interlab)	<0.02	<0.02	0	<0.02	<0.5	0	<0.02	<0.02	0	<0.02	<0.5	0
	1,1,2-trichloroethane	mg/kg	0.04 : 0.5 (Interlab)	<0.04	<0.04	0	<0.04	<0.5	0	<0.04	<0.04	0	<0.04	<0.5	0
	1,1-dichloroethene	mg/kg	0.01 : 0.5 (Interlab)	<0.01	<0.01	0	<0.01	<0.5	0	<0.01	<0.01	0	<0.01	<0.5	0
	1,2,4-trichlorobenzene	mg/kg	0.01 : 0.5 (Interlab)	<0.01	<0.01	0	<0.01	<0.2	0	<0.01	<0.01	0	<0.01	<0.5	0
	1,2-dichlorobenzene	mg/kg	0.02 : 0.5 (Interlab)	<0.02	<0.02	0	<0.02	<0.5	0	<0.02	<0.02	0	<0.02	<0.5	0
	1,2-dichloroethane	mg/kg	0.02 : 0.5 (Interlab)	<0.02	<0.02	0	<0.02	<0.5	0	<0.02	<0.02	0	<0.02	<0.5	0
	1,4-dichlorobenzene	mg/kg	0.02 : 0.5 (Interlab)	<0.02	<0.02	0	<0.02	<0.5	0	<0.02	<0.02	0	<0.02	<0.5	0
	Carbon tetrachloride	mg/kg	0.01 : 0.5 (Interlab)	<0.01	<0.01	0	<0.01	<0.5	0	<0.01	<0.01	0	<0.01	<0.5	0
	Chlorobenzene	mg/kg	0.02 : 0.5 (Interlab)	<0.02	<0.02	0	<0.02	<0.5	0	<0.02	<0.02	0	<0.02	<0.5	0
	Chloroform	mg/kg	0.02 : 0.5 (Interlab)	<0.02	<0.02	0	<0.02	<0.5	0	<0.02	<0.02	0	<0.02	<0.5	0
	cis-1,2-dichloroethene	mg/kg	0.01 : 0.5 (Interlab)	<0.01	<0.01	0	<0.01	<0.5	0	<0.01	<0.01	0	<0.01	<0.5	0
	Dichloromethane	mg/kg	0.4 : 0.5 (Interlab)	<0.4	<0.4	0	<0.4	<0.5	0	<0.4	<0.4	0	<0.4	<0.5	0
	Hexachlorobutadiene	mg/kg	0.02 : 0.5 (Interlab)	<0.02	<0.02	0	<0.02	<0.2	0	<0.02	<0.02	0	<0.02	<0.2	0
	Styrene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	TCE	mg/kg	0.02 : 0.5 (Interlab)	<0.02	<0.02	0	<0.02	<0.5	0	<0.02	<0.02	0	<0.02	<0.5	0
	Tetrachloroethene	mg/kg	0.02 : 0.5 (Interlab)	<0.02	<0.02	0	<0.02	<0.5	0	<0.02	<0.02	0	<0.02	<0.5	0
	trans-1,2-dichloroethene	mg/kg	0.02 : 0.5 (Interlab)	<0.02	<0.02	0	<0.02	<0.5	0	<0.02	<0.02	0	<0.02	<0.5	0
	Vinyl chloride	mg/kg	0.02 : 0.5 (Interlab)	<0.02	<0.02	0	<0.02	<0.5	0	<0.02	<0.02	0	<0.02	<0.5	0

*RPDs have only been considered where a concentration is greater than 10 times the EQL.
**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 30 (10-30 x EQL); 30 (30-50 x EQL); 30 (> 50 x EQL))
***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

Table 6. Field Duplicates (SOIL)

Lab Report Number			EM1708010	EM1708010		EM1708010	EM1708010		EM1714071	EM1714071		EM1714071	567678	
Field ID			TP17-26-07/0.6	DUP A - 26/0.6	RPD	TP17-26-07/0.6	DUP B - 26/0.6	RPD	B17-68419/0.7	DUPA-26/0.7	RPD	B17-68419/0.7	DUPB-26/0.7	RPD
Sample Type			Primary	Blind Duplicate		Primary	Split Duplicate		Primary	Blind Duplicate		Primary	Split Duplicate	
Sampled Date/Time			18/06/2017 15:00	18/06/2017 15:00		18/06/2017 15:00	18/06/2017 15:00		12/10/2017 15:00	12/10/2017 15:00		12/10/2017 15:00	12/10/2017 15:00	
Chemical Group	**ChemName**	**Units**	**EQL**											
	Benzo(a)pyrene TEQ calc (Zero)	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Benzo(b+j+k)fluoranthene	mg/kg	0.5							<0.5	<0.5	0	<0.5		
	Chlorinated hydrocarbons EPA448	mg/kg	0.01	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0	<0.01		
	Moisture Content	%	1	18.2	17.6	3	18.2	19.1	5	15.8	15.3	3	15.8		
	Monocylic aromatic hydrocarbons EPA448	mg/kg	0.2	<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.2	0	<0.2		
	Organochlorine pesticides EPA448	mg/kg	0.03	<0.03	<0.03	0	<0.03	<0.03	0	<0.03	<0.03	0	<0.03		
	Other chlorinated hydrocarbons EPA448	mg/kg	0.01	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0	<0.01		
	Other organochlorine pesticides EPA448	mg/kg	0.03	<0.03	<0.03	0	<0.03	<0.03	0	<0.03	<0.03	0	<0.03		
	pH (CaCl2)	pH Unit	0.1	4.7	4.7	0	4.7	4.7	0	8.5	9	6	8.5		
	Phenols (non-halogenated) EPA448	mg/kg	1	<1	<1	0	<1	<1	0	<1	<1	0	<1		
	Phenols(halogenated) EPA448	mg/kg	0.03	<0.03	<0.03	0	<0.03	<0.03	0	<0.03	<0.03	0	<0.03		
PAH/Phenols	Polycylic aromatic hydrocarbons EPA448	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5		
Per- and Polyfluoroalk	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	mg/kg	0.0005 : 0.005 (Interlab)												
	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	mg/kg	0.0005 : 0.005 (Interlab)												
	Perfluorobutanoic acid (PFBA)	mg/kg	0.001 : 0.005 (Interlab)												
	Perfluorohexane sulfonic acid (PFHxS)	mg/kg	0.0002 : 0.005 (Interlab)												
	Perfluoropentanoic acid (PFPeA)	mg/kg	0.0002 : 0.005 (Interlab)												
	Sum of PFHxS and PFOS	mg/kg	0.0002 : 0.005 (Interlab)												
	Sum of PFAS (WA DER List)	mg/kg	0.0002 : 0.01 (Interlab)												
PFOS and PFOA	6:2 Fluorotelomer Sulfonate (6:2 FtS)	mg/kg	0.0005 : 0.01 (Interlab)												
	8:2 Fluorotelomer sulfonate	mg/kg	0.0005 : 0.005 (Interlab)												
	Perfluorooctane sulfonic acid (PFOS)	mg/kg	0.0002 : 0.005 (Interlab)												
	PFOA	mg/kg	0.0002 : 0.005 (Interlab)												
	PFBS	mg/kg	0.0002 : 0.005 (Interlab)												
	PFHpA	mg/kg	0.0002 : 0.005 (Interlab)												
	PFHxA	mg/kg	0.0002 : 0.005 (Interlab)												
TRH	C10 - C16 Fraction	mg/kg	50	<50	<50	0	<50	<50	0	<50	<50	0	<50	<50	0
	C16 - C34 Fraction	mg/kg	100	<100	<100	0	<100	<100	0	<100	<100	0	<100	<100	0
	C10 - C40 Fraction (Sum)	mg/kg	50	<50	<50	0	<50	<50	0	<50	<50	0	<50		
	C34 - C40 Fraction	mg/kg	100	<100	<100	0	<100	<100	0	<100	<100	0	<100	<100	0
	C6 - C10 Fraction minus BTEX (F1)	mg/kg	10 : 20 (Interlab)	<10	<10	0	<10	<10	0	<10	<10	0	<10	<20	0
	TPH C6 - C10 Fraction	mg/kg	10 : 20 (Interlab)	<10	<10	0	<10	<10	0	<10	<10	0	<10	<20	0
	TRH >C10-C16 less Naphthalene (F2)	mg/kg	50	<50	<50	0	<50	<50	0	<50	<50	0	<50	<50	0
TPH	+C10 - C36 (Sum of total)	mg/kg	50	<50	<50	0	<50	<50	0	<50	<50	0	<50	<50	0
	C6 - C9 Fraction	mg/kg	10 : 20 (Interlab)	<10	<10	0	<10	<10	0	<10	<10	0	<10	<20	0
	C10 - C14 Fraction	mg/kg	50 : 20 (Interlab)	<50	<50	0	<50	<50	0	<50	<50	0	<50	<20	0
	C15 - C28 Fraction	mg/kg	100 : 50 (Interlab)	<100	<100	0	<100	<100	0	<100	<100	0	<100	<50	0
	C29-C36 Fraction	mg/kg	100 : 50 (Interlab)	<100	<100	0	<100	<100	0	<100	<100	0	<100	<50	0
BTEX	Benzene	mg/kg	0.2 : 0.1 (Interlab)	<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.1	0
	Toluene	mg/kg	0.5 : 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0
	Ethylbenzene	mg/kg	0.5 : 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0
	Xylene (m & p)	mg/kg	0.5 : 0.2 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.2	0
	Xylene (o)	mg/kg	0.5 : 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0
	Xylene Total	mg/kg	0.5 : 0.3 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.3	0
Inorganics	Cyanide Total	mg/kg	1 : 5 (Interlab)	<1	<1	0	<1	<1	0	<1	<1	0	<1	<5	0
	Fluoride	mg/kg	40 : 100 (Interlab)	200	80	86	200	160	22	140	210	40	140	150	7
	Moisture	%	1												
Metals	Arsenic	mg/kg	5 : 2 (Interlab)	6	<5	18	6	<5	18	7	6	15	**7**	**16**	**78**
	Cadmium	mg/kg	1 : 0.4 (Interlab)	<1	<1	0	<1	<1	0	<1	<1	0	<1	<0.4	0
	Chromium (hexavalent)	mg/kg	0.5 : 1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<1	0
	Copper	mg/kg	5	10	8	22	10	10	0	7	7	0	7	12	53
	Lead	mg/kg	5	18	13	32	18	16	12	9	8	12	9	12	29
	Mercury	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0
	Molybdenum	mg/kg	2 : 5 (Interlab)	<2	<2	0	<2	<2	0	<2	<2	0	<2	<5	0
	Nickel	mg/kg	2 : 5 (Interlab)	9	7	25	9	10	11	12	12	0	12	21	55
	Selenium	mg/kg	5 : 2 (Interlab)	<5	<5	0	<5	<5	0	<5	<5	0	<5	<2	0
	Silver	mg/kg	2 : 0.2 (Interlab)	<2	<2	0	<2	<2	0	<2	<2	0	<2	<0.2	0
	Tin	mg/kg	5 : 10 (Interlab)	<5	<5	0	<5	<5	0	<5	<5	0	<5	<10	0
	Zinc	mg/kg	5	8	6	29	8	8	0	15	18	18	15	28	60
OCP	4,4-DDE	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
	a-BHC	mg/kg	0.03 : 0.05 (Interlab)	<0.03	<0.03	0	<0.03	<0.03	0	<0.03	<0.03	0	<0.03	<0.05	0
	Aldrin	mg/kg	0.03 : 0.05 (Interlab)	<0.03	<0.03	0	<0.03	<0.03	0	<0.03	<0.03	0	<0.03	<0.05	0
	Aldrin + Dieldrin	mg/kg	0.03 : 0.05 (Interlab)	<0.03	<0.03	0	<0.03	<0.03	0	<0.03	<0.03	0	<0.03	<0.05	0
	b-BHC	mg/kg	0.03 : 0.05 (Interlab)	<0.03	<0.03	0	<0.03	<0.03	0	<0.03	<0.03	0	<0.03	<0.05	0
	chlordane	µg/kg	30 : 100 (Interlab)	<30	<30	0	<30	<30	0	<30	<30	0	<30	<100	0
	Chlordane (cis)	mg/kg	0.03	<0.03	<0.03	0	<0.03	<0.03	0	<0.03	<0.03	0	<0.03		
	Chlordane (trans)	mg/kg	0.03	<0.03	<0.03	0	<0.03	<0.03	0	<0.03	<0.03	0	<0.03		
	d-BHC	mg/kg	0.03 : 0.05 (Interlab)	<0.03	<0.03	0	<0.03	<0.03	0	<0.03	<0.03	0	<0.03	<0.05	0
	DDD	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
	DDT	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0

Table 6. Field Duplicates (SOIL)

				Lab Report Number	EM1708010	EM1708010		EM1708010	EM1708010		EM1714071	EM1714071		EM1714071	567678	
				Field ID	TP17-26-07/0.6	DUP A - 26/0.6	RPD	TP17-26-07/0.6	DUP B - 26/0.6	RPD	B17-68419/0.7	DUPA-26/0.7	RPD	B17-68419/0.7	DUPB-26/0.7	RPD
				Sample Type	Primary	Blind Duplicate		Primary	Split Duplicate		Primary	Blind Duplicate		Primary	Split Duplicate	
				Sampled Date/Time	18/06/2017 15:00	18/06/2017 15:00		18/06/2017 15:00	18/06/2017 15:00		12/10/2017 15:00	12/10/2017 15:00		12/10/2017 15:00	12/10/2017 15:00	
	DDT+DDE+DDD	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
	Dieldrin	mg/kg	0.03 : 0.05 (Interlab)	<0.03	<0.03	0	<0.03	<0.03	0	<0.03	<0.03	0	<0.03	<0.05	0
	Endosulfan I	mg/kg	0.03 : 0.05 (Interlab)	<0.03	<0.03	0	<0.03	<0.03	0	<0.03	<0.03	0	<0.03	<0.05	0
	Endosulfan II	mg/kg	0.03 : 0.05 (Interlab)	<0.03	<0.03	0	<0.03	<0.03	0	<0.03	<0.03	0	<0.03	<0.05	0
	Endosulfan sulphate	mg/kg	0.03 : 0.05 (Interlab)	<0.03	<0.03	0	<0.03	<0.03	0	<0.03	<0.03	0	<0.03	<0.05	0
	Endrin	mg/kg	0.03 : 0.05 (Interlab)	<0.03	<0.03	0	<0.03	<0.03	0	<0.03	<0.03	0	<0.03	<0.05	0
	Endrin aldehyde	µg/kg	30 : 50 (Interlab)	<30	<30	0	<30	<30	0	<30	<30	0	<30	<50	0
	g-BHC (Lindane)	mg/kg	0.03 : 0.05 (Interlab)	<0.03	<0.03	0	<0.03	<0.03	0	<0.03	<0.03	0	<0.03	<0.05	0
	Heptachlor	mg/kg	0.03 : 0.05 (Interlab)	<0.03	<0.03	0	<0.03	<0.03	0	<0.03	<0.03	0	<0.03	<0.05	0
	Heptachlor epoxide	mg/kg	0.03 : 0.05 (Interlab)	<0.03	<0.03	0	<0.03	<0.03	0	<0.03	<0.03	0	<0.03	<0.05	0
	Hexachlorobenzene	mg/kg	0.03 : 0.05 (Interlab)	<0.03	<0.03	0	<0.03	<0.03	0	<0.03	<0.03	0	<0.03	<0.05	0
	Methoxychlor	mg/kg	0.03 : 0.05 (Interlab)	<0.03	<0.03	0	<0.03	<0.03	0	<0.03	<0.03	0	<0.03	<0.05	0
PAH	Acenaphthene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Acenaphthylene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Anthracene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Benz(a)anthracene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Benzo(a) pyrene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Benzo(b+j) & Benzo(k)fluoranthene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0						
	Benzo(g,h,i)perylene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Benzo(a)pyrene TEQ (medium bound) *	mg/kg	0.5	0.6	0.6	0	0.6	0.6	0	0.6	0.6	0	0.6	0.6	0
	Benzo(a)pyrene TEQ (upper bound) *	mg/kg	0.5	1.2	1.2	0	1.2	1.2	0	1.2	1.2	0	1.2	1.2	0
	Chrysene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Dibenz(a,h)anthracene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Fluoranthene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Fluorene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Naphthalene	mg/kg	1 : 0.5 (Interlab)	<1	<1	0	<1	<1	0	<1	<1	0	<1	<0.5	0
	Naphthalene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Phenanthrene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Pyrene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
PCB	PCBs (Sum of total)	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0
Phenols	2,3,5,6-Tetrachlorophenol	mg/kg	0.03	<0.03	<0.03	0	<0.03	<0.03	0	<0.03	<0.03	0	<0.03		
	2,4,5-trichlorophenol	mg/kg	0.05 : 1 (Interlab)	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<1	0
	2.4.6-Trichlorophenol	mg/kg	0.05 : 1 (Interlab)	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<1	0
	2,4-dichlorophenol	mg/kg	0.03 : 0.5 (Interlab)	<0.03	<0.03	0	<0.03	<0.03	0	<0.03	<0.03	0	<0.03	<0.5	0
	2,4-dimethylphenol	mg/kg	1 : 0.5 (Interlab)	<1	<1	0	<1	<1	0	<1	<1	0	<1	<0.5	0
	2,4-dinitrophenol	mg/kg	5	<5	<5	0	<5	<5	0	<5	<5	0	<5	<5	0
	2,6-dichlorophenol	mg/kg	0.03 : 0.5 (Interlab)	<0.03	<0.03	0	<0.03	<0.03	0	<0.03	<0.03	0	<0.03	<0.5	0
	2.3.4.5 & 2.3.4.6-Tetrachlorophenol	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05		
	2-chlorophenol	mg/kg	0.03 : 0.5 (Interlab)	<0.03	<0.03	0	<0.03	<0.03	0	<0.03	<0.03	0	<0.03	<0.5	0
	2-methylphenol	mg/kg	1 : 0.2 (Interlab)	<1	<1	0	<1	<1	0	<1	<1	0	<1	<0.2	0
	2-nitrophenol	mg/kg	1	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0
	3-&4-methylphenol	mg/kg	1 : 0.4 (Interlab)	<1	<1	0	<1	<1	0	<1	<1	0	<1	<0.4	0
	4,6-Dinitro-2-methylphenol	mg/kg	5	<5	<5	0	<5	<5	0	<5	<5	0	<5	<5	0
	4,6-Dinitro-o-cyclohexyl phenol	mg/kg	5 : 20 (Interlab)	<5	<5	0	<5	<5	0	<5	<5	0	<5	<20	0
	4-chloro-3-methylphenol	mg/kg	0.03 : 1 (Interlab)	<0.03	<0.03	0	<0.03	<0.03	0	<0.03	<0.03	0	<0.03	<1	0
	4-nitrophenol	mg/kg	5	<5	<5	0	<5	<5	0	<5	<5	0	<5	<5	0
	Dinoseb	mg/kg	5 : 20 (Interlab)	<5	<5	0	<5	<5	0	<5	<5	0	<5	<20	0
	Pentachlorophenol	mg/kg	0.2 : 1 (Interlab)	<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<1	0
	Phenol	mg/kg	1 : 0.5 (Interlab)	<1	<1	0	<1	<1	0	<1	<1	0	<1	<0.5	0
VOC	1,1,1,2-tetrachloroethane	mg/kg	0.01 : 0.5 (Interlab)	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.5	0
	1,1,1-trichloroethane	mg/kg	0.01 : 0.5 (Interlab)	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.5	0
	1,1,2,2-tetrachloroethane	mg/kg	0.02 : 0.5 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.5	0
	1,1,2-trichloroethane	mg/kg	0.04 : 0.5 (Interlab)	<0.04	<0.04	0	<0.04	<0.04	0	<0.04	<0.04	0	<0.04	<0.5	0
	1,1-dichloroethene	mg/kg	0.01 : 0.5 (Interlab)	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.5	0
	1,2,4-trichlorobenzene	mg/kg	0.01 : 0.5 (Interlab)	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.5	0
	1,2-dichlorobenzene	mg/kg	0.02 : 0.5 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.5	0
	1,2-dichloroethane	mg/kg	0.02 : 0.5 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.5	0
	1,4-dichlorobenzene	mg/kg	0.02 : 0.5 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.5	0
	Carbon tetrachloride	mg/kg	0.01 : 0.5 (Interlab)	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.5	0
	Chlorobenzene	mg/kg	0.02 : 0.5 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.5	0
	Chloroform	mg/kg	0.02 : 0.5 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.5	0
	cis-1,2-dichloroethene	mg/kg	0.01 : 0.5 (Interlab)	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.5	0
	Dichloromethane	mg/kg	0.4 : 0.5 (Interlab)	<0.4	<0.4	0	<0.4	<0.4	0	<0.4	<0.4	0	<0.4	<0.5	0
	Hexachlorobutadiene	mg/kg	0.02 : 0.5 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.5	0
	Styrene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	TCE	mg/kg	0.02 : 0.5 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.5	0
	Tetrachloroethene	mg/kg	0.02 : 0.5 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.5	0
	trans-1,2-dichloroethene	mg/kg	0.02 : 0.5 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.5	0
	Vinyl chloride	mg/kg	0.02 : 0.5 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.5	0

*RPDs have only been considered where a concentration is greater than 10 times the EQL.
**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 30 (10-30 x EQL); 30 (30-50
***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any n

Table 6. Field Duplicates (SOIL)

Lab Report Number	EM1805503	EM1805503		EM1805503	592381	
Field ID	BH3_0.2	DUPC/290318	RPD	BH3_0.2	DUPD/290318	RPD
Sample Type	Primary	Blind Duplicate		Primary	Split Duplicate	
Sampled Date/Time	29/03/2018 14:20	29/03/2018 14:20		29/03/2018 14:20	29/03/2018 14:20	

Chemical Group	ChemName	Units	EQL						
	Benzo(a)pyrene TEQ calc (Zero)	mg/kg	0.5						
	Benzo(b+j+k)fluoranthene	mg/kg	0.5						
	Chlorinated hydrocarbons EPA448	mg/kg	0.01						
	Moisture Content	%	1						
	Monocylic aromatic hydrocarbons EPA448	mg/kg	0.2						
	Organochlorine pesticides EPA448	mg/kg	0.03						
	Other chlorinated hydrocarbons EPA448	mg/kg	0.01						
	Other organochlorine pesticides EPA448	mg/kg	0.03						
	pH (CaCl2)	pH Unit	0.1						
	Phenols (non-halogenated) EPA448	mg/kg	1						
	Phenols(halogenated) EPA448	mg/kg	0.03						
PAH/Phenols	Polycylic aromatic hydrocarbons EPA448	mg/kg	0.5						
Per- and Polyfluoroalk	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	mg/kg	0.0005 : 0.005 (Interlab)	<0.0005	<0.0005	0	<0.0005	<0.005	0
	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	mg/kg	0.0005 : 0.005 (Interlab)	<0.0005	<0.0005	0	<0.0005	<0.005	0
	Perfluorobutanoic acid (PFBA)	mg/kg	0.001 : 0.005 (Interlab)	<0.001	<0.001	0	<0.001	<0.005	0
	Perfluorohexane sulfonic acid (PFHxS)	mg/kg	0.0002 : 0.005 (Interlab)	<0.0002	<0.0002	0	<0.0002	<0.005	0
	Perfluoropentanoic acid (PFPeA)	mg/kg	0.0002 : 0.005 (Interlab)	<0.0002	<0.0002	0	<0.0002	<0.005	0
	Sum of PFHxS and PFOS	mg/kg	0.0002 : 0.005 (Interlab)	<0.0002	0.0003	40	<0.0002	<0.005	0
	Sum of PFAS (WA DER List)	mg/kg	0.0002 : 0.01 (Interlab)	<0.0002	0.0003	40	<0.0002	<0.01	0
PFOS and PFOA	6:2 Fluorotelomer Sulfonate (6:2 FtS)	mg/kg	0.0005 : 0.01 (Interlab)	<0.0005	<0.0005	0	<0.0005	<0.01	0
	8:2 Fluorotelomer sulfonate	mg/kg	0.0005 : 0.005 (Interlab)	<0.0005	<0.0005	0	<0.0005	<0.005	0
	Perfluorooctane sulfonic acid (PFOS)	mg/kg	0.0002 : 0.005 (Interlab)	<0.0002	0.0003	40	<0.0002	<0.005	0
	PFOA	mg/kg	0.0002 : 0.005 (Interlab)	<0.0002	<0.0002	0	<0.0002	<0.005	0
	PFBS	mg/kg	0.0002 : 0.005 (Interlab)	<0.0002	<0.0002	0	<0.0002	<0.005	0
	PFHpA	mg/kg	0.0002 : 0.005 (Interlab)	<0.0002	<0.0002	0	<0.0002	<0.005	0
	PFHxA	mg/kg	0.0002 : 0.005 (Interlab)	<0.0002	<0.0002	0	<0.0002	<0.005	0
TRH	C10 - C16 Fraction	mg/kg	50						
	C16 - C34 Fraction	mg/kg	100						
	C10 - C40 Fraction (Sum)	mg/kg	50						
	C34 - C40 Fraction	mg/kg	100						
	C6 - C10 Fraction minus BTEX (F1)	mg/kg	10 : 20 (Interlab)						
	TPH C6 - C10 Fraction	mg/kg	10 : 20 (Interlab)						
	TRH >C10-C16 less Naphthalene (F2)	mg/kg	50						
TPH	+C10 - C36 (Sum of total)	mg/kg	50						
	C6 - C9 Fraction	mg/kg	10 : 20 (Interlab)						
	C10 - C14 Fraction	mg/kg	50 : 20 (Interlab)						
	C15 - C28 Fraction	mg/kg	100 : 50 (Interlab)						
	C29-C36 Fraction	mg/kg	100 : 50 (Interlab)						
BTEX	Benzene	mg/kg	0.2 : 0.1 (Interlab)						
	Toluene	mg/kg	0.5 : 0.1 (Interlab)						
	Ethylbenzene	mg/kg	0.5 : 0.1 (Interlab)						
	Xylene (m & p)	mg/kg	0.5 : 0.2 (Interlab)						
	Xylene (o)	mg/kg	0.5 : 0.1 (Interlab)						
	Xylene Total	mg/kg	0.5 : 0.3 (Interlab)						
Inorganics	Cyanide Total	mg/kg	1 : 5 (Interlab)						
	Fluoride	mg/kg	40 : 100 (Interlab)						
	Moisture	%	1						
Metals	Arsenic	mg/kg	5 : 2 (Interlab)						
	Cadmium	mg/kg	1 : 0.4 (Interlab)						
	Chromium (hexavalent)	mg/kg	0.5 : 1 (Interlab)						
	Copper	mg/kg	5						
	Lead	mg/kg	5						
	Mercury	mg/kg	0.1						
	Molybdenum	mg/kg	2 : 5 (Interlab)						
	Nickel	mg/kg	2 : 5 (Interlab)						
	Selenium	mg/kg	5 : 2 (Interlab)						
	Silver	mg/kg	2 : 0.2 (Interlab)						
	Tin	mg/kg	5 : 10 (Interlab)						
	Zinc	mg/kg	5						
OCP	4,4-DDE	mg/kg	0.05						
	a-BHC	mg/kg	0.03 : 0.05 (Interlab)						
	Aldrin	mg/kg	0.03 : 0.05 (Interlab)						
	Aldrin + Dieldrin	mg/kg	0.03 : 0.05 (Interlab)						
	b-BHC	mg/kg	0.03 : 0.05 (Interlab)						
	chlordane	µg/kg	30 : 100 (Interlab)						
	Chlordane (cis)	mg/kg	0.03						
	Chlordane (trans)	mg/kg	0.03						
	d-BHC	mg/kg	0.03 : 0.05 (Interlab)						
	DDD	mg/kg	0.05						
	DDT	mg/kg	0.05						

Table 6. Field Duplicates (SOIL)

			Lab Report Number	EM1805503	EM1805503		EM1805503	592381	
			Field ID	BH3_0.2	DUPC/290318	**RPD**	BH3_0.2	DUPD/290318	**RPD**
			Sample Type	Primary	Blind Duplicate		Primary	Split Duplicate	
			Sampled Date/Time	29/03/2018 14:20	29/03/2018 14:20		29/03/2018 14:20	29/03/2018 14:20	
	DDT+DDE+DDD	mg/kg	0.05						
	Dieldrin	mg/kg	0.03 : 0.05 (Interlab)						
	Endosulfan I	mg/kg	0.03 : 0.05 (Interlab)						
	Endosulfan II	mg/kg	0.03 : 0.05 (Interlab)						
	Endosulfan sulphate	mg/kg	0.03 : 0.05 (Interlab)						
	Endrin	mg/kg	0.03 : 0.05 (Interlab)						
	Endrin aldehyde	µg/kg	30 : 50 (Interlab)						
	g-BHC (Lindane)	mg/kg	0.03 : 0.05 (Interlab)						
	Heptachlor	mg/kg	0.03 : 0.05 (Interlab)						
	Heptachlor epoxide	mg/kg	0.03 : 0.05 (Interlab)						
	Hexachlorobenzene	mg/kg	0.03 : 0.05 (Interlab)						
	Methoxychlor	mg/kg	0.03 : 0.05 (Interlab)						
PAH	Acenaphthene	mg/kg	0.5						
	Acenaphthylene	mg/kg	0.5						
	Anthracene	mg/kg	0.5						
	Benz(a)anthracene	mg/kg	0.5						
	Benzo(a) pyrene	mg/kg	0.5						
	Benzo(b+j) & Benzo(k)fluoranthene	mg/kg	0.5						
	Benzo(g,h,i)perylene	mg/kg	0.5						
	Benzo(a)pyrene TEQ (medium bound) *	mg/kg	0.5						
	Benzo(a)pyrene TEQ (upper bound) *	mg/kg	0.5						
	Chrysene	mg/kg	0.5						
	Dibenz(a,h)anthracene	mg/kg	0.5						
	Fluoranthene	mg/kg	0.5						
	Fluorene	mg/kg	0.5						
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.5						
	Naphthalene	mg/kg	1 : 0.5 (Interlab)						
	Naphthalene	mg/kg	0.5						
	Phenanthrene	mg/kg	0.5						
	Pyrene	mg/kg	0.5						
PCB	PCBs (Sum of total)	mg/kg	0.1						
Phenols	2,3,5,6-Tetrachlorophenol	mg/kg	0.03						
	2,4,5-trichlorophenol	mg/kg	0.05 : 1 (Interlab)						
	2.4.6-Trichlorophenol	mg/kg	0.05 : 1 (Interlab)						
	2,4-dichlorophenol	mg/kg	0.03 : 0.5 (Interlab)						
	2,4-dimethylphenol	mg/kg	1 : 0.5 (Interlab)						
	2,4-dinitrophenol	mg/kg	5						
	2,6-dichlorophenol	mg/kg	0.03 : 0.5 (Interlab)						
	2.3.4.5 & 2.3.4.6-Tetrachlorophenol	mg/kg	0.05						
	2-chlorophenol	mg/kg	0.03 : 0.5 (Interlab)						
	2-methylphenol	mg/kg	1 : 0.2 (Interlab)						
	2-nitrophenol	mg/kg	1						
	3-&4-methylphenol	mg/kg	1 : 0.4 (Interlab)						
	4,6-Dinitro-2-methylphenol	mg/kg	5						
	4,6-Dinitro-o-cyclohexyl phenol	mg/kg	5 : 20 (Interlab)						
	4-chloro-3-methylphenol	mg/kg	0.03 : 1 (Interlab)						
	4-nitrophenol	mg/kg	5						
	Dinoseb	mg/kg	5 : 20 (Interlab)						
	Pentachlorophenol	mg/kg	0.2 : 1 (Interlab)						
	Phenol	mg/kg	1 : 0.5 (Interlab)						
VOC	1,1,1,2-tetrachloroethane	mg/kg	0.01 : 0.5 (Interlab)						
	1,1,1-trichloroethane	mg/kg	0.01 : 0.5 (Interlab)						
	1,1,2,2-tetrachloroethane	mg/kg	0.02 : 0.5 (Interlab)						
	1,1,2-trichloroethane	mg/kg	0.04 : 0.5 (Interlab)						
	1,1-dichloroethene	mg/kg	0.01 : 0.5 (Interlab)						
	1,2,4-trichlorobenzene	mg/kg	0.01 : 0.5 (Interlab)						
	1,2-dichlorobenzene	mg/kg	0.02 : 0.5 (Interlab)						
	1,2-dichloroethane	mg/kg	0.02 : 0.5 (Interlab)						
	1,4-dichlorobenzene	mg/kg	0.02 : 0.5 (Interlab)						
	Carbon tetrachloride	mg/kg	0.01 : 0.5 (Interlab)						
	Chlorobenzene	mg/kg	0.02 : 0.5 (Interlab)						
	Chloroform	mg/kg	0.02 : 0.5 (Interlab)						
	cis-1,2-dichloroethene	mg/kg	0.01 : 0.5 (Interlab)						
	Dichloromethane	mg/kg	0.4 : 0.5 (Interlab)						
	Hexachlorobutadiene	mg/kg	0.02 : 0.5 (Interlab)						
	Styrene	mg/kg	0.5						
	TCE	mg/kg	0.02 : 0.5 (Interlab)						
	Tetrachloroethene	mg/kg	0.02 : 0.5 (Interlab)						
	trans-1,2-dichloroethene	mg/kg	0.02 : 0.5 (Interlab)						
	Vinyl chloride	mg/kg	0.02 : 0.5 (Interlab)						

*RPDs have only been considered where a concentration is greater than 10 times the EQL.
**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 30 (10-30 x EQL); 30 (30-50
***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any n

Table 7. Field Duplicates (WATER)

			Lab Report Number	EM1713546	EM1713546		EM1713546	566096		EM1805503	EM1805503		EM1805503	592381	
			Field ID	GW17-26-02	GW172602-D	RPD	GW17-26-02	GW172602-D1	RPD	17-26-01/290318/	DUPA/290318	RPD	17-26-01/290318/	DUPB/290318	RPD
			Sampled Date/Time	3/10/2017 15:00	3/10/2017 15:00		3/10/2017 15:00	3/10/2017 15:00		29/03/2018 0:00	29/03/2018 0:00		29/03/2018 0:00	29/03/2018 0:00	
Chem_Group	**ChemName**	**Units**	**EQL**												
	Benzo(a)pyrene TEQ calc (Zero)	µg/L	0.5	<0.5	<0.5	0	<0.5								
	Bicarbonate	mg/l	1	<1	<1	0	<1								
	Carbonate	mg/l	1	<1	<1	0	<1								
	Benzo(b&j)fluoranthene	µg/L	1	<1	<1	0	<1	<1	0						
EW_APHA4500H	pH**	pH Units	0.01 : 0.1 (Interlab)	4.13	4.12	0	4.13	4.5	9						
Major/minor ions	Anions Total	meq/L	0.01	15.2	15.1	1	15.2								
	Calcium (Filtered)	mg/l	1	5	5	0	5								
	Cations Total	meq/L	0.01	13	13	0	13								
	Chloride	mg/l	1	408	407	0	408	400	2						
	Ionic Balance	%	0.01	8.08	7.38	9	8.08								
	Magnesium (Filtered)	mg/l	1	26	26	0	26								
	Potassium (Filtered)	mg/l	1	<1	<1	0	<1								
	Sodium (Filtered)	mg/l	1	243	245	1	243								
	Sulfate as SO4 - Turbidimetric (Filtered)	mg/l	1	179	175	2	179								
TRH	C10 - C16 Fraction	µg/L	100 : 50 (Interlab)	<100	<100	0	<100	<50	0						
	C16 - C34 Fraction	µg/L	100	<100	<100	0	<100	<100	0						
	C10 - C40 Fraction (Sum)	µg/L	100	<100	<100	0	<100								
	C34 - C40 Fraction	µg/L	100	<100	<100	0	<100	<100	0						
	C6 - C10 Fraction minus BTEX (F1)	µg/L	20	<20	<20	0	<20	<20	0						
	TPH C6 - C10 Fraction	µg/L	20	<20	<20	0	<20	<20	0						
	TRH >C10-C16 less Naphthalene (F2)	µg/L	100 : 50 (Interlab)	<100	<100	0	<100	<50	0						
TPH	+C10 - C36 (Sum of total)	µg/L	50 : 100 (Interlab)	<50	<50	0	<50	<100	0						
	C6 - C9 Fraction	µg/L	20	<20	<20	0	<20	<20	0						
	C10 - C14 Fraction	µg/L	50	<50	<50	0	<50	<50	0						
	C15 - C28 Fraction	µg/L	100	<100	<100	0	<100	<100	0						
	C29-C36 Fraction	µg/L	50 : 100 (Interlab)	<50	<50	0	<50	<100	0						
Per- and Polyfluoroalkyl S	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.05 : 0.01 (Interlab)							<0.05	<0.05	0	<0.05	<0.01	0
	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.05 : 0.01 (Interlab)							<0.05	<0.05	0	<0.05	<0.01	0
	Perfluorobutanoic acid (PFBA)	µg/L	0.1 : 0.05 (Interlab)							0.2	0.2	0	0.2	0.29	37
	Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.02 : 0.01 (Interlab)							0.07	0.08	13	**0.07**	**0.11**	**44**
	Perfluoropentanoic acid (PFPeA)	µg/L	0.02 : 0.01 (Interlab)							0.03	0.03	0	0.03	0.04	29
	Sum of PFHxS and PFOS	µg/L	0.01							0.24	0.26	8	**0.24**	**0.37**	**43**
PFOS and PFOA	6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.05							<0.05	<0.05	0	<0.05	<0.05	0
	8:2 Fluorotelomer sulfonate	µg/L	0.05 : 0.01 (Interlab)							<0.05	<0.05	0	<0.05	<0.01	0
	Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01							0.17	0.18	6	**0.17**	**0.26**	**42**
	PFOA	µg/L	0.01							0.2	0.2	0	0.2	0.26	26
	PFBS	µg/L	0.02 : 0.01 (Interlab)							<0.02	<0.02	0	<0.02	<0.01	0
	PFHpA	µg/L	0.02 : 0.01 (Interlab)							<0.02	0.03	40	<0.02	0.05	86
	PFHxA	µg/L	0.02 : 0.01 (Interlab)							0.09	0.08	12	0.09	0.11	20
BTEX	Benzene	µg/L	1	<1	<1	0	<1	<1	0						
	Toluene	µg/L	2 : 1 (Interlab)	<2	<2	0	<2	<1	0						
	Ethylbenzene	µg/L	2 : 1 (Interlab)	<2	<2	0	<2	<1	0						
	Xylene (m & p)	µg/L	2	<2	<2	0	<2	<2	0						
	Xylene (o)	µg/L	2 : 1 (Interlab)	<2	<2	0	<2	<1	0						
	Xylene Total	µg/L	2 : 3 (Interlab)	<2	<2	0	<2	<3	0						
	Total BTEX	µg/L	1	<1	<1	0	<1								
Inorganics	Alkalinity (Hydroxide) as CaCO3	mg/l	1	<1	<1	0	<1								
	Alkalinity (total) as CaCO3	mg/l	1 : 20 (Interlab)	<1	<1	0	<1	<20	0						
	Cyanide Total	µg/l	4 : 5 (Interlab)	<4	<4	0	<4	<5	0						
	Methane	mg/l	0.01 : 0.05 (Interlab)	<0.01	<0.01	0	<0.01	<0.05	0						
	Nitrate (as N)	mg/l	0.01	4.86	4.94	2	4.86								
	Nitrite (as N)	mg/l	0.01	0.04	0.04	0	0.04								
	Nitrite + Nitrate as N	mg/l	0.01	4.9	4.98	2	4.9								
	TDS (Filtered)	mg/l	10	1150	1170	2	1150								
	Total Organic Carbon	mg/l	1 : 5 (Interlab)	10	8	22	10	13	26						
Ammonia	Ammonia as N	mg/l	0.01	0.04	0.04	0	0.04								
Metals	Arsenic (Filtered)	µg/l	1	2	2	0	2	2	0						
	Barium (Filtered)	µg/l	1	10	10	0	10								
	Berryllium (Filtered)	µg/l	1	<1	<1	0	<1								
	Boron (Filtered)	µg/l	50	<50	<50	0	<50								
	Cadmium (Filtered)	µg/l	0.1 : 0.2 (Interlab)	0.1	0.2	67	0.1	<0.2	0						
	Chromium (Filtered)	µg/l	1	1	1	0	1	<1	0						
	Cobalt (Filtered)	µg/l	1	23	22	4	23								
	Copper (Filtered)	µg/l	1	1	1	0	1	<1	0						
	Lead (Filtered)	µg/l	1	2	2	0	2	1	67						
	Manganese (Filtered)	µg/l	1	39	39	0	39								
	Mercury (Filtered)	µg/l	0.1	<0.1	<0.1	0	<0.1	<0.1	0						
	Nickel (Filtered)	µg/l	1	31	32	3	**31**	**48**	**43**						
	Selenium (Filtered)	µg/l	10 : 1 (Interlab)	<10	<10	0	<10	1	0						
	Vanadium (Filtered)	µg/l	10	10	10	0	10								
	Zinc (Filtered)	µg/l	5	169	168	1	169	150	12						
PAH	Acenaphthene	µg/L	1	<1	<1	0	<1	<1	0						
	Acenaphthylene	µg/L	1	<1	<1	0	<1	<1	0						
	Anthracene	µg/L	1	<1	<1	0	<1	<1	0						
	Benz(a)anthracene	µg/L	1	<1	<1	0	<1	<1	0						
	Benzo(a) pyrene	µg/L	0.5 : 1 (Interlab)	<0.5	<0.5	0	<0.5	<1	0						
	Benzo(g,h,i)perylene	µg/L	1	<1	<1	0	<1	<1	0						
	Benzo(k)fluoranthene	µg/L	1	<1	<1	0	<1	<1	0						
	Chrysene	µg/L	1	<1	<1	0	<1	<1	0						
	Dibenz(a,h)anthracene	µg/L	1	<1	<1	0	<1	<1	0						
	Fluoranthene	µg/L	1	<1	<1	0	<1	<1	0						
	Fluorene	µg/L	1	<1	<1	0	<1	<1	0						
	Indeno(1,2,3-c,d)pyrene	µg/L	1	<1	<1	0	<1	<1	0						
	Naphthalene	µg/L	5 : 10 (Interlab)	<5	<5	0	<5	<1	0						
	Naphthalene	µg/L	1 : 10 (Interlab)	<1	<1	0	<1	<1	0						
	PAHs (Sum of total)	µg/L	0.5 : 1 (Interlab)	<0.5	<0.5	0	<0.5	<1	0						
	Phenanthrene	µg/L	1	<1	<1	0	<1	<1	0						
	Pyrene	µg/L	1	<1	<1	0	<1	<1	0						
Phenols	2,4,5-trichlorophenol	µg/L	1 : 10 (Interlab)	<1	<1	0	<1	<10	0						
	2,4,6-Trichlorophenol	µg/L	1 : 10 (Interlab)	<1	<1	0	<1	<10	0						
	2,4-dichlorophenol	µg/L	1 : 3 (Interlab)	<1	<1	0	<1	<3	0						
	2,4-dimethylphenol	µg/L	1 : 3 (Interlab)	<1	<1	0	<1	<3	0						
	2,6-dichlorophenol	µg/L	1 : 3 (Interlab)	<1	<1	0	<1	<3	0						
	2-chlorophenol	µg/L	1 : 3 (Interlab)	<1	<1	0	<1	<3	0						
	2-methylphenol	µg/L	1 : 3 (Interlab)	<1	<1	0	<1	<3	0						
	2-nitrophenol	µg/L	1 : 10 (Interlab)	<1	<1	0	<1	<10	0						
	3-&4-methylphenol	µg/L	2 : 6 (Interlab)	<2	<2	0	<2	<6	0						
	4-chloro-3-methylphenol	µg/L	1 : 10 (Interlab)	<1	<1	0	<1	<10	0						
	Pentachlorophenol	µg/L	2 : 10 (Interlab)	<2	<2	0	<2	<10	0						
	Phenol	µg/L	1 : 3 (Interlab)	<1	<1	0	<1	<3	0						
VOC	1,1,1,2-tetrachloroethane	µg/L	5 : 1 (Interlab)	<5	<5	0	<5	<1	0						
	1,1,1-trichloroethane	µg/L	5 : 1 (Interlab)	<5	<5	0	<5	<1	0						
	1,1,2,2-tetrachloroethane	µg/L	5 : 1 (Interlab)	<5	<5	0	<5	<1	0						
	1,1,2-trichloroethane	µg/L	5 : 1 (Interlab)	<5	<5	0	<5	<1	0						
	1,1-dichloroethane	µg/L	5 : 1 (Interlab)	<5	<5	0	<5	<1	0						
	1,1-dichloroethene	µg/L	5 : 1 (Interlab)	<5	<5	0	<5	<1	0						
	1,1-dichloropropene	µg/L	5	<5	<5	0	<5								
	1,2,3-trichlorobenzene	µg/L	5	<5	<5	0	<5								
	1,2,3-trichloropropane	µg/L	5 : 1 (Interlab)	<5	<5	0	<5	<1	0						
	1,2,4-trichlorobenzene	µg/L	5	<5	<5	0	<5								
	1,2,4-trimethylbenzene	µg/L	5 : 1 (Interlab)	<5	<5	0	<5	<1	0						
	1,2-dibromo-3-chloropropane	µg/L	5	<5	<5	0	<5								
	1,2-dibromoethane	µg/L	5 : 1 (Interlab)	<5	<5	0	<5	<1	0						
	1,2-dichlorobenzene	µg/L	5 : 1 (Interlab)	<5	<5	0	<5	<1	0						
	1,2-dichloroethane	µg/L	5 : 1 (Interlab)	<5	<5	0	<5	<1	0						
	1,2-dichloropropane	µg/L	5 : 1 (Interlab)	<5	<5	0	<5	<1	0						
	1,3,5-trimethylbenzene	µg/L	5 : 1 (Interlab)	<5	<5	0	<5	<1	0						
	1,3-dichlorobenzene	µg/L	5 : 1 (Interlab)	<5	<5	0	<5	<1	0						
	1,3-dichloropropane	µg/L	5 : 1 (Interlab)	<5	<5	0	<5	<1	0						
	1,4-dichlorobenzene	µg/L	5 : 1 (Interlab)	<5	<5	0	<5	<1	0						
	2,2-dichloropropane	µg/L	5	<5	<5	0	<5								
	2-butanone (MEK)	µg/L	50 : 1 (Interlab)	<50	<50	0	<50	<1	0						
	2-chlorotoluene	µg/L	5	<5	<5	0	<5								
	2-hexanone (MBK)	µg/L	50	<50	<50	0	<50								
	4-chlorotoluene	µg/L	5 : 1 (Interlab)	<5	<5	0	<5	<1	0						
	4-methyl-2-pentanone (MIBK)	µg/L	50 : 1 (Interlab)	<50	<50	0	<50	<1	0						
	Bromobenzene	µg/L	5 : 1 (Interlab)	<5	<5	0	<5	<1	0						
	Bromodichloromethane	µg/L	5 : 1 (Interlab)	<5	<5	0	<5	<1	0						
	Bromoform	µg/L	5 : 1 (Interlab)	<5	<5	0	<5	<1	0						
	Bromomethane	µg/L	50 : 1 (Interlab)	<50	<50	0	<50	3	0						
	Carbon disulfide	µg/L	5 : 1 (Interlab)	<5	<5	0	<5	<1	0						
	Carbon tetrachloride	µg/L	5 : 1 (Interlab)	<5	<5	0	<5	<1	0						
	Chlorobenzene	µg/L	5 : 1 (Interlab)	<5	<5	0	<5	<1	0						
	Chlorodibromomethane	µg/L	5 : 1 (Interlab)	<5	<5	0	<5	<1	0						
	Chloroethane	µg/L	50 : 1 (Interlab)	<50	<50	0	<50	<1	0						
	Chloroform	µg/L	5	<5	<5	0	<5	<5	0						
	Chloromethane	µg/L	50 : 1 (Interlab)	<50	<50	0	<50	<1	0						
	cis-1,2-dichloroethene	µg/L	5 : 1 (Interlab)	<5	<5	0	<5	<1	0						
	cis-1,3-dichloropropene	µg/L	5 : 1 (Interlab)	<5	<5	0	<5	<1	0						
	cis-1,4-Dichloro-2-butene	µg/L	5	<5	<5	0	<5								
	Dibromomethane	µg/L	5 : 1 (Interlab)	<5	<5	0	<5	<1	0						
	Dichlorodifluoromethane	µg/L	50 : 1 (Interlab)	<50	<50	0	<50	<1	0						
	Hexachlorobutadiene	µg/L	5	<5	<5	0	<5								
	Iodomethane	µg/L	5 : 1 (Interlab)	<5	<5	0	<5	<1	0						
	Isopropylbenzene	µg/L	5 : 1 (Interlab)	<5	<5	0	<5	<1	0						
	n-butylbenzene	µg/L	5	<5	<5	0	<5								
	n-propylbenzene	µg/L	5	<5	<5	0	<5								
	Pentachloroethane	µg/L	5	<5	<5	0	<5								
	p-isopropyltoluene	µg/L	5	<5	<5	0	<5								
	sec-butylbenzene	µg/L	5	<5	<5	0	<5								
	Styrene	µg/L	5 : 1 (Interlab)	<5	<5	0	<5	<1	0						
	TCE	µg/L	5 : 1 (Interlab)	<5	<5	0	<5	<1	0						
	tert-butylbenzene	µg/L	5	<5	<5	0	<5								
	Tetrachloroethene	µg/L	5 : 1 (Interlab)	<5	<5	0	<5	<1	0						
	trans-1,2-dichloroethene	µg/L	5 : 1 (Interlab)	<5	<5	0	<5	<1	0						
	trans-1,3-dichloropropene	µg/L	5 : 1 (Interlab)	<5	<5	0	<5	<1	0						
	trans-1,4-Dichloro-2-butene	µg/L	5	<5	<5	0	<5								
	Trichlorofluoromethane	µg/L	50 : 1 (Interlab)	<50	<50	0	<50	<1	0						
	Vinyl acetate	µg/L	50	<50	<50	0	<50								
	Vinyl chloride	µg/L	50 : 1 (Interlab)	<50	<50	0	<50	<1	0						

*RPDs have only been considered where a concentration is greater than 10 times the EQL.
**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 30 (10-30 x EQL); 30 (30-50 x EQL); 30 (> 50 x EQL))
***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

Table 8. Field Duplicates (GAS)

			Lab Report Number	EN1704238	EN1704238		EN1704238	EN1704238		EN1704461	EN1704461		EN1704461	EN1704461	
			Field ID	GB9	GB9_D1	**RPD**	GB9	GB9_D2	**RPD**	GB7 - 6409400509	DUP1 - 6409400692	**RPD**	GB7 - 6768605805	DUP1 - 7013201158	**RPD**
			Sampled Date/Time	10/10/2017 15:00	10/10/2017 15:00		10/10/2017 15:00	10/10/2017 15:00		27/10/2017	27/10/2017		27/10/2017	27/10/2017	
Method_Type	**ChemName**	**Units**	**EQL**												
Canister Sampling - Field Data	Pressure - As received	kPa	0.1	**81.6**	**47.9**	**52**	81.6	80.4	1						
	Pressure - Laboratory Atmosphere	kPa	0.1	102	102	0	102	102	0						
	Vacuum - As received	Inchs Hg	0.03	**5.96**	**15.9**	**91**	5.96	6.32	6						
Hydrogen Cyanide in Air - Soda Lime Tubes	Hydrogen Cyanide	µg/section	0.5							<0.5	<0.5	0			
Permanent Gases and Light Hydrocarbons (mass/volum	Carbon Dioxide	µg/m3	90000	2.58E8	2.28E8	12	2.58E8	2.62E8	2						
	Carbon Monoxide	µg/m3	5000	<10000	<10000	0	<10000	<10000	0						
	Helium	µg/m3	8000	<16000	<16000	0	<16000	<16000	0						
	Hydrogen	µg/m3	4000	<8000	<8000	0	<8000	<8000	0						
	Oxygen	µg/m3	1.31e+006	<2.62E6	<2.62E6	0	<2.62E6	<2.62E6	0						
Sulfur Compounds in Air Canister Samples (Mass/Vol	Hydrogen sulfide	µg/m3	30	<30	<30	0	<30	<30	0						
Canister Sampling - Field Data	Temperature (Field)	°C	0.1	21	21	0	21	21	0						
Ammonia in Air - Sulfuric Acid Silica Gel Tubes	Ammonia	µg/Section	1										<1	<1	0
Permanent Gases and Light Hydrocarbons (mass/volum	Methane	µg/m3	330000	6.02E6	5.3E6	13	6.02E6	6.15E6	2						

*RPDs have only been considered where a concentration is greater than 10 times the EQL.
**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 30 (10-30 x EQL); 30 (30-50 x EQL); 30 (> 50 x EQL))
***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

Table 9. Field Blanks

Chem_Group	ChemName	Units	EQL	Lab Report Number	EM1706039	EM1706039	EM1706051	EM1706717	EM1706717	EM1706717	EM1706717	EM1706803	EM1706803	EM1707148	EM1707148	EM1707148	EM1707148	EM1707764	EM1707764	EM1708010	EM1711031	EM1711031	EM1711185	EM1711253	EM1711578	EM1712226
				Field ID	Rinsate Blank	RB/110517	RB/100517	RB 260417	RB 260417	RB 260417	RB 260417	RB260417	RB260417	RB260417	RB260417	RB260417	RB260417	RB1/140617	RB2/150617	RB1/190617	B17-68386 RINSAT	B17-68382 RINSAT	B17-68396 Rinsate	B17-68399 Rinsate	RB280817	RB070917
				Sampled_Date/Time	12/05/2017 15:00	11/05/2017	10/05/2017 15:00	22/05/2017	23/05/2017	24/05/2017	25/05/2017	25/05/2017 15:00	26/05/2017	29/05/2017	30/05/2017	31/05/2017	1/06/2017	14/06/2017 15:00	15/06/2017	19/06/2017 15:00	16/08/2017	16/08/2017	21/08/2017	22/08/2017 14:00	28/08/2017	7/09/2017
				Sample Type	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate
WATER SAMPLES																										
BTEX	Benzene	µg/L	1																							
	Toluene	µg/L	2																							
	Ethylbenzene	µg/L	2																							
	Xylene (m & p)	µg/L	2																							
	Xylene (o)	µg/L	2																							
	Xylene Total	µg/L	2																							
	Total BTEX	µg/L	1																							
	Naphthalene	µg/L	1																							
Metals	Arsenic	µg/l	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	2	2	<1	18	<1	<1
	Cadmium	µg/l	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Chromium	µg/l	1																				<1		<1	<1
	Cobalt	µg/l	1											<1	<1	<1	<1									
	Copper	µg/l	1	<1	<1	<1	<1	<1	<1	<1	<1	<1						<1	<1	<1	1	1	<1	113	<1	<1
	Lead	µg/l	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	2	2	<1	29	<1	<1
	Manganese	µg/l	1																							
	Mercury	µg/l	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Molybdenum	µg/l	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	2	<1	<1
	Nickel	µg/l	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	4	<1	127	<1	<1
	Selenium	µg/l	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
	Silver	µg/l	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Tin	µg/l	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Vanadium	µg/l	10																							
	Zinc	µg/l	5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	11	12	<5	126	<5	<5
TPH	+C10 - C36 (Sum of total)	µg/L	50																							
	C6 - C9 Fraction	µg/L	20																							
	C6 - C10 Fraction minus BTEX (F1)	µg/L	20																							
	TPH C6 - C10 Fraction	µg/L	20																							
	TRH >C10-C16 less Naphthalene (F2)	µg/L	100																							
SOIL SAMPLES																										
BTEX	Benzene	mg/kg	0.2																							
	Toluene	mg/kg	0.5																							
	Ethylbenzene	mg/kg	0.5																							
	Xylene (m & p)	mg/kg	0.5																							
	Xylene (o)	mg/kg	0.5																							
	Xylene Total	mg/kg	0.5																							
	Total BTEX	mg/kg	0.2																							
	Naphthalene																									
TPH	+C10 - C36 (Sum of total)	mg/kg	50																							
	C6 - C9 Fraction	mg/kg	10																							
	C10 - C14 Fraction	mg/kg	50																							
	C15 - C28 Fraction	mg/kg	100																							
	C29-C36 Fraction	mg/kg	100																							
TRH	C10 - C16 Fraction	mg/kg	50																							
	C16 - C34 Fraction	mg/kg	100																							
	C10 - C40 Fraction (Sum)	mg/kg	50																							
	C34 - C40 Fraction	mg/kg	100																							
	C6 - C10 Fraction minus BTEX (F1)	mg/kg	10																							
	TPH C6 - C10 Fraction	mg/kg	10																							
	TRH >C10-C16 less Naphthalene (F2)	mg/kg	50																							

Table 9. Field Blanks

Lab Report Number	EM1713546	EM1713792	EM1713792	EM1714071	EM1714071	EM1714071	EM1706051	EM1706717	EM1706803	EM1707148	EM1707764	EM1708010	EM1711031	EM1711185	EM1711578	EM1712226	EM1713546	EM1713792	EM1714071	EM1714071
Field ID	RINSATE BLANK	RB/041017	RB/061017	RB/101017	RB/111017	RB/121017	TB/100517	TB/260417	TB/260417	TB260417	TB2/140617	TB1/180617	TRIP BLANK	EM1705381	TB280817	TB070917	TRIP BLANK	TB/041017	TB/101017	TB/101017
Sampled_Date/Time	3/10/2017 15:00	4/10/2017	6/10/2017 15:00	10/10/2017	11/10/2017 15:00	12/10/2017 15:00	10/05/2017	23/05/2017	26/05/2017	2/06/2017	14/06/2017 15:00	18/06/2017 15:00	17/08/2017	21/08/2017	28/08/2017	7/09/2017	3/10/2017 15:00	4/10/2017	10/10/2017	10/10/2017
Sample Type	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Trip_B	Trip_B	Trip_B	Trip_B	Trip_B	Trip_B	Trip_B	Trip_B	Trip_B	Trip_B	Trip_B	Trip_B	Trip_B	Trip_B

Chem_Group	ChemName	Units	EQL																					
WATER SAMPLES																								
BTEX	Benzene	µg/L	1							<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
	Toluene	µg/L	2							<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	
	Ethylbenzene	µg/L	2							<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	
	Xylene (m & p)	µg/L	2							<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	
	Xylene (o)	µg/L	2							<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	
	Xylene Total	µg/L	2							<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	
	Total BTEX	µg/L	1							<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
	Naphthalene	µg/L	1							<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
Metals	Arsenic	µg/l	1	<1	18	<1	<1	<1	<1															
	Cadmium	µg/l	0.1	<0.1	2	<0.1	<0.1	<0.1	<0.1															
	Chromium	µg/l	1	<1	36	<1	<1	<1	<1															
	Cobalt	µg/l	1	<1																				
	Copper	µg/l	1	<1	1	<1	<1	<1	<1															
	Lead	µg/l	1	<1	477	<1	<1	<1	<1															
	Manganese	µg/l	1	<1																				
	Mercury	µg/l	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1															
	Molybdenum	µg/l	1		<1	<1	<1	<1	<1															
	Nickel	µg/l	1	<1	46	<1	<1	<1	<1															
	Selenium	µg/l	10	<10	<10	<10	<10	<10	<10															
	Silver	µg/l	1		<1	<1	<1	<1	<1															
	Tin	µg/l	1		<1	<1	<1	<1	<1															
	Vanadium	µg/l	10	<10																				
	Zinc	µg/l	5	<5	3380	<5	<5	<5	<5															
TPH	+C10 - C36 (Sum of total)	µg/L	50																					
	C6 - C9 Fraction	µg/L	20							<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	
	C6 - C10 Fraction minus BTEX (F1)	µg/L	20							<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	
	TPH C6 - C10 Fraction	µg/L	20							<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	
	TRH >C10-C16 less Naphthalene (F2)	µg/L	100																					
SOIL SAMPLES																								
BTEX	Benzene	mg/kg	0.2																					<0.2
	Toluene	mg/kg	0.5																					<0.5
	Ethylbenzene	mg/kg	0.5																					<0.5
	Xylene (m & p)	mg/kg	0.5																					<0.5
	Xylene (o)	mg/kg	0.5																					<0.5
	Xylene Total	mg/kg	0.5																					<0.5
	Total BTEX	mg/kg	0.2																					<0.2
	Naphthalene																							<0.1
TPH	+C10 - C36 (Sum of total)	mg/kg	50																					<50
	C6 - C9 Fraction	mg/kg	10																					<10
	C10 - C14 Fraction	mg/kg	50																					<50
	C15 - C28 Fraction	mg/kg	100																					<100
	C29-C36 Fraction	mg/kg	100																					<100
TRH	C10 - C16 Fraction	mg/kg	50																					<50
	C16 - C34 Fraction	mg/kg	100																					<100
	C10 - C40 Fraction (Sum)	mg/kg	50																					<50
	C34 - C40 Fraction	mg/kg	100																					<100
	C6 - C10 Fraction minus BTEX (F1)	mg/kg	10																					<10
	TPH C6 - C10 Fraction	mg/kg	10																					<10
	TRH >C10-C16 less Naphthalene (F2)	mg/kg	50																					<50

APPENDIX K

LABORATORY CERTIFICATES

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1713477**	Page	: 1 of 4
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: OLFA NAZARIO	Contact	: Steven McGrath
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9600
Project	: Mordy ASS-PASS Soil Sampling	Date Samples Received	: 28-Sep-2017 16:55
Order number	: ----	Date Analysis Commenced	: 03-Oct-2017
C-O-C number	: 85163	Issue Date	: 10-Oct-2017 16:56
Sampler	: ----		
Site	: ----		
Quote number	: EN/085/17		
No. of samples received	: 9		
No. of samples analysed	: 9		

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This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dianne Blane	Laboratory Coordinator (2IC)	Newcastle - Inorganics, Mayfield West, NSW
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC

General Comments

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Where moisture determination has been performed, results are reported on a dry weight basis.

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LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
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- ASS: EA037 (Rapid Field and F(ox) screening): pH F(ox) Reaction Rate: 1 - Slight; 2 - Moderate; 3 - Strong; 4 - Extreme
- EA037 ASS Field Screening: NATA accreditation does not cover performance of this service.
- ED007 and ED008: When Exchangeable Al is reported from these methods, it should be noted that Rayment & Lyons (2011) suggests Exchange Acidity by 1M KCl - Method 15G1 (ED005) is a more suitable method for the determination of exchange acidity (H+ + Al3+).

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SB34 0.5m	SB34 1m	SB34 1.5m	SB1 0.5m	SB1 1m
			Client sampling date / time	28-Sep-2017 00:00	28-Sep-2017 00:00	28-Sep-2017 00:00	28-Sep-2017 00:00	28-Sep-2017 00:00
Compound	CAS Number	LOR	Unit	EM1713477-001	EM1713477-002	EM1713477-003	EM1713477-004	EM1713477-005
				Result	Result	Result	Result	Result
EA037: Ass Field Screening Analysis								
pH (F)	----	0.1	pH Unit	7.0	5.4	5.2	6.8	6.6
pH (Fox)	----	0.1	pH Unit	5.8	4.4	4.3	5.8	6.0
Reaction Rate	----	1	-	2	2	2	2	1
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	----	----	47	----	39
EA152: Soil Particle Density								
ø Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	----	----	2.58	----	2.66
ED006: Exchangeable Cations on Alkaline Soils								
Exchangeable Calcium	----	0.2	meq/100g	----	----	----	----	7.4
Exchangeable Magnesium	----	0.2	meq/100g	----	----	----	----	6.0
Exchangeable Potassium	----	0.2	meq/100g	----	----	----	----	0.6
Exchangeable Sodium	----	0.2	meq/100g	----	----	----	----	0.6
Cation Exchange Capacity	----	0.2	meq/100g	----	----	----	----	14.7
ED007: Exchangeable Cations								
Exchangeable Calcium	----	0.1	meq/100g	----	----	6.0	----	----
Exchangeable Magnesium	----	0.1	meq/100g	----	----	8.9	----	----
Exchangeable Potassium	----	0.1	meq/100g	----	----	0.2	----	----
Exchangeable Sodium	----	0.1	meq/100g	----	----	1.5	----	----
Cation Exchange Capacity	----	0.1	meq/100g	----	----	16.7	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SB1 1.5m	SB2 0.5m	SB2 1m	SB2 1.5m	----
			Client sampling date / time	28-Sep-2017 00:00	28-Sep-2017 00:00	28-Sep-2017 00:00	28-Sep-2017 00:00	----
Compound	CAS Number	LOR	Unit	EM1713477-006	EM1713477-007	EM1713477-008	EM1713477-009	--------
				Result	Result	Result	Result	----
EA037: Ass Field Screening Analysis								
pH (F)	----	0.1	pH Unit	7.1	7.2	7.3	7.4	----
pH (Fox)	----	0.1	pH Unit	6.0	6.2	6.0	9.4	----
Reaction Rate	----	1	-	2	1	1	4	----
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	----	----	----	14	----
EA152: Soil Particle Density								
ø Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	----	----	----	2.65	----
ED006: Exchangeable Cations on Alkaline Soils								
Exchangeable Calcium	----	0.2	meq/100g	----	----	----	5.3	----
Exchangeable Magnesium	----	0.2	meq/100g	----	----	----	3.1	----
Exchangeable Potassium	----	0.2	meq/100g	----	----	----	0.3	----
Exchangeable Sodium	----	0.2	meq/100g	----	----	----	0.4	----
Cation Exchange Capacity	----	0.2	meq/100g	----	----	----	9.1	----

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1713552**	Page	: 1 of 10
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: OLFA NAZARIO	Contact	: Graeme Jablonskas
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9609
Project	: 2271345A	Date Samples Received	: 03-Oct-2017 15:50
Order number	: ----	Date Analysis Commenced	: 04-Oct-2017
C-O-C number	: 85164-85166	Issue Date	: 11-Oct-2017 16:19
Sampler	: ----		
Site	: Mordialloc Bypass		
Quote number	: EN/008/15		
No. of samples received	: 40		
No. of samples analysed	: 38		

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Dianne Blane	Laboratory Coordinator (2IC)	Newcastle - Inorganics, Mayfield West, NSW
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC

General Comments

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Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	DB2/0.5	DB2/1.0	DB2/1.5	DB2/2.0	DB2/2.5
			Client sampling date / time	03-Oct-2017 00:00	03-Oct-2017 00:00	03-Oct-2017 00:00	03-Oct-2017 00:00	03-Oct-2017 00:00
Compound	CAS Number	LOR	Unit	EM1713552-001	EM1713552-002	EM1713552-003	EM1713552-004	EM1713552-005
				Result	Result	Result	Result	Result
EA037: Ass Field Screening Analysis								
pH (F)	----	0.1	pH Unit	7.7	7.8	8.5	7.5	7.2
pH (Fox)	----	0.1	pH Unit	6.0	6.6	9.4	8.2	5.9
Reaction Rate	----	1	-	2	1	4	4	1
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	----	37	----	----	----
EA152: Soil Particle Density								
ø Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	----	2.65	----	----	----
ED006: Exchangeable Cations on Alkaline Soils								
Exchangeable Calcium	----	0.2	meq/100g	----	13.8	----	----	----
Exchangeable Magnesium	----	0.2	meq/100g	----	8.8	----	----	----
Exchangeable Potassium	----	0.2	meq/100g	----	<0.2	----	----	----
Exchangeable Sodium	----	0.2	meq/100g	----	5.9	----	----	----
Cation Exchange Capacity	----	0.2	meq/100g	----	28.4	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	DB2/3.0	DB2/3.5	DB2/4.0	DB2/4.5	DB2/5.0
			Client sampling date / time	03-Oct-2017 00:00	03-Oct-2017 00:00	03-Oct-2017 00:00	03-Oct-2017 00:00	03-Oct-2017 00:00
Compound	CAS Number	LOR	Unit	EM1713552-006	EM1713552-007	EM1713552-008	EM1713552-009	EM1713552-010
				Result	Result	Result	Result	Result
EA037: Ass Field Screening Analysis								
pH (F)	----	0.1	pH Unit	**6.9**	**6.7**	**7.2**	**7.4**	**6.7**
pH (Fox)	----	0.1	pH Unit	**6.1**	**6.2**	**6.2**	**5.9**	**5.8**
Reaction Rate	----	1	-	**1**	**1**	**1**	**1**	**1**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	DB2/5.5	DB2/6.0	SB35/0.5	SB35/1.0	SB35/1.5
			Client sampling date / time	03-Oct-2017 00:00	03-Oct-2017 00:00	03-Oct-2017 00:00	03-Oct-2017 00:00	03-Oct-2017 00:00
Compound	CAS Number	LOR	Unit	EM1713552-011	EM1713552-012	EM1713552-013	EM1713552-014	EM1713552-015
				Result	Result	Result	Result	Result
EA037: Ass Field Screening Analysis								
pH (F)	----	0.1	pH Unit	**7.0**	**6.6**	**5.6**	**5.7**	**5.2**
pH (Fox)	----	0.1	pH Unit	**5.7**	**5.9**	**4.0**	**3.9**	**4.1**
Reaction Rate	----	1	-	**3**	**1**	**2**	**1**	**2**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SB36/0.5	SB36/1.0	SB36/1.5	SB9/0.5	SB10/0.5
			Client sampling date / time	03-Oct-2017 00:00	03-Oct-2017 00:00	03-Oct-2017 00:00	03-Oct-2017 00:00	03-Oct-2017 00:00
Compound	CAS Number	LOR	Unit	EM1713552-016	EM1713552-017	EM1713552-018	EM1713552-019	EM1713552-022
				Result	Result	Result	Result	Result
EA037: Ass Field Screening Analysis								
pH (F)	----	0.1	pH Unit	5.1	4.9	4.8	7.7	7.5
pH (Fox)	----	0.1	pH Unit	4.3	4.3	4.1	8.1	6.0
Reaction Rate	----	1	-	2	1	1	4	1
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	----	----	----	12	----
EA152: Soil Particle Density								
ø Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	----	----	----	2.70	----
ED006: Exchangeable Cations on Alkaline Soils								
Exchangeable Calcium	----	0.2	meq/100g	----	----	----	15.7	----
Exchangeable Magnesium	----	0.2	meq/100g	----	----	----	9.5	----
Exchangeable Potassium	----	0.2	meq/100g	----	----	----	<0.2	----
Exchangeable Sodium	----	0.2	meq/100g	----	----	----	0.5	----
Cation Exchange Capacity	----	0.2	meq/100g	----	----	----	25.7	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SB10/1.0	SB10/1.5	SB11/0.5	SB11/1.0	SB11/1.5
			Client sampling date / time	03-Oct-2017 00:00	03-Oct-2017 00:00	03-Oct-2017 00:00	03-Oct-2017 00:00	03-Oct-2017 00:00
Compound	CAS Number	LOR	Unit	EM1713552-023	EM1713552-024	EM1713552-025	EM1713552-026	EM1713552-027
				Result	Result	Result	Result	Result
EA037: Ass Field Screening Analysis								
pH (F)	----	0.1	pH Unit	7.5	7.1	7.9	7.9	7.5
pH (Fox)	----	0.1	pH Unit	9.0	8.5	6.2	7.8	7.8
Reaction Rate	----	1	-	4	4	2	4	4
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	50	----	----	46	----
EA152: Soil Particle Density								
ø Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	2.64	----	----	2.66	----
ED006: Exchangeable Cations on Alkaline Soils								
Exchangeable Calcium	----	0.2	meq/100g	21.2	----	----	17.8	----
Exchangeable Magnesium	----	0.2	meq/100g	9.8	----	----	12.3	----
Exchangeable Potassium	----	0.2	meq/100g	<0.2	----	----	<0.2	----
Exchangeable Sodium	----	0.2	meq/100g	4.1	----	----	4.5	----
Cation Exchange Capacity	----	0.2	meq/100g	35.1	----	----	34.6	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SB12/0.5	SB12/1.0	SB12/1.5	SB36/0.7	SB12/0.8
			Client sampling date / time	03-Oct-2017 00:00	03-Oct-2017 00:00	03-Oct-2017 00:00	03-Oct-2017 00:00	03-Oct-2017 00:00
Compound	CAS Number	LOR	Unit	EM1713552-028	EM1713552-029	EM1713552-030	EM1713552-031	EM1713552-032
				Result	Result	Result	Result	Result
EA037: Ass Field Screening Analysis								
pH (F)	----	0.1	pH Unit	8.0	8.4	8.5	----	----
pH (Fox)	----	0.1	pH Unit	5.9	6.3	6.2	----	----
Reaction Rate	----	1	-	2	1	1	----	----
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	----	36	----	43	37
EA152: Soil Particle Density								
ø Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	----	2.66	----	2.60	2.68
ED006: Exchangeable Cations on Alkaline Soils								
Exchangeable Calcium	----	0.2	meq/100g	----	6.7	----	----	6.5
Exchangeable Magnesium	----	0.2	meq/100g	----	9.7	----	----	9.3
Exchangeable Potassium	----	0.2	meq/100g	----	<0.2	----	----	<0.2
Exchangeable Sodium	----	0.2	meq/100g	----	7.9	----	----	7.4
Cation Exchange Capacity	----	0.2	meq/100g	----	24.4	----	----	23.5
ED007: Exchangeable Cations								
Exchangeable Calcium	----	0.1	meq/100g	----	----	----	5.7	----
Exchangeable Magnesium	----	0.1	meq/100g	----	----	----	11.1	----
Exchangeable Potassium	----	0.1	meq/100g	----	----	----	0.2	----
Exchangeable Sodium	----	0.1	meq/100g	----	----	----	1.8	----
Cation Exchange Capacity	----	0.1	meq/100g	----	----	----	18.9	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	DB2/6.5	DB2/7.0	DB2/7.5	DB2/8.0	DB2/8.5
			Client sampling date / time	03-Oct-2017 00:00	03-Oct-2017 00:00	03-Oct-2017 00:00	03-Oct-2017 00:00	03-Oct-2017 00:00
Compound	CAS Number	LOR	Unit	EM1713552-034	EM1713552-035	EM1713552-036	EM1713552-037	EM1713552-038
				Result	Result	Result	Result	Result
EA037: Ass Field Screening Analysis								
pH (F)	----	0.1	pH Unit	**7.2**	**6.9**	**7.3**	**7.0**	**7.2**
pH (Fox)	----	0.1	pH Unit	**5.9**	**5.9**	**5.9**	**5.9**	**5.9**
Reaction Rate	----	1	-	**1**	**1**	**1**	**1**	**1**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	DB2/9.0	DB2/9.5	DB2/10.0	----	----
				Client sampling date / time	03-Oct-2017 00:00	03-Oct-2017 00:00	03-Oct-2017 00:00	----	----
Compound	CAS Number	LOR	Unit		EM1713552-039	EM1713552-040	EM1713552-041	--------	--------
					Result	Result	Result	----	----
EA037: Ass Field Screening Analysis									
pH (F)	----	0.1	pH Unit		**7.1**	**6.8**	**7.0**	**----**	**----**
pH (Fox)	----	0.1	pH Unit		**5.9**	**6.0**	**6.0**	**----**	**----**
Reaction Rate	----	1	-		**1**	**1**	**1**	**----**	**----**

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1713615**	Page	: 1 of 10
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: OLFA NAZARIO	Contact	: Graeme Jablonskas
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9609
Project	: 2271345A	Date Samples Received	: 04-Oct-2017 15:30
Order number	: ----	Date Analysis Commenced	: 04-Oct-2017
C-O-C number	: 85168-85170	Issue Date	: 11-Oct-2017 16:35
Sampler	: ----		
Site	: ----		
Quote number	: EN/008/15		
No. of samples received	: 38		
No. of samples analysed	: 38		

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Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC

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Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	DB1 0.5m	DB1 1m	DB1 1.5m	DB1 2m	DB1 2.5m
			Client sampling date / time	04-Oct-2017 00:00	04-Oct-2017 00:00	04-Oct-2017 00:00	04-Oct-2017 00:00	04-Oct-2017 00:00
Compound	CAS Number	LOR	Unit	EM1713615-001	EM1713615-002	EM1713615-003	EM1713615-004	EM1713615-005
				Result	Result	Result	Result	Result
EA037: Ass Field Screening Analysis								
pH (F)	----	0.1	pH Unit	8.8	8.6	8.5	8.3	7.0
pH (Fox)	----	0.1	pH Unit	9.0	6.5	7.6	9.4	8.9
Reaction Rate	----	1	-	4	3	4	4	4
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	----	----	----	----	40
EA152: Soil Particle Density								
ø Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	----	----	----	----	2.66
ED006: Exchangeable Cations on Alkaline Soils								
Exchangeable Calcium	----	0.2	meq/100g	----	----	----	----	12.5
Exchangeable Magnesium	----	0.2	meq/100g	----	----	----	----	9.4
Exchangeable Potassium	----	0.2	meq/100g	----	----	----	----	<0.2
Exchangeable Sodium	----	0.2	meq/100g	----	----	----	----	3.3
Cation Exchange Capacity	----	0.2	meq/100g	----	----	----	----	25.3

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	DB1 3m	DB1 3.5m	DB1 4.0m	DB1 4.5m	DB1 5.0m
			Client sampling date / time	04-Oct-2017 00:00	04-Oct-2017 00:00	04-Oct-2017 00:00	04-Oct-2017 00:00	04-Oct-2017 00:00
Compound	CAS Number	LOR	Unit	EM1713615-006	EM1713615-007	EM1713615-008	EM1713615-009	EM1713615-010
				Result	Result	Result	Result	Result
EA037: Ass Field Screening Analysis								
pH (F)	----	0.1	pH Unit	**8.0**	**8.0**	**7.5**	**7.4**	**7.7**
pH (Fox)	----	0.1	pH Unit	**6.2**	**6.3**	**8.1**	**7.6**	**8.2**
Reaction Rate	----	1	-	**2**	**2**	**4**	**3**	**4**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	DB1 5.5m	DB1 6.0m	DB1 6.5m	DB1 7m	DB1 7.5m
			Client sampling date / time	04-Oct-2017 00:00	04-Oct-2017 00:00	04-Oct-2017 00:00	04-Oct-2017 00:00	04-Oct-2017 00:00
Compound	CAS Number	LOR	Unit	EM1713615-011	EM1713615-012	EM1713615-013	EM1713615-014	EM1713615-015
				Result	Result	Result	Result	Result
EA037: Ass Field Screening Analysis								
pH (F)	----	0.1	pH Unit	**7.5**	**7.4**	**7.4**	**7.7**	**7.7**
pH (Fox)	----	0.1	pH Unit	**8.1**	**8.5**	**6.2**	**5.9**	**6.1**
Reaction Rate	----	1	-	**4**	**4**	**2**	**2**	**1**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	DB1 8m	DB1 8.5m	DB1 9m	DB1 9.5m	DB1 10m
				Client sampling date / time	04-Oct-2017 00:00	04-Oct-2017 00:00	04-Oct-2017 00:00	04-Oct-2017 00:00	04-Oct-2017 00:00
Compound	CAS Number	LOR	Unit		EM1713615-016	EM1713615-017	EM1713615-018	EM1713615-019	EM1713615-020
					Result	Result	Result	Result	Result
EA037: Ass Field Screening Analysis									
pH (F)	----	0.1	pH Unit		**7.5**	**7.5**	**7.4**	**8.5**	**8.4**
pH (Fox)	----	0.1	pH Unit		**6.4**	**6.2**	**6.1**	**6.8**	**6.5**
Reaction Rate	----	1	-		**1**	**1**	**1**	**1**	**1**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SB13 0.5m	SB13 1m	SB13 1.5m	SB14 0.5m	SB14 1m
			Client sampling date / time	04-Oct-2017 00:00	04-Oct-2017 00:00	04-Oct-2017 00:00	04-Oct-2017 00:00	04-Oct-2017 00:00
Compound	CAS Number	LOR	Unit	EM1713615-021	EM1713615-022	EM1713615-023	EM1713615-024	EM1713615-025
				Result	Result	Result	Result	Result
EA037: Ass Field Screening Analysis								
pH (F)	----	0.1	pH Unit	7.6	8.3	9.2	7.9	8.5
pH (Fox)	----	0.1	pH Unit	5.4	8.6	9.4	8.3	9.3
Reaction Rate	----	1	-	4	4	4	4	4
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	----	36	----	----	41
EA152: Soil Particle Density								
ø Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	----	2.66	----	----	2.67
ED006: Exchangeable Cations on Alkaline Soils								
Exchangeable Calcium	----	0.2	meq/100g	----	14.2	----	----	17.6
Exchangeable Magnesium	----	0.2	meq/100g	----	15.0	----	----	9.8
Exchangeable Potassium	----	0.2	meq/100g	----	<0.2	----	----	<0.2
Exchangeable Sodium	----	0.2	meq/100g	----	8.6	----	----	6.4
Cation Exchange Capacity	----	0.2	meq/100g	----	38.0	----	----	33.8

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SB14 1.5m	SB15 0.5m	SB15 1.0m	SB15 1.5m	SB16 0.5m
			Client sampling date / time	04-Oct-2017 00:00	04-Oct-2017 00:00	04-Oct-2017 00:00	04-Oct-2017 00:00	04-Oct-2017 00:00
Compound	CAS Number	LOR	Unit	EM1713615-026	EM1713615-027	EM1713615-028	EM1713615-029	EM1713615-030
				Result	Result	Result	Result	Result
EA037: Ass Field Screening Analysis								
pH (F)	----	0.1	pH Unit	8.3	8.4	7.8	8.2	7.6
pH (Fox)	----	0.1	pH Unit	8.5	5.8	8.7	9.2	6.2
Reaction Rate	----	1	-	4	3	1	4	2
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	----	----	81	----	----
EA152: Soil Particle Density								
ø Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	----	----	2.71	----	----
ED006: Exchangeable Cations on Alkaline Soils								
Exchangeable Calcium	----	0.2	meq/100g	----	----	25.3	----	----
Exchangeable Magnesium	----	0.2	meq/100g	----	----	17.1	----	----
Exchangeable Potassium	----	0.2	meq/100g	----	----	<0.2	----	----
Exchangeable Sodium	----	0.2	meq/100g	----	----	9.0	----	----
Cation Exchange Capacity	----	0.2	meq/100g	----	----	51.6	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SB16 1m	SB16 1.5m	SB17 0.5m	SB17 1.0m	SB17 1.5m
			Client sampling date / time	04-Oct-2017 00:00	04-Oct-2017 00:00	04-Oct-2017 00:00	04-Oct-2017 00:00	04-Oct-2017 00:00
Compound	CAS Number	LOR	Unit	EM1713615-031	EM1713615-032	EM1713615-033	EM1713615-034	EM1713615-035
				Result	Result	Result	Result	Result
EA037: Ass Field Screening Analysis								
pH (F)	----	0.1	pH Unit	7.7	7.6	8.0	7.8	7.7
pH (Fox)	----	0.1	pH Unit	6.8	6.3	6.6	6.5	6.5
Reaction Rate	----	1	-	1	2	3	2	1
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	48	----	----	65	----
EA152: Soil Particle Density								
ø Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	2.67	----	----	2.64	----
ED006: Exchangeable Cations on Alkaline Soils								
Exchangeable Calcium	----	0.2	meq/100g	20.4	----	----	17.8	----
Exchangeable Magnesium	----	0.2	meq/100g	19.7	----	----	17.3	----
Exchangeable Potassium	----	0.2	meq/100g	<0.2	----	----	0.2	----
Exchangeable Sodium	----	0.2	meq/100g	7.4	----	----	8.9	----
Cation Exchange Capacity	----	0.2	meq/100g	47.6	----	----	44.2	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SB3 0.5m	SB3 1m	SB3 1.5m	----	----
			Client sampling date / time	04-Oct-2017 00:00	04-Oct-2017 00:00	04-Oct-2017 00:00	----	----
Compound	CAS Number	LOR	Unit	EM1713615-036	EM1713615-037	EM1713615-038	--------	--------
				Result	Result	Result	----	----
EA037: Ass Field Screening Analysis								
pH (F)	----	0.1	pH Unit	7.5	7.7	7.8	----	----
pH (Fox)	----	0.1	pH Unit	5.8	6.6	6.1	----	----
Reaction Rate	----	1	-	2	2	2	----	----
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	----	50	----	----	----
EA152: Soil Particle Density								
ø Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	----	2.67	----	----	----
ED006: Exchangeable Cations on Alkaline Soils								
Exchangeable Calcium	----	0.2	meq/100g	----	2.1	----	----	----
Exchangeable Magnesium	----	0.2	meq/100g	----	6.1	----	----	----
Exchangeable Potassium	----	0.2	meq/100g	----	<0.2	----	----	----
Exchangeable Sodium	----	0.2	meq/100g	----	3.4	----	----	----
Cation Exchange Capacity	----	0.2	meq/100g	----	11.6	----	----	----

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1713691**	Page	: 1 of 13
Amendment	: **1**		
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: OLFA NAZARIO	Contact	: Graeme Jablonskas
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9609
Project	: 2217345A	Date Samples Received	: 05-Oct-2017 20:15
Order number	: ----	Date Analysis Commenced	: 05-Oct-2017
C-O-C number	: 85171-85175	Issue Date	: 12-Dec-2017 10:31
Sampler	: ----		
Site	: Modialloc Bypass		
Quote number	: EN/008/15		
No. of samples received	: 54		
No. of samples analysed	: 54		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dianne Blane	Laboratory Coordinator (2IC)	Newcastle - Inorganics, Mayfield West, NSW
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Amendment (12/12/2017): This report has been amended and re-released to allow the reporting of additional analytical data.
- ASS: EA037 (Rapid Field and F(ox) screening): pH F(ox) Reaction Rate: 1 - Slight; 2 - Moderate; 3 - Strong; 4 - Extreme
- EA037 ASS Field Screening: NATA accreditation does not cover performance of this service.
- ED007 and ED008: When Exchangeable Al is reported from these methods, it should be noted that Rayment & Lyons (2011) suggests Exchange Acidity by 1M KCl - Method 15G1 (ED005) is a more suitable method for the determination of exchange acidity (H+ + Al3+).

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SB4/0.5m	SB4/1m	SB4/1.5m	SB5/0.5m	SB5/1m
			Client sampling date / time	05-Oct-2017 00:00	05-Oct-2017 00:00	05-Oct-2017 00:00	05-Oct-2017 00:00	05-Oct-2017 00:00
Compound	CAS Number	LOR	Unit	EM1713691-001	EM1713691-002	EM1713691-003	EM1713691-004	EM1713691-005
				Result	Result	Result	Result	Result
EA037: Ass Field Screening Analysis								
pH (F)	----	0.1	pH Unit	6.4	6.6	6.4	5.9	7.2
pH (Fox)	----	0.1	pH Unit	4.5	4.7	4.8	3.3	5.3
Reaction Rate	----	1	-	1	1	1	2	2
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	----	24	----	----	----
EA152: Soil Particle Density								
ø Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	----	2.64	----	----	----
ED007: Exchangeable Cations								
Exchangeable Calcium	----	0.1	meq/100g	----	1.5	----	----	----
Exchangeable Magnesium	----	0.1	meq/100g	----	1.9	----	----	----
Exchangeable Potassium	----	0.1	meq/100g	----	0.3	----	----	----
Exchangeable Sodium	----	0.1	meq/100g	----	0.3	----	----	----
Cation Exchange Capacity	----	0.1	meq/100g	----	4.0	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SB5/1.5m	SB6/0.5m	SB6/1m	SB6/1.5m	SB5/1.4m
			Client sampling date / time	05-Oct-2017 00:00	05-Oct-2017 00:00	05-Oct-2017 00:00	05-Oct-2017 00:00	05-Oct-2017 00:00
Compound	CAS Number	LOR	Unit	EM1713691-006	EM1713691-007	EM1713691-008	EM1713691-009	EM1713691-010
				Result	Result	Result	Result	Result
EA037: Ass Field Screening Analysis								
pH (F)	----	0.1	pH Unit	8.3	7.4	7.8	8.5	----
pH (Fox)	----	0.1	pH Unit	6.6	5.2	4.4	7.1	----
Reaction Rate	----	1	-	2	1	1	4	----
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	----	----	----	----	44
EA152: Soil Particle Density								
ø Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	----	----	----	----	2.67
ED006: Exchangeable Cations on Alkaline Soils								
Exchangeable Calcium	----	0.2	meq/100g	----	----	----	----	4.5
Exchangeable Magnesium	----	0.2	meq/100g	----	----	----	----	7.7
Exchangeable Potassium	----	0.2	meq/100g	----	----	----	----	<0.2
Exchangeable Sodium	----	0.2	meq/100g	----	----	----	----	6.2
Cation Exchange Capacity	----	0.2	meq/100g	----	----	----	----	18.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SB6/1.4m	DB3/0.5m	DB3/1m	DB3/1.5m	DB3/2m
			Client sampling date / time	05-Oct-2017 00:00	05-Oct-2017 00:00	05-Oct-2017 00:00	05-Oct-2017 00:00	05-Oct-2017 00:00
Compound	CAS Number	LOR	Unit	EM1713691-011	EM1713691-012	EM1713691-013	EM1713691-014	EM1713691-015
				Result	Result	Result	Result	Result
EA037: Ass Field Screening Analysis								
pH (F)	----	0.1	pH Unit	----	5.8	5.5	5.3	6.0
pH (Fox)	----	0.1	pH Unit	----	4.4	4.3	4.5	4.7
Reaction Rate	----	1	-	----	1	1	1	1
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	39	----	----	----	----
EA152: Soil Particle Density								
ø Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	2.63	----	----	----	----
ED006: Exchangeable Cations on Alkaline Soils								
Exchangeable Calcium	----	0.2	meq/100g	3.6	----	----	----	----
Exchangeable Magnesium	----	0.2	meq/100g	5.7	----	----	----	----
Exchangeable Potassium	----	0.2	meq/100g	0.4	----	----	----	----
Exchangeable Sodium	----	0.2	meq/100g	2.7	----	----	----	----
Cation Exchange Capacity	----	0.2	meq/100g	12.4	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	DB3/2.5m	DB3/3m	DB3/3.5m	DB3/4m	DB3/4.5m
				Client sampling date / time	05-Oct-2017 00:00	05-Oct-2017 00:00	05-Oct-2017 00:00	05-Oct-2017 00:00	05-Oct-2017 00:00
Compound	CAS Number	LOR	Unit		EM1713691-016	EM1713691-017	EM1713691-018	EM1713691-019	EM1713691-020
					Result	Result	Result	Result	Result
EA037: Ass Field Screening Analysis									
pH (F)	----	0.1	pH Unit		6.3	6.6	7.4	8.6	8.4
pH (Fox)	----	0.1	pH Unit		4.9	4.8	7.4	8.8	7.6
Reaction Rate	----	1	-		1	1	3	4	4
EA150: Soil Classification based on Particle Size									
Clay (<2 µm)	----	1	%		72	----	----	----	----
EA152: Soil Particle Density									
ø Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3		2.52	----	----	----	----
ED008: Exchangeable Cations									
Exchangeable Calcium	----	0.1	meq/100g		2.6	----	----	----	----
Exchangeable Magnesium	----	0.1	meq/100g		4.2	----	----	----	----
Exchangeable Potassium	----	0.1	meq/100g		0.3	----	----	----	----
Exchangeable Sodium	----	0.1	meq/100g		1.3	----	----	----	----
Cation Exchange Capacity	----	0.1	meq/100g		8.4	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	DB3/5m	DB3/5.5m	DB3/6m	DB3/6.5m	DB3/7m
			Client sampling date / time	05-Oct-2017 00:00	05-Oct-2017 00:00	05-Oct-2017 00:00	05-Oct-2017 00:00	05-Oct-2017 00:00
Compound	CAS Number	LOR	Unit	EM1713691-021	EM1713691-022	EM1713691-023	EM1713691-024	EM1713691-025
				Result	Result	Result	Result	Result
EA037: Ass Field Screening Analysis								
pH (F)	----	0.1	pH Unit	**8.5**	**8.5**	**8.4**	**6.9**	**6.2**
pH (Fox)	----	0.1	pH Unit	**6.8**	**7.6**	**7.8**	**8.7**	**8.3**
Reaction Rate	----	1	-	**2**	**2**	**4**	**4**	**4**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	DB3/7.5m	DB3/8m	DB3/8.5m	DB3/9m	DB3/9.5m
				Client sampling date / time	05-Oct-2017 00:00	05-Oct-2017 00:00	05-Oct-2017 00:00	05-Oct-2017 00:00	05-Oct-2017 00:00
Compound	CAS Number	LOR	Unit		EM1713691-026	EM1713691-027	EM1713691-028	EM1713691-029	EM1713691-030
					Result	Result	Result	Result	Result
EA037: Ass Field Screening Analysis									
pH (F)	----	0.1	pH Unit		**6.3**	**8.1**	**8.3**	**8.1**	**7.6**
pH (Fox)	----	0.1	pH Unit		**8.0**	**7.1**	**7.1**	**7.5**	**5.7**
Reaction Rate	----	1	-		**3**	**3**	**3**	**4**	**2**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	DB3/10m	SB20/0.5m	SB20/1m	SB20/1.5m	SB21/0.5m
			Client sampling date / time	05-Oct-2017 00:00	05-Oct-2017 00:00	05-Oct-2017 00:00	05-Oct-2017 00:00	05-Oct-2017 00:00
Compound	CAS Number	LOR	Unit	EM1713691-031	EM1713691-032	EM1713691-033	EM1713691-034	EM1713691-035
				Result	Result	Result	Result	Result
EA037: Ass Field Screening Analysis								
pH (F)	----	0.1	pH Unit	6.9	5.2	5.1	5.6	5.1
pH (Fox)	----	0.1	pH Unit	4.2	3.9	3.6	4.3	3.9
Reaction Rate	----	1	-	3	1	1	3	2
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	----	----	65	----	----
EA152: Soil Particle Density								
ø Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	----	----	2.56	----	----
ED008: Exchangeable Cations								
Exchangeable Calcium	----	0.1	meq/100g	----	----	2.3	----	----
Exchangeable Magnesium	----	0.1	meq/100g	----	----	4.7	----	----
Exchangeable Potassium	----	0.1	meq/100g	----	----	0.1	----	----
Exchangeable Sodium	----	0.1	meq/100g	----	----	1.6	----	----
Cation Exchange Capacity	----	0.1	meq/100g	----	----	8.7	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SB21/1m	SB21/1.3m	SB21/1.5m	SB22/0.5m	SB22/1m
			Client sampling date / time	05-Oct-2017 00:00	05-Oct-2017 00:00	05-Oct-2017 00:00	05-Oct-2017 00:00	05-Oct-2017 00:00
Compound	CAS Number	LOR	Unit	EM1713691-036	EM1713691-037	EM1713691-038	EM1713691-039	EM1713691-040
				Result	Result	Result	Result	Result
EA037: Ass Field Screening Analysis								
pH (F)	----	0.1	pH Unit	5.2	----	5.5	5.4	5.1
pH (Fox)	----	0.1	pH Unit	3.8	----	4.0	3.8	3.8
Reaction Rate	----	1	-	1	----	1	2	1
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	----	64	----	----	----
EA152: Soil Particle Density								
ø Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	----	2.50	----	----	----
ED008: Exchangeable Cations								
Exchangeable Calcium	----	0.1	meq/100g	----	2.9	----	----	----
Exchangeable Magnesium	----	0.1	meq/100g	----	5.3	----	----	----
Exchangeable Potassium	----	0.1	meq/100g	----	0.2	----	----	----
Exchangeable Sodium	----	0.1	meq/100g	----	0.8	----	----	----
Cation Exchange Capacity	----	0.1	meq/100g	----	9.2	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SB22/1.4m	SB22/1.5m	SB23/0.5m	SB23/1m	SB23/1.2m
			Client sampling date / time	05-Oct-2017 00:00	05-Oct-2017 00:00	05-Oct-2017 00:00	05-Oct-2017 00:00	05-Oct-2017 00:00
Compound	CAS Number	LOR	Unit	EM1713691-041	EM1713691-042	EM1713691-043	EM1713691-044	EM1713691-045
				Result	Result	Result	Result	Result
EA037: Ass Field Screening Analysis								
pH (F)	----	0.1	pH Unit	----	5.1	5.6	5.4	----
pH (Fox)	----	0.1	pH Unit	----	3.7	4.0	4.0	----
Reaction Rate	----	1	-	----	1	2	3	----
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	59	----	----	----	24
EA152: Soil Particle Density								
ø Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	2.59	----	----	----	2.62
ED008: Exchangeable Cations								
Exchangeable Calcium	----	0.1	meq/100g	7.3	----	----	----	4.2
Exchangeable Magnesium	----	0.1	meq/100g	13.4	----	----	----	7.0
Exchangeable Potassium	----	0.1	meq/100g	0.2	----	----	----	0.1
Exchangeable Sodium	----	0.1	meq/100g	0.9	----	----	----	0.4
Cation Exchange Capacity	----	0.1	meq/100g	21.8	----	----	----	11.7

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SB23/1.5m	SB38/0.5m	SB38/1m	SB38 1.4m	SB38 1.5m
			Client sampling date / time	05-Oct-2017 00:00	05-Oct-2017 00:00	05-Oct-2017 00:00	05-Oct-2017 00:00	05-Oct-2017 00:00
Compound	CAS Number	LOR	Unit	EM1713691-046	EM1713691-047	EM1713691-048	EM1713691-049	EM1713691-050
				Result	Result	Result	Result	Result
EA037: Ass Field Screening Analysis								
pH (F)	----	0.1	pH Unit	5.3	6.1	5.0	----	5.4
pH (Fox)	----	0.1	pH Unit	4.0	4.3	3.2	----	4.1
Reaction Rate	----	1	-	1	1	2	----	1
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	----	----	----	35	----
EA152: Soil Particle Density								
ø Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	----	----	----	2.53	----
ED007: Exchangeable Cations								
Exchangeable Calcium	----	0.1	meq/100g	----	----	----	4.5	----
Exchangeable Magnesium	----	0.1	meq/100g	----	----	----	8.2	----
Exchangeable Potassium	----	0.1	meq/100g	----	----	----	0.2	----
Exchangeable Sodium	----	0.1	meq/100g	----	----	----	1.2	----
Cation Exchange Capacity	----	0.1	meq/100g	----	----	----	14.1	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SB37 0.5m	SB37 1m	SB37 1.2m	SB37 1.5m	----
			Client sampling date / time	05-Oct-2017 00:00	05-Oct-2017 00:00	05-Oct-2017 00:00	05-Oct-2017 00:00	----
Compound	CAS Number	LOR	Unit	EM1713691-051	EM1713691-052	EM1713691-053	EM1713691-054	--------
				Result	Result	Result	Result	----
EA037: Ass Field Screening Analysis								
pH (F)	----	0.1	pH Unit	5.8	5.0	----	4.9	----
pH (Fox)	----	0.1	pH Unit	3.9	3.9	----	3.8	----
Reaction Rate	----	1	-	2	1	----	1	----
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	----	----	55	----	----
EA152: Soil Particle Density								
ø Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	----	----	2.49	----	----
ED008: Exchangeable Cations								
Exchangeable Calcium	----	0.1	meq/100g	----	----	6.3	----	----
Exchangeable Magnesium	----	0.1	meq/100g	----	----	12.2	----	----
Exchangeable Potassium	----	0.1	meq/100g	----	----	0.2	----	----
Exchangeable Sodium	----	0.1	meq/100g	----	----	1.1	----	----
Cation Exchange Capacity	----	0.1	meq/100g	----	----	19.8	----	----

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1713982**	Page	: 1 of 6
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: OLFA NAZARIO	Contact	: Graeme Jablonskas
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9609
Project	: 2217345A	Date Samples Received	: 11-Oct-2017 17:00
Order number	: ----	Date Analysis Commenced	: 13-Oct-2017
C-O-C number	: 85176-7	Issue Date	: 18-Oct-2017 16:50
Sampler	: ----		
Site	: ----		
Quote number	: EN/008/15		
No. of samples received	: 18		
No. of samples analysed	: 18		

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Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dianne Blane	Laboratory Coordinator (2IC)	Newcastle - Inorganics, Mayfield West, NSW
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- ASS: EA037 (Rapid Field and F(ox) screening): pH F(ox) Reaction Rate: 1 - Slight; 2 - Moderate; 3 - Strong; 4 - Extreme
- EA037 ASS Field Screening: NATA accreditation does not cover performance of this service.
- ED007 and ED008: When Exchangeable Al is reported from these methods, it should be noted that Rayment & Lyons (2011) suggests Exchange Acidity by 1M KCl - Method 15G1 (ED005) is a more suitable method for the determination of exchange acidity (H+ + Al3+).

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SB24 0.5m	SB24 1m	SB24 1.5m	SB25 0.5m	SB25 1m
			Client sampling date / time	11-Oct-2017 00:00	11-Oct-2017 00:00	11-Oct-2017 00:00	11-Oct-2017 00:00	11-Oct-2017 00:00
Compound	CAS Number	LOR	Unit	EM1713982-001	EM1713982-002	EM1713982-003	EM1713982-004	EM1713982-005
				Result	Result	Result	Result	Result
EA037: Ass Field Screening Analysis								
pH (F)	----	0.1	pH Unit	5.9	7.2	7.7	5.7	6.7
pH (Fox)	----	0.1	pH Unit	4.6	5.2	5.3	2.9	4.2
Reaction Rate	----	1	-	1	1	1	1	1
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	----	32	----	----	23
EA152: Soil Particle Density								
ø Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	----	2.65	----	----	2.61
ED006: Exchangeable Cations on Alkaline Soils								
Exchangeable Calcium	----	0.2	meq/100g	----	10.0	----	----	4.3
Exchangeable Magnesium	----	0.2	meq/100g	----	8.0	----	----	5.6
Exchangeable Potassium	----	0.2	meq/100g	----	<0.2	----	----	<0.2
Exchangeable Sodium	----	0.2	meq/100g	----	2.2	----	----	1.1
Cation Exchange Capacity	----	0.2	meq/100g	----	20.5	----	----	11.0

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SB25 1.5m	SB26 0.5m	SB26 1m	SB26 1.1m	SB26 1.5m
			Client sampling date / time	11-Oct-2017 00:00	11-Oct-2017 00:00	11-Oct-2017 00:00	11-Oct-2017 00:00	11-Oct-2017 00:00
Compound	CAS Number	LOR	Unit	EM1713982-006	EM1713982-007	EM1713982-008	EM1713982-009	EM1713982-010
				Result	Result	Result	Result	Result
EA037: Ass Field Screening Analysis								
pH (F)	----	0.1	pH Unit	6.7	5.9	5.2	----	4.8
pH (Fox)	----	0.1	pH Unit	2.6	3.7	3.8	----	4.1
Reaction Rate	----	1	-	1	2	1	----	2
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	----	----	----	49	----
EA152: Soil Particle Density								
ø Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	----	----	----	2.58	----
ED008: Exchangeable Cations								
Exchangeable Calcium	----	0.1	meq/100g	----	----	----	5.7	----
Exchangeable Magnesium	----	0.1	meq/100g	----	----	----	9.7	----
Exchangeable Potassium	----	0.1	meq/100g	----	----	----	0.2	----
Exchangeable Sodium	----	0.1	meq/100g	----	----	----	0.7	----
Cation Exchange Capacity	----	0.1	meq/100g	----	----	----	16.3	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SB27 0.5m	SB27 1m	SB27 1.3m	SB27 1.5m	SB28 0.5m
			Client sampling date / time	11-Oct-2017 00:00	11-Oct-2017 00:00	11-Oct-2017 00:00	11-Oct-2017 00:00	11-Oct-2017 00:00
Compound	CAS Number	LOR	Unit	EM1713982-011	EM1713982-012	EM1713982-013	EM1713982-014	EM1713982-015
				Result	Result	Result	Result	Result
EA037: Ass Field Screening Analysis								
pH (F)	----	0.1	pH Unit	5.5	5.3	----	4.8	5.5
pH (Fox)	----	0.1	pH Unit	3.8	3.8	----	3.7	4.3
Reaction Rate	----	1	-	2	2	----	1	1
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	----	----	37	----	----
EA152: Soil Particle Density								
ø Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	----	----	2.60	----	----
ED008: Exchangeable Cations								
Exchangeable Calcium	----	0.1	meq/100g	----	----	4.7	----	----
Exchangeable Magnesium	----	0.1	meq/100g	----	----	9.6	----	----
Exchangeable Potassium	----	0.1	meq/100g	----	----	0.2	----	----
Exchangeable Sodium	----	0.1	meq/100g	----	----	0.7	----	----
Cation Exchange Capacity	----	0.1	meq/100g	----	----	15.1	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SB28 0.9m	SB28 1m	SB28 1.5m	----	----
				Client sampling date / time	11-Oct-2017 00:00	11-Oct-2017 00:00	11-Oct-2017 00:00	----	----
Compound	CAS Number	LOR	Unit		EM1713982-016	EM1713982-017	EM1713982-018	--------	--------
					Result	Result	Result	----	----
EA037: Ass Field Screening Analysis									
pH (F)	----	0.1	pH Unit		----	5.7	6.0	----	----
pH (Fox)	----	0.1	pH Unit		----	4.5	4.5	----	----
Reaction Rate	----	1	-		----	1	1	----	----
EA150: Soil Classification based on Particle Size									
Clay (<2 µm)	----	1	%		39	----	----	----	----
EA152: Soil Particle Density									
ø Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3		2.62	----	----	----	----
ED007: Exchangeable Cations									
Exchangeable Calcium	----	0.1	meq/100g		8.1	----	----	----	----
Exchangeable Magnesium	----	0.1	meq/100g		16.6	----	----	----	----
Exchangeable Potassium	----	0.1	meq/100g		0.4	----	----	----	----
Exchangeable Sodium	----	0.1	meq/100g		2.5	----	----	----	----
Cation Exchange Capacity	----	0.1	meq/100g		27.6	----	----	----	----

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1714173**	Page	: 1 of 11
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: OLFA NAZARIO	Contact	: Graeme Jablonskas
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9609
Project	: 2271345A	Date Samples Received	: 13-Oct-2017 15:30
Order number	: ----	Date Analysis Commenced	: 16-Oct-2017
C-O-C number	: 85184	Issue Date	: 20-Oct-2017 16:31
Sampler	: ----		
Site	: Mordialloc Bypass		
Quote number	: ME/423/17		
No. of samples received	: 41		
No. of samples analysed	: 41		

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Signatories	*Position*	*Accreditation Category*
Dianne Blane	Laboratory Coordinator (2IC)	Newcastle - Inorganics, Mayfield West, NSW
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC

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- EA037 ASS Field Screening: NATA accreditation does not cover performance of this service.
- ED007 and ED008: When Exchangeable Al is reported from these methods, it should be noted that Rayment & Lyons (2011) suggests Exchange Acidity by 1M KCl - Method 15G1 (ED005) is a more suitable method for the determination of exchange acidity (H+ + Al3+).

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	DB4 0.5m	DB4 1.0m	DB4 1.5m	DB4 1.9m	DB4 2.0m
			Client sampling date / time	13-Oct-2017 00:00	13-Oct-2017 00:00	13-Oct-2017 00:00	13-Oct-2017 00:00	13-Oct-2017 00:00
Compound	CAS Number	LOR	Unit	EM1714173-001	EM1714173-002	EM1714173-003	EM1714173-004	EM1714173-005
				Result	Result	Result	Result	Result
EA037: Ass Field Screening Analysis								
pH (F)	----	0.1	pH Unit	5.4	5.3	5.1	----	5.2
pH (Fox)	----	0.1	pH Unit	4.5	4.2	3.9	----	3.9
Reaction Rate	----	1	-	2	2	2	----	1
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	----	----	----	29	----
EA152: Soil Particle Density								
ø Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	----	----	----	2.64	----
ED007: Exchangeable Cations								
Exchangeable Calcium	----	0.1	meq/100g	----	----	----	3.6	----
Exchangeable Magnesium	----	0.1	meq/100g	----	----	----	7.1	----
Exchangeable Potassium	----	0.1	meq/100g	----	----	----	0.1	----
Exchangeable Sodium	----	0.1	meq/100g	----	----	----	2.1	----
Cation Exchange Capacity	----	0.1	meq/100g	----	----	----	13.0	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	DB4 2.5m	DB4 3.0m	DB4 3.5m	DB4 4.0m	DB4 4.5m
				Client sampling date / time	13-Oct-2017 00:00	13-Oct-2017 00:00	13-Oct-2017 00:00	13-Oct-2017 00:00	13-Oct-2017 00:00
Compound	CAS Number	LOR	Unit		EM1714173-006	EM1714173-007	EM1714173-008	EM1714173-009	EM1714173-010
					Result	Result	Result	Result	Result
EA037: Ass Field Screening Analysis									
pH (F)	----	0.1	pH Unit		**6.0**	**6.3**	**6.1**	**6.2**	**6.1**
pH (Fox)	----	0.1	pH Unit		**4.8**	**2.3**	**1.3**	**2.2**	**2.2**
Reaction Rate	----	1	-		**2**	**4**	**3**	**4**	**4**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	DB4 5.0m	DB4 5.5m	DB4 6.0m	DB4 6.5m	DB4 7.0m
			Client sampling date / time	13-Oct-2017 00:00	13-Oct-2017 00:00	13-Oct-2017 00:00	13-Oct-2017 00:00	13-Oct-2017 00:00
Compound	CAS Number	LOR	Unit	EM1714173-011	EM1714173-012	EM1714173-013	EM1714173-014	EM1714173-015
				Result	Result	Result	Result	Result
EA037: Ass Field Screening Analysis								
pH (F)	----	0.1	pH Unit	**7.2**	**7.8**	**8.1**	**8.2**	**8.4**
pH (Fox)	----	0.1	pH Unit	**2.4**	**8.0**	**8.1**	**8.6**	**8.8**
Reaction Rate	----	1	-	**4**	**4**	**4**	**4**	**4**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	DB4 7.5m	DB4 8.0m	DB4 8.5m	DB4 9.0m	DB4 9.5m
				Client sampling date / time	13-Oct-2017 00:00	13-Oct-2017 00:00	13-Oct-2017 00:00	13-Oct-2017 00:00	13-Oct-2017 00:00
Compound	CAS Number	LOR	Unit		EM1714173-016	EM1714173-017	EM1714173-018	EM1714173-019	EM1714173-020
					Result	Result	Result	Result	Result
EA037: Ass Field Screening Analysis									
pH (F)	----	0.1	pH Unit		**8.8**	**8.4**	**8.2**	**8.4**	**8.0**
pH (Fox)	----	0.1	pH Unit		**9.0**	**8.4**	**8.4**	**8.0**	**6.1**
Reaction Rate	----	1	-		**4**	**4**	**4**	**4**	**2**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	DB4 10.0m	DB4 10.5m	DB4 11.0m	DB4 11.5m	DB4 12.0m
			Client sampling date / time	13-Oct-2017 00:00	13-Oct-2017 00:00	13-Oct-2017 00:00	13-Oct-2017 00:00	13-Oct-2017 00:00
Compound	CAS Number	LOR	Unit	EM1714173-021	EM1714173-022	EM1714173-023	EM1714173-024	EM1714173-025
				Result	Result	Result	Result	Result
EA037: Ass Field Screening Analysis								
pH (F)	----	0.1	pH Unit	**8.3**	**7.9**	**8.0**	**7.8**	**8.0**
pH (Fox)	----	0.1	pH Unit	**6.2**	**5.6**	**6.0**	**5.6**	**5.6**
Reaction Rate	----	1	-	**2**	**2**	**1**	**2**	**2**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	DB4 12.5m	DB4 13.0m	DB4 13.5m	DB4 14.0m	DB4 14.5m
			Client sampling date / time	13-Oct-2017 00:00	13-Oct-2017 00:00	13-Oct-2017 00:00	13-Oct-2017 00:00	13-Oct-2017 00:00
Compound	CAS Number	LOR	Unit	EM1714173-026	EM1714173-027	EM1714173-028	EM1714173-029	EM1714173-030
				Result	Result	Result	Result	Result
EA037: Ass Field Screening Analysis								
pH (F)	----	0.1	pH Unit	**7.6**	**8.1**	**7.9**	**7.8**	**7.8**
pH (Fox)	----	0.1	pH Unit	**5.7**	**4.1**	**4.9**	**6.4**	**5.9**
Reaction Rate	----	1	-	**2**	**2**	**2**	**1**	**2**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	DB4 15.0m	DB4 15.5m	DB4 16.0m	DB4 16.5m	DB4 17.0m
			Client sampling date / time	13-Oct-2017 00:00	13-Oct-2017 00:00	13-Oct-2017 00:00	13-Oct-2017 00:00	13-Oct-2017 00:00
Compound	CAS Number	LOR	Unit	EM1714173-031	EM1714173-032	EM1714173-033	EM1714173-034	EM1714173-035
				Result	Result	Result	Result	Result
EA037: Ass Field Screening Analysis								
pH (F)	----	0.1	pH Unit	**7.8**	**7.5**	**7.3**	**7.0**	**7.2**
pH (Fox)	----	0.1	pH Unit	**5.9**	**7.2**	**6.9**	**6.4**	**7.0**
Reaction Rate	----	1	-	**1**	**4**	**4**	**4**	**4**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	DB4 17.5m	DB4 18.0m	DB4 18.5m	DB4 19.0m	DB4 19.5m
			Client sampling date / time	13-Oct-2017 00:00	13-Oct-2017 00:00	13-Oct-2017 00:00	13-Oct-2017 00:00	13-Oct-2017 00:00
Compound	CAS Number	LOR	Unit	EM1714173-036	EM1714173-037	EM1714173-038	EM1714173-039	EM1714173-040
				Result	Result	Result	Result	Result
EA037: Ass Field Screening Analysis								
pH (F)	----	0.1	pH Unit	**7.2**	**7.6**	**7.3**	**7.4**	**7.4**
pH (Fox)	----	0.1	pH Unit	**6.9**	**5.2**	**7.2**	**5.9**	**5.6**
Reaction Rate	----	1	-	**4**	**2**	**4**	**2**	**2**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	DB4 20.0m	----	-----	-----	----
			Client sampling date / time	13-Oct-2017 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EM1714173-041	--------	--------	--------	--------
				Result	----	----	----	----
EA037: Ass Field Screening Analysis								
pH (F)	----	0.1	pH Unit	**7.5**	----	----	----	----
pH (Fox)	----	0.1	pH Unit	**5.5**	----	----	----	----
Reaction Rate	----	1	-	**4**	----	----	----	----

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1715489**	Page	: 1 of 24
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: OLFA NAZARIO	Contact	: Graeme Jablonskas
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9609
Project	: Mordy ASS-PASS Soil Sampling	Date Samples Received	: 27-Sep-2017 16:45
Order number	: ----	Date Analysis Commenced	: 24-Nov-2017
C-O-C number	: ----	Issue Date	: 27-Nov-2017 16:25
Sampler	: ----		
Site	: ----		
Quote number	: EN/008/15		
No. of samples received	: 55		
No. of samples analysed	: 55		

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ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ben Felgendrejeris		Brisbane Acid Sulphate Soils, Stafford, QLD

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- **This is a rebatch of EM1713362, EM1713477, EM1713552, EM1713615, EM1713691, EM1713982, EM1714066 & EM1714173**
- ASS: EA029 (SPOCAS): Retained Acidity not required because pH KCl greater than or equal to 4.5
- ASS: EA029 (SPOCAS): Liming rate is calculated and reported on a dry weight basis assuming use of fine agricultural lime ($CaCO_3$) and using a safety factor of 1.5 to allow for non-homogeneous mixing and poor reactivity of lime. For conversion of Liming Rate from kg/t dry weight to kg/m3 in-situ soil, multiply reported results x wet bulk density of soil in t/m3.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SB18 0.5m	SB19 0.5m	SB1 1.5m	SB2 1m	SB34 1m
			Client sampling date / time	27-Sep-2017 00:00	27-Sep-2017 00:00	28-Sep-2017 00:00	28-Sep-2017 00:00	28-Sep-2017 00:00
Compound	CAS Number	LOR	Unit	EM1715489-001	EM1715489-002	EM1715489-003	EM1715489-004	EM1715489-005
				Result	Result	Result	Result	Result
EA029-A: pH Measurements								
pH KCl (23A)	----	0.1	pH Unit	**6.2**	**5.8**	**6.3**	**6.2**	**5.1**
pH OX (23B)	----	0.1	pH Unit	**4.6**	**5.0**	**6.4**	**6.2**	**5.1**
EA029-B: Acidity Trail								
Titratable Actual Acidity (23F)	----	2	mole H+ / t	**2**	**5**	<2	<2	**16**
Titratable Peroxide Acidity (23G)	----	2	mole H+ / t	**2**	<2	**3**	**2**	<2
Titratable Sulfidic Acidity (23H)	----	2	mole H+ / t	<2	<2	**3**	**2**	<2
sulfidic - Titratable Actual Acidity (s-23F)	----	0.020	% pyrite S	<0.020	<0.020	<0.020	<0.020	**0.026**
sulfidic - Titratable Peroxide Acidity (s-23G)	----	0.020	% pyrite S	<0.020	<0.020	<0.020	<0.020	<0.020
sulfidic - Titratable Sulfidic Acidity (s-23H)	----	0.020	% pyrite S	<0.020	<0.020	<0.020	<0.020	<0.020
EA029-C: Sulfur Trail								
KCl Extractable Sulfur (23Ce)	----	0.020	% S	**0.026**	**0.024**	<0.020	<0.020	<0.020
Peroxide Sulfur (23De)	----	0.020	% S	**0.056**	**0.048**	<0.020	<0.020	**0.026**
Peroxide Oxidisable Sulfur (23E)	----	0.020	% S	**0.030**	**0.024**	<0.020	<0.020	**0.026**
acidity - Peroxide Oxidisable Sulfur (a-23E)	----	10	mole H+ / t	**19**	**15**	<10	<10	**16**
EA029-D: Calcium Values								
KCl Extractable Calcium (23Vh)	----	0.020	% Ca	**0.426**	**0.360**	**0.107**	**0.152**	**0.195**
Peroxide Calcium (23Wh)	----	0.020	% Ca	**0.442**	**0.428**	**0.119**	**0.160**	**0.208**
Acid Reacted Calcium (23X)	----	0.020	% Ca	<0.020	**0.068**	<0.020	<0.020	<0.020
acidity - Acid Reacted Calcium (a-23X)	----	10	mole H+ / t	<10	**34**	<10	<10	<10
sulfidic - Acid Reacted Calcium (s-23X)	----	0.020	% S	<0.020	**0.054**	<0.020	<0.020	<0.020
EA029-E: Magnesium Values								
KCl Extractable Magnesium (23Sm)	----	0.020	% Mg	**0.280**	**0.277**	**0.093**	**0.050**	**0.134**
Peroxide Magnesium (23Tm)	----	0.020	% Mg	**0.272**	**0.295**	**0.101**	**0.059**	**0.134**
Acid Reacted Magnesium (23U)	----	0.020	% Mg	<0.020	<0.020	<0.020	<0.020	<0.020
Acidity - Acid Reacted Magnesium (a-23U)	----	10	mole H+ / t	<10	**15**	<10	<10	<10
sulfidic - Acid Reacted Magnesium (s-23U)	----	0.020	% S	<0.020	**0.024**	<0.020	<0.020	<0.020
EA029-H: Acid Base Accounting								
ANC Fineness Factor	----	0.5	-	**1.5**	**1.5**	**1.5**	**1.5**	**1.5**
Net Acidity (sulfur units)	----	0.02	% S	**0.03**	**0.03**	<0.02	<0.02	**0.05**
Net Acidity (acidity units)	----	10	mole H+ / t	**21**	**20**	<10	<10	**32**
Liming Rate	----	1	kg CaCO3/t	**2**	**2**	<1	<1	**2**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SB18 0.5m	SB19 0.5m	SB1 1.5m	SB2 1m	SB34 1m
				Client sampling date / time	27-Sep-2017 00:00	27-Sep-2017 00:00	28-Sep-2017 00:00	28-Sep-2017 00:00	28-Sep-2017 00:00
Compound	CAS Number	LOR	Unit		EM1715489-001	EM1715489-002	EM1715489-003	EM1715489-004	EM1715489-005
					Result	Result	Result	Result	Result
EA029-H: Acid Base Accounting - Continued									
Net Acidity excluding ANC (sulfur units)	----	0.02	% S		**0.03**	**0.03**	<0.02	<0.02	**0.05**
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t		**21**	**20**	<10	<10	**32**
Liming Rate excluding ANC	----	1	kg CaCO3/t		**2**	**2**	<1	<1	**2**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	DB2/0.5	SB9/1.0	SB10/0.5	SB11/0.5	SB12/1.0
			Client sampling date / time	03-Oct-2017 00:00	03-Oct-2017 00:00	03-Oct-2017 00:00	03-Oct-2017 00:00	03-Oct-2017 00:00
Compound	CAS Number	LOR	Unit	EM1715489-006	EM1715489-007	EM1715489-008	EM1715489-009	EM1715489-010
				Result	Result	Result	Result	Result
EA029-A: pH Measurements								
pH KCl (23A)	----	0.1	pH Unit	**6.0**	**6.5**	**6.1**	**6.3**	**8.5**
pH OX (23B)	----	0.1	pH Unit	**5.4**	**6.0**	**5.9**	**3.9**	**8.7**
EA029-B: Acidity Trail								
Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	<2	<2	<2	<2
Titratable Peroxide Acidity (23G)	----	2	mole H+ / t	<2	<2	<2	<2	<2
Titratable Sulfidic Acidity (23H)	----	2	mole H+ / t	<2	<2	<2	<2	<2
sulfidic - Titratable Actual Acidity (s-23F)	----	0.020	% pyrite S	<0.020	<0.020	<0.020	<0.020	<0.020
sulfidic - Titratable Peroxide Acidity (s-23G)	----	0.020	% pyrite S	<0.020	<0.020	<0.020	<0.020	<0.020
sulfidic - Titratable Sulfidic Acidity (s-23H)	----	0.020	% pyrite S	<0.020	<0.020	<0.020	<0.020	<0.020
EA029-C: Sulfur Trail								
KCl Extractable Sulfur (23Ce)	----	0.020	% S	<0.020	<0.020	<0.020	<0.020	**0.030**
Peroxide Sulfur (23De)	----	0.020	% S	<0.020	<0.020	<0.020	**0.046**	**0.031**
Peroxide Oxidisable Sulfur (23E)	----	0.020	% S	<0.020	<0.020	<0.020	**0.046**	<0.020
acidity - Peroxide Oxidisable Sulfur (a-23E)	----	10	mole H+ / t	<10	<10	<10	**29**	<10
EA029-D: Calcium Values								
KCl Extractable Calcium (23Vh)	----	0.020	% Ca	**0.287**	**0.058**	**0.426**	**0.517**	**0.304**
Peroxide Calcium (23Wh)	----	0.020	% Ca	**0.297**	**0.066**	**0.434**	**0.517**	**1.23**
Acid Reacted Calcium (23X)	----	0.020	% Ca	<0.020	<0.020	<0.020	<0.020	**0.930**
acidity - Acid Reacted Calcium (a-23X)	----	10	mole H+ / t	<10	<10	<10	<10	**464**
sulfidic - Acid Reacted Calcium (s-23X)	----	0.020	% S	<0.020	<0.020	<0.020	<0.020	**0.744**
EA029-E: Magnesium Values								
KCl Extractable Magnesium (23Sm)	----	0.020	% Mg	**0.097**	<0.020	**0.130**	**0.159**	**0.129**
Peroxide Magnesium (23Tm)	----	0.020	% Mg	**0.097**	<0.020	**0.130**	**0.159**	**0.160**
Acid Reacted Magnesium (23U)	----	0.020	% Mg	<0.020	<0.020	<0.020	<0.020	**0.031**
Acidity - Acid Reacted Magnesium (a-23U)	----	10	mole H+ / t	<10	<10	<10	<10	**26**
sulfidic - Acid Reacted Magnesium (s-23U)	----	0.020	% S	<0.020	<0.020	<0.020	<0.020	**0.041**
EA029-F: Excess Acid Neutralising Capacity								
Excess Acid Neutralising Capacity (23Q)	----	0.020	% CaCO3	----	----	----	----	**3.08**
acidity - Excess Acid Neutralising Capacity (a-23Q)	----	10	mole H+ / t	----	----	----	----	**615**
sulfidic - Excess Acid Neutralising Capacity (s-23Q)	----	0.020	% S	----	----	----	----	**0.985**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	DB2/0.5	SB9/1.0	SB10/0.5	SB11/0.5	SB12/1.0
				Client sampling date / time	03-Oct-2017 00:00	03-Oct-2017 00:00	03-Oct-2017 00:00	03-Oct-2017 00:00	03-Oct-2017 00:00
Compound	CAS Number	LOR	Unit		EM1715489-006	EM1715489-007	EM1715489-008	EM1715489-009	EM1715489-010
					Result	Result	Result	Result	Result
EA029-F: Excess Acid Neutralising Capacity - Continued									
EA029-H: Acid Base Accounting									
ANC Fineness Factor	----	0.5	-		**1.5**	**1.5**	**1.5**	**1.5**	**1.5**
Net Acidity (sulfur units)	----	0.02	% S		<0.02	<0.02	<0.02	**0.05**	<0.02
Net Acidity (acidity units)	----	10	mole H+ / t		<10	<10	<10	**29**	<10
Liming Rate	----	1	kg CaCO3/t		<1	<1	<1	**2**	<1
Net Acidity excluding ANC (sulfur units)	----	0.02	% S		<0.02	<0.02	<0.02	**0.05**	<0.02
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t		<10	<10	<10	**29**	<10
Liming Rate excluding ANC	----	1	kg CaCO3/t		<1	<1	<1	**2**	<1

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SB35/1.0	SB36/0.5	DB1 1m	SB3 0.5m	SB13 0.5m
			Client sampling date / time	03-Oct-2017 00:00	03-Oct-2017 00:00	04-Oct-2017 00:00	04-Oct-2017 00:00	04-Oct-2017 00:00
Compound	CAS Number	LOR	Unit	EM1715489-011	EM1715489-012	EM1715489-013	EM1715489-014	EM1715489-015
				Result	Result	Result	Result	Result
EA029-A: pH Measurements								
pH KCl (23A)	----	0.1	pH Unit	4.7	4.9	6.8	6.2	7.8
pH OX (23B)	----	0.1	pH Unit	4.7	6.0	7.5	5.4	7.3
EA029-B: Acidity Trail								
Titratable Actual Acidity (23F)	----	2	mole H+ / t	25	16	<2	<2	<2
Titratable Peroxide Acidity (23G)	----	2	mole H+ / t	3	<2	<2	3	<2
Titratable Sulfidic Acidity (23H)	----	2	mole H+ / t	<2	<2	<2	3	<2
sulfidic - Titratable Actual Acidity (s-23F)	----	0.020	% pyrite S	0.040	0.025	<0.020	<0.020	<0.020
sulfidic - Titratable Peroxide Acidity (s-23G)	----	0.020	% pyrite S	<0.020	<0.020	<0.020	<0.020	<0.020
sulfidic - Titratable Sulfidic Acidity (s-23H)	----	0.020	% pyrite S	<0.020	<0.020	<0.020	<0.020	<0.020
EA029-C: Sulfur Trail								
KCl Extractable Sulfur (23Ce)	----	0.020	% S	<0.020	<0.020	<0.020	<0.020	<0.020
Peroxide Sulfur (23De)	----	0.020	% S	0.022	<0.020	0.022	<0.020	0.046
Peroxide Oxidisable Sulfur (23E)	----	0.020	% S	0.022	<0.020	0.022	<0.020	0.046
acidity - Peroxide Oxidisable Sulfur (a-23E)	----	10	mole H+ / t	14	<10	14	<10	28
EA029-D: Calcium Values								
KCl Extractable Calcium (23Vh)	----	0.020	% Ca	0.177	0.150	0.175	0.032	0.748
Peroxide Calcium (23Wh)	----	0.020	% Ca	0.187	0.152	0.224	0.111	3.30
Acid Reacted Calcium (23X)	----	0.020	% Ca	<0.020	<0.020	0.049	0.078	2.55
acidity - Acid Reacted Calcium (a-23X)	----	10	mole H+ / t	<10	<10	24	39	1270
sulfidic - Acid Reacted Calcium (s-23X)	----	0.020	% S	<0.020	<0.020	0.039	0.063	2.04
EA029-E: Magnesium Values								
KCl Extractable Magnesium (23Sm)	----	0.020	% Mg	0.151	0.116	0.067	<0.020	0.078
Peroxide Magnesium (23Tm)	----	0.020	% Mg	0.156	0.116	0.091	0.094	0.139
Acid Reacted Magnesium (23U)	----	0.020	% Mg	<0.020	<0.020	0.024	0.094	0.061
Acidity - Acid Reacted Magnesium (a-23U)	----	10	mole H+ / t	<10	<10	20	77	50
sulfidic - Acid Reacted Magnesium (s-23U)	----	0.020	% S	<0.020	<0.020	0.032	0.124	0.081
EA029-F: Excess Acid Neutralising Capacity								
Excess Acid Neutralising Capacity (23Q)	----	0.020	% CaCO3	----	----	0.711	----	6.93
acidity - Excess Acid Neutralising Capacity (a-23Q)	----	10	mole H+ / t	----	----	142	----	1380
sulfidic - Excess Acid Neutralising Capacity (s-23Q)	----	0.020	% S	----	----	0.228	----	2.22

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SB35/1.0	SB36/0.5	DB1 1m	SB3 0.5m	SB13 0.5m
				Client sampling date / time	03-Oct-2017 00:00	03-Oct-2017 00:00	04-Oct-2017 00:00	04-Oct-2017 00:00	04-Oct-2017 00:00
Compound	CAS Number	LOR	Unit		EM1715489-011	EM1715489-012	EM1715489-013	EM1715489-014	EM1715489-015
					Result	Result	Result	Result	Result
EA029-F: Excess Acid Neutralising Capacity - Continued									
EA029-H: Acid Base Accounting									
ANC Fineness Factor	----	0.5	-		**1.5**	**1.5**	**1.5**	**1.5**	**1.5**
Net Acidity (sulfur units)	----	0.02	% S		**0.06**	**0.02**	<0.02	<0.02	<0.02
Net Acidity (acidity units)	----	10	mole H+ / t		**39**	**16**	<10	<10	<10
Liming Rate	----	1	kg CaCO3/t		**3**	**1**	<1	<1	<1
Net Acidity excluding ANC (sulfur units)	----	0.02	% S		**0.06**	**0.02**	**0.02**	<0.02	**0.04**
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t		**39**	**16**	**14**	<10	**28**
Liming Rate excluding ANC	----	1	kg CaCO3/t		**3**	**1**	**1**	<1	**2**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SB14 1.5m	SB15 0.5m	SB16 0.5m	SB17 1.0m	DB3/3m
			Client sampling date / time	04-Oct-2017 00:00	04-Oct-2017 00:00	04-Oct-2017 00:00	04-Oct-2017 00:00	05-Oct-2017 00:00
Compound	CAS Number	LOR	Unit	EM1715489-016	EM1715489-017	EM1715489-018	EM1715489-019	EM1715489-020
				Result	Result	Result	Result	Result
EA029-A: pH Measurements								
pH KCl (23A)	----	0.1	pH Unit	8.6	8.6	8.0	7.1	7.0
pH OX (23B)	----	0.1	pH Unit	9.0	7.6	7.2	6.8	6.7
EA029-B: Acidity Trail								
Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	<2	<2	<2	<2
Titratable Peroxide Acidity (23G)	----	2	mole H+ / t	<2	<2	<2	<2	<2
Titratable Sulfidic Acidity (23H)	----	2	mole H+ / t	<2	<2	<2	<2	<2
sulfidic - Titratable Actual Acidity (s-23F)	----	0.020	% pyrite S	<0.020	<0.020	<0.020	<0.020	<0.020
sulfidic - Titratable Peroxide Acidity (s-23G)	----	0.020	% pyrite S	<0.020	<0.020	<0.020	<0.020	<0.020
sulfidic - Titratable Sulfidic Acidity (s-23H)	----	0.020	% pyrite S	<0.020	<0.020	<0.020	<0.020	<0.020
EA029-C: Sulfur Trail								
KCl Extractable Sulfur (23Ce)	----	0.020	% S	<0.020	0.026	0.045	0.038	<0.020
Peroxide Sulfur (23De)	----	0.020	% S	0.028	0.060	0.070	0.047	<0.020
Peroxide Oxidisable Sulfur (23E)	----	0.020	% S	0.028	0.034	0.026	<0.020	<0.020
acidity - Peroxide Oxidisable Sulfur (a-23E)	----	10	mole H+ / t	17	21	16	<10	<10
EA029-D: Calcium Values								
KCl Extractable Calcium (23Vh)	----	0.020	% Ca	0.471	0.698	0.606	0.442	0.121
Peroxide Calcium (23Wh)	----	0.020	% Ca	13.2	1.29	0.849	0.492	0.137
Acid Reacted Calcium (23X)	----	0.020	% Ca	12.7	0.594	0.243	0.050	<0.020
acidity - Acid Reacted Calcium (a-23X)	----	10	mole H+ / t	6340	296	121	25	<10
sulfidic - Acid Reacted Calcium (s-23X)	----	0.020	% S	10.2	0.475	0.194	0.040	<0.020
EA029-E: Magnesium Values								
KCl Extractable Magnesium (23Sm)	----	0.020	% Mg	0.107	0.157	0.244	0.269	0.065
Peroxide Magnesium (23Tm)	----	0.020	% Mg	0.287	0.197	0.269	0.301	0.078
Acid Reacted Magnesium (23U)	----	0.020	% Mg	0.181	0.040	0.025	0.032	<0.020
Acidity - Acid Reacted Magnesium (a-23U)	----	10	mole H+ / t	149	33	20	27	10
sulfidic - Acid Reacted Magnesium (s-23U)	----	0.020	% S	0.238	0.052	0.033	0.043	<0.020
EA029-F: Excess Acid Neutralising Capacity								
Excess Acid Neutralising Capacity (23Q)	----	0.020	% CaCO3	34.0	2.24	1.24	0.328	0.163
acidity - Excess Acid Neutralising Capacity (a-23Q)	----	10	mole H+ / t	6800	447	248	66	32
sulfidic - Excess Acid Neutralising Capacity (s-23Q)	----	0.020	% S	10.9	0.716	0.398	0.105	0.052

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SB14 1.5m	SB15 0.5m	SB16 0.5m	SB17 1.0m	DB3/3m
				Client sampling date / time	04-Oct-2017 00:00	04-Oct-2017 00:00	04-Oct-2017 00:00	04-Oct-2017 00:00	05-Oct-2017 00:00
Compound	CAS Number	LOR	Unit		EM1715489-016	EM1715489-017	EM1715489-018	EM1715489-019	EM1715489-020
					Result	Result	Result	Result	Result
EA029-F: Excess Acid Neutralising Capacity - Continued									
EA029-H: Acid Base Accounting									
ANC Fineness Factor	----	0.5	-		**1.5**	**1.5**	**1.5**	**1.5**	**1.5**
Net Acidity (sulfur units)	----	0.02	% S		<0.02	<0.02	<0.02	<0.02	<0.02
Net Acidity (acidity units)	----	10	mole H+ / t		<10	<10	<10	<10	<10
Liming Rate	----	1	kg CaCO3/t		<1	<1	<1	<1	<1
Net Acidity excluding ANC (sulfur units)	----	0.02	% S		**0.03**	**0.03**	**0.02**	<0.02	<0.02
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t		**17**	**21**	**16**	<10	<10
Liming Rate excluding ANC	----	1	kg CaCO3/t		**1**	**2**	**1**	<1	<1

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SB4/0.5m	SB5/0.5m	SB6/1m	SB20/1m	SB21/1.5m
				Client sampling date / time	05-Oct-2017 00:00	05-Oct-2017 00:00	05-Oct-2017 00:00	05-Oct-2017 00:00	05-Oct-2017 00:00
Compound	CAS Number	LOR	Unit		EM1715489-021	EM1715489-022	EM1715489-023	EM1715489-024	EM1715489-025
					Result	Result	Result	Result	Result
EA029-A: pH Measurements									
pH KCl (23A)	----	0.1	pH Unit		6.2	5.9	6.0	4.9	4.9
pH OX (23B)	----	0.1	pH Unit		6.0	5.0	4.5	4.6	4.3
EA029-B: Acidity Trail									
Titratable Actual Acidity (23F)	----	2	mole H+ / t		<2	<2	<2	13	36
Titratable Peroxide Acidity (23G)	----	2	mole H+ / t		<2	<2	<2	14	<2
Titratable Sulfidic Acidity (23H)	----	2	mole H+ / t		<2	<2	<2	<2	<2
sulfidic - Titratable Actual Acidity (s-23F)	----	0.020	% pyrite S		<0.020	<0.020	<0.020	0.022	0.058
sulfidic - Titratable Peroxide Acidity (s-23G)	----	0.020	% pyrite S		<0.020	<0.020	<0.020	0.022	<0.020
sulfidic - Titratable Sulfidic Acidity (s-23H)	----	0.020	% pyrite S		<0.020	<0.020	<0.020	<0.020	<0.020
EA029-C: Sulfur Trail									
KCl Extractable Sulfur (23Ce)	----	0.020	% S		<0.020	<0.020	<0.020	0.091	0.022
Peroxide Sulfur (23De)	----	0.020	% S		<0.020	0.023	<0.020	0.117	0.060
Peroxide Oxidisable Sulfur (23E)	----	0.020	% S		<0.020	0.023	<0.020	0.026	0.038
acidity - Peroxide Oxidisable Sulfur (a-23E)	----	10	mole H+ / t		<10	14	<10	16	24
EA029-D: Calcium Values									
KCl Extractable Calcium (23Vh)	----	0.020	% Ca		0.041	0.088	<0.020	0.192	0.336
Peroxide Calcium (23Wh)	----	0.020	% Ca		0.049	0.100	0.022	0.226	0.336
Acid Reacted Calcium (23X)	----	0.020	% Ca		<0.020	<0.020	0.022	0.034	<0.020
acidity - Acid Reacted Calcium (a-23X)	----	10	mole H+ / t		<10	<10	11	17	<10
sulfidic - Acid Reacted Calcium (s-23X)	----	0.020	% S		<0.020	<0.020	<0.020	0.027	<0.020
EA029-E: Magnesium Values									
KCl Extractable Magnesium (23Sm)	----	0.020	% Mg		<0.020	<0.020	<0.020	0.213	0.203
Peroxide Magnesium (23Tm)	----	0.020	% Mg		<0.020	0.021	<0.020	0.242	0.203
Acid Reacted Magnesium (23U)	----	0.020	% Mg		<0.020	0.021	<0.020	0.029	<0.020
Acidity - Acid Reacted Magnesium (a-23U)	----	10	mole H+ / t		<10	17	<10	24	<10
sulfidic - Acid Reacted Magnesium (s-23U)	----	0.020	% S		<0.020	0.028	<0.020	0.038	<0.020
EA029-H: Acid Base Accounting									
ANC Fineness Factor	----	0.5	-		1.5	1.5	1.5	1.5	1.5
Net Acidity (sulfur units)	----	0.02	% S		<0.02	0.02	<0.02	0.05	0.10
Net Acidity (acidity units)	----	10	mole H+ / t		<10	14	<10	29	60
Liming Rate	----	1	kg CaCO3/t		<1	1	<1	2	4

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SB4/0.5m	SB5/0.5m	SB6/1m	SB20/1m	SB21/1.5m
				Client sampling date / time	05-Oct-2017 00:00	05-Oct-2017 00:00	05-Oct-2017 00:00	05-Oct-2017 00:00	05-Oct-2017 00:00
Compound	CAS Number	LOR	Unit		EM1715489-021	EM1715489-022	EM1715489-023	EM1715489-024	EM1715489-025
					Result	Result	Result	Result	Result
EA029-H: Acid Base Accounting - Continued									
Net Acidity excluding ANC (sulfur units)	----	0.02	% S		<0.02	**0.02**	<0.02	**0.05**	**0.10**
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t		<10	**14**	<10	**29**	**60**
Liming Rate excluding ANC	----	1	kg CaCO3/t		<1	**1**	<1	**2**	**4**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SB22/0.5m	SB23/0.5m	SB37 0.5m	SB38/1m	SB24 1m
				Client sampling date / time	05-Oct-2017 00:00	05-Oct-2017 00:00	05-Oct-2017 00:00	05-Oct-2017 00:00	11-Oct-2017 00:00
Compound	CAS Number	LOR	Unit		EM1715489-026	EM1715489-027	EM1715489-028	EM1715489-029	EM1715489-030
					Result	Result	Result	Result	Result
EA029-A: pH Measurements									
pH KCl (23A)	----	0.1	pH Unit		4.9	5.1	4.7	4.7	6.0
pH OX (23B)	----	0.1	pH Unit		4.6	4.2	4.5	4.4	6.1
EA029-B: Acidity Trail									
Titratable Actual Acidity (23F)	----	2	mole H+ / t		12	13	17	21	<2
Titratable Peroxide Acidity (23G)	----	2	mole H+ / t		5	<2	3	<2	<2
Titratable Sulfidic Acidity (23H)	----	2	mole H+ / t		<2	<2	<2	<2	<2
sulfidic - Titratable Actual Acidity (s-23F)	----	0.020	% pyrite S		<0.020	0.020	0.027	0.034	<0.020
sulfidic - Titratable Peroxide Acidity (s-23G)	----	0.020	% pyrite S		<0.020	<0.020	<0.020	<0.020	<0.020
sulfidic - Titratable Sulfidic Acidity (s-23H)	----	0.020	% pyrite S		<0.020	<0.020	<0.020	<0.020	<0.020
EA029-C: Sulfur Trail									
KCl Extractable Sulfur (23Ce)	----	0.020	% S		<0.020	<0.020	<0.020	<0.020	<0.020
Peroxide Sulfur (23De)	----	0.020	% S		0.024	0.031	0.023	<0.020	<0.020
Peroxide Oxidisable Sulfur (23E)	----	0.020	% S		0.024	0.031	0.023	<0.020	<0.020
acidity - Peroxide Oxidisable Sulfur (a-23E)	----	10	mole H+ / t		15	19	14	<10	<10
EA029-D: Calcium Values									
KCl Extractable Calcium (23Vh)	----	0.020	% Ca		0.185	0.189	0.149	0.120	0.187
Peroxide Calcium (23Wh)	----	0.020	% Ca		0.204	0.213	0.166	0.130	0.210
Acid Reacted Calcium (23X)	----	0.020	% Ca		<0.020	0.024	<0.020	<0.020	0.023
acidity - Acid Reacted Calcium (a-23X)	----	10	mole H+ / t		<10	12	<10	<10	12
sulfidic - Acid Reacted Calcium (s-23X)	----	0.020	% S		<0.020	<0.020	<0.020	<0.020	<0.020
EA029-E: Magnesium Values									
KCl Extractable Magnesium (23Sm)	----	0.020	% Mg		0.162	0.146	0.136	0.100	0.093
Peroxide Magnesium (23Tm)	----	0.020	% Mg		0.170	0.159	0.147	0.104	0.105
Acid Reacted Magnesium (23U)	----	0.020	% Mg		<0.020	<0.020	<0.020	<0.020	<0.020
Acidity - Acid Reacted Magnesium (a-23U)	----	10	mole H+ / t		<10	10	<10	<10	<10
sulfidic - Acid Reacted Magnesium (s-23U)	----	0.020	% S		<0.020	<0.020	<0.020	<0.020	<0.020
EA029-H: Acid Base Accounting									
ANC Fineness Factor	----	0.5	-		1.5	1.5	1.5	1.5	1.5
Net Acidity (sulfur units)	----	0.02	% S		0.04	0.05	0.05	0.03	<0.02
Net Acidity (acidity units)	----	10	mole H+ / t		26	32	31	21	<10
Liming Rate	----	1	kg CaCO3/t		2	2	2	2	<1

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SB22/0.5m	SB23/0.5m	SB37 0.5m	SB38/1m	SB24 1m
				Client sampling date / time	05-Oct-2017 00:00	05-Oct-2017 00:00	05-Oct-2017 00:00	05-Oct-2017 00:00	11-Oct-2017 00:00
Compound	CAS Number	LOR	Unit		EM1715489-026	EM1715489-027	EM1715489-028	EM1715489-029	EM1715489-030
					Result	Result	Result	Result	Result
EA029-H: Acid Base Accounting - Continued									
Net Acidity excluding ANC (sulfur units)	----	0.02	% S		**0.04**	**0.05**	**0.05**	**0.03**	<0.02
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t		**26**	**32**	**31**	**21**	<10
Liming Rate excluding ANC	----	1	kg CaCO3/t		**2**	**2**	**2**	**2**	<1

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SB25 1.5m	SB26 0.5m	SB27 0.5m	SB28 1.5m	DB5 4.5m
				Client sampling date / time	11-Oct-2017 00:00	11-Oct-2017 00:00	11-Oct-2017 00:00	11-Oct-2017 00:00	12-Oct-2017 00:00
Compound	CAS Number	LOR	Unit		EM1715489-031	EM1715489-032	EM1715489-033	EM1715489-034	EM1715489-035
					Result	Result	Result	Result	Result
EA029-A: pH Measurements									
pH KCl (23A)	----	0.1	pH Unit		5.4	4.9	4.8	5.5	5.6
pH OX (23B)	----	0.1	pH Unit		4.4	4.6	4.3	5.2	3.8
EA029-B: Acidity Trail									
Titratable Actual Acidity (23F)	----	2	mole H+ / t		2	8	17	<2	<2
Titratable Peroxide Acidity (23G)	----	2	mole H+ / t		6	3	3	2	60
Titratable Sulfidic Acidity (23H)	----	2	mole H+ / t		4	<2	<2	2	60
sulfidic - Titratable Actual Acidity (s-23F)	----	0.020	% pyrite S		<0.020	<0.020	0.027	<0.020	<0.020
sulfidic - Titratable Peroxide Acidity (s-23G)	----	0.020	% pyrite S		<0.020	<0.020	<0.020	<0.020	0.097
sulfidic - Titratable Sulfidic Acidity (s-23H)	----	0.020	% pyrite S		<0.020	<0.020	<0.020	<0.020	0.097
EA029-C: Sulfur Trail									
KCl Extractable Sulfur (23Ce)	----	0.020	% S		<0.020	<0.020	<0.020	<0.020	<0.020
Peroxide Sulfur (23De)	----	0.020	% S		<0.020	<0.020	<0.020	<0.020	0.104
Peroxide Oxidisable Sulfur (23E)	----	0.020	% S		<0.020	<0.020	<0.020	<0.020	0.104
acidity - Peroxide Oxidisable Sulfur (a-23E)	----	10	mole H+ / t		<10	<10	<10	<10	65
EA029-D: Calcium Values									
KCl Extractable Calcium (23Vh)	----	0.020	% Ca		0.024	0.167	0.106	0.093	0.085
Peroxide Calcium (23Wh)	----	0.020	% Ca		0.028	0.184	0.120	0.101	0.093
Acid Reacted Calcium (23X)	----	0.020	% Ca		<0.020	<0.020	<0.020	<0.020	<0.020
acidity - Acid Reacted Calcium (a-23X)	----	10	mole H+ / t		<10	<10	<10	<10	<10
sulfidic - Acid Reacted Calcium (s-23X)	----	0.020	% S		<0.020	<0.020	<0.020	<0.020	<0.020
EA029-E: Magnesium Values									
KCl Extractable Magnesium (23Sm)	----	0.020	% Mg		0.020	0.126	0.082	0.101	0.072
Peroxide Magnesium (23Tm)	----	0.020	% Mg		0.022	0.137	0.090	0.108	0.081
Acid Reacted Magnesium (23U)	----	0.020	% Mg		<0.020	<0.020	<0.020	<0.020	<0.020
Acidity - Acid Reacted Magnesium (a-23U)	----	10	mole H+ / t		<10	<10	<10	<10	<10
sulfidic - Acid Reacted Magnesium (s-23U)	----	0.020	% S		<0.020	<0.020	<0.020	<0.020	<0.020
EA029-H: Acid Base Accounting									
ANC Fineness Factor	----	0.5	-		1.5	1.5	1.5	1.5	1.5
Net Acidity (sulfur units)	----	0.02	% S		<0.02	<0.02	0.03	<0.02	0.10
Net Acidity (acidity units)	----	10	mole H+ / t		<10	<10	17	<10	65
Liming Rate	----	1	kg CaCO3/t		<1	<1	1	<1	5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SB25 1.5m	SB26 0.5m	SB27 0.5m	SB28 1.5m	DB5 4.5m
				Client sampling date / time	11-Oct-2017 00:00	11-Oct-2017 00:00	11-Oct-2017 00:00	11-Oct-2017 00:00	12-Oct-2017 00:00
Compound	CAS Number	LOR	Unit		EM1715489-031	EM1715489-032	EM1715489-033	EM1715489-034	EM1715489-035
					Result	Result	Result	Result	Result
EA029-H: Acid Base Accounting - Continued									
Net Acidity excluding ANC (sulfur units)	----	0.02	% S		<0.02	<0.02	**0.03**	<0.02	**0.10**
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t		<10	<10	**17**	<10	**65**
Liming Rate excluding ANC	----	1	kg CaCO3/t		<1	<1	**1**	<1	**5**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SB7 0.5m	SB8 1m	SB29 0.5m	SB30 1.5m	SB31 1m
				Client sampling date / time	12-Oct-2017 00:00	12-Oct-2017 00:00	12-Oct-2017 00:00	12-Oct-2017 00:00	12-Oct-2017 00:00
Compound	CAS Number	LOR	Unit		EM1715489-036	EM1715489-037	EM1715489-038	EM1715489-039	EM1715489-040
					Result	Result	Result	Result	Result
EA029-A: pH Measurements									
pH KCl (23A)	----	0.1	pH Unit		6.0	6.1	4.9	5.0	5.4
pH OX (23B)	----	0.1	pH Unit		5.1	3.9	4.3	4.8	4.7
EA029-B: Acidity Trail									
Titratable Actual Acidity (23F)	----	2	mole H+ / t		<2	<2	8	7	5
Titratable Peroxide Acidity (23G)	----	2	mole H+ / t		<2	4	3	8	6
Titratable Sulfidic Acidity (23H)	----	2	mole H+ / t		<2	4	<2	<2	<2
sulfidic - Titratable Actual Acidity (s-23F)	----	0.020	% pyrite S		<0.020	<0.020	<0.020	<0.020	<0.020
sulfidic - Titratable Peroxide Acidity (s-23G)	----	0.020	% pyrite S		<0.020	<0.020	<0.020	<0.020	<0.020
sulfidic - Titratable Sulfidic Acidity (s-23H)	----	0.020	% pyrite S		<0.020	<0.020	<0.020	<0.020	<0.020
EA029-C: Sulfur Trail									
KCl Extractable Sulfur (23Ce)	----	0.020	% S		<0.020	<0.020	<0.020	<0.020	<0.020
Peroxide Sulfur (23De)	----	0.020	% S		<0.020	0.023	<0.020	<0.020	<0.020
Peroxide Oxidisable Sulfur (23E)	----	0.020	% S		<0.020	0.023	<0.020	<0.020	<0.020
acidity - Peroxide Oxidisable Sulfur (a-23E)	----	10	mole H+ / t		<10	14	<10	12	<10
EA029-D: Calcium Values									
KCl Extractable Calcium (23Vh)	----	0.020	% Ca		0.127	0.169	0.086	0.082	0.104
Peroxide Calcium (23Wh)	----	0.020	% Ca		0.141	0.192	0.094	0.086	0.117
Acid Reacted Calcium (23X)	----	0.020	% Ca		<0.020	0.022	<0.020	<0.020	<0.020
acidity - Acid Reacted Calcium (a-23X)	----	10	mole H+ / t		<10	11	<10	<10	<10
sulfidic - Acid Reacted Calcium (s-23X)	----	0.020	% S		<0.020	<0.020	<0.020	<0.020	<0.020
EA029-E: Magnesium Values									
KCl Extractable Magnesium (23Sm)	----	0.020	% Mg		0.085	0.100	0.073	0.086	0.112
Peroxide Magnesium (23Tm)	----	0.020	% Mg		0.098	0.117	0.081	0.090	0.122
Acid Reacted Magnesium (23U)	----	0.020	% Mg		<0.020	<0.020	<0.020	<0.020	<0.020
Acidity - Acid Reacted Magnesium (a-23U)	----	10	mole H+ / t		11	14	<10	<10	<10
sulfidic - Acid Reacted Magnesium (s-23U)	----	0.020	% S		<0.020	0.022	<0.020	<0.020	<0.020
EA029-H: Acid Base Accounting									
ANC Fineness Factor	----	0.5	-		1.5	1.5	1.5	1.5	1.5
Net Acidity (sulfur units)	----	0.02	% S		<0.02	0.02	<0.02	0.03	<0.02
Net Acidity (acidity units)	----	10	mole H+ / t		<10	14	<10	20	<10
Liming Rate	----	1	kg CaCO3/t		<1	1	<1	1	<1

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SB7 0.5m	SB8 1m	SB29 0.5m	SB30 1.5m	SB31 1m
				Client sampling date / time	12-Oct-2017 00:00	12-Oct-2017 00:00	12-Oct-2017 00:00	12-Oct-2017 00:00	12-Oct-2017 00:00
Compound	CAS Number	LOR	Unit		EM1715489-036	EM1715489-037	EM1715489-038	EM1715489-039	EM1715489-040
					Result	Result	Result	Result	Result
EA029-H: Acid Base Accounting - Continued									
Net Acidity excluding ANC (sulfur units)	----	0.02	% S		<0.02	**0.02**	<0.02	**0.03**	<0.02
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t		<10	**14**	<10	**20**	<10
Liming Rate excluding ANC	----	1	kg CaCO3/t		<1	**1**	<1	**1**	<1

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SB32 1m	SB33 0.5m	DB1 7m	DB2 4.5m	DB3 5m
			Client sampling date / time	12-Oct-2017 00:00	12-Oct-2017 00:00	04-Oct-2017 00:00	03-Oct-2017 00:00	05-Oct-2017 00:00
Compound	CAS Number	LOR	Unit	EM1715489-041	EM1715489-042	EM1715489-043	EM1715489-044	EM1715489-045
				Result	Result	Result	Result	Result
EA029-A: pH Measurements								
pH KCl (23A)	----	0.1	pH Unit	4.9	4.5	5.8	5.9	6.8
pH OX (23B)	----	0.1	pH Unit	4.5	3.9	6.4	5.9	6.9
EA029-B: Acidity Trail								
Titratable Actual Acidity (23F)	----	2	mole H+ / t	12	25	4	2	<2
Titratable Peroxide Acidity (23G)	----	2	mole H+ / t	14	26	7	5	<2
Titratable Sulfidic Acidity (23H)	----	2	mole H+ / t	<2	<2	4	3	<2
sulfidic - Titratable Actual Acidity (s-23F)	----	0.020	% pyrite S	<0.020	0.040	<0.020	<0.020	<0.020
sulfidic - Titratable Peroxide Acidity (s-23G)	----	0.020	% pyrite S	0.022	0.042	<0.020	<0.020	<0.020
sulfidic - Titratable Sulfidic Acidity (s-23H)	----	0.020	% pyrite S	<0.020	<0.020	<0.020	<0.020	<0.020
EA029-C: Sulfur Trail								
KCl Extractable Sulfur (23Ce)	----	0.020	% S	<0.020	<0.020	<0.020	<0.020	<0.020
Peroxide Sulfur (23De)	----	0.020	% S	<0.020	<0.020	<0.020	<0.020	0.022
Peroxide Oxidisable Sulfur (23E)	----	0.020	% S	<0.020	<0.020	<0.020	<0.020	0.022
acidity - Peroxide Oxidisable Sulfur (a-23E)	----	10	mole H+ / t	<10	<10	<10	<10	14
EA029-D: Calcium Values								
KCl Extractable Calcium (23Vh)	----	0.020	% Ca	0.097	0.093	0.110	0.164	0.131
Peroxide Calcium (23Wh)	----	0.020	% Ca	0.099	0.094	0.110	0.164	0.131
Acid Reacted Calcium (23X)	----	0.020	% Ca	<0.020	<0.020	<0.020	<0.020	<0.020
acidity - Acid Reacted Calcium (a-23X)	----	10	mole H+ / t	<10	<10	<10	<10	<10
sulfidic - Acid Reacted Calcium (s-23X)	----	0.020	% S	<0.020	<0.020	<0.020	<0.020	<0.020
EA029-E: Magnesium Values								
KCl Extractable Magnesium (23Sm)	----	0.020	% Mg	0.109	0.072	0.047	0.069	0.065
Peroxide Magnesium (23Tm)	----	0.020	% Mg	0.109	0.072	0.047	0.070	0.071
Acid Reacted Magnesium (23U)	----	0.020	% Mg	<0.020	<0.020	<0.020	<0.020	<0.020
Acidity - Acid Reacted Magnesium (a-23U)	----	10	mole H+ / t	<10	<10	<10	<10	<10
sulfidic - Acid Reacted Magnesium (s-23U)	----	0.020	% S	<0.020	<0.020	<0.020	<0.020	<0.020
EA029-F: Excess Acid Neutralising Capacity								
Excess Acid Neutralising Capacity (23Q)	----	0.020	% CaCO3	----	----	----	----	0.147
acidity - Excess Acid Neutralising Capacity (a-23Q)	----	10	mole H+ / t	----	----	----	----	29
sulfidic - Excess Acid Neutralising Capacity (s-23Q)	----	0.020	% S	----	----	----	----	0.047

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SB32 1m	SB33 0.5m	DB1 7m	DB2 4.5m	DB3 5m
				Client sampling date / time	12-Oct-2017 00:00	12-Oct-2017 00:00	04-Oct-2017 00:00	03-Oct-2017 00:00	05-Oct-2017 00:00
Compound	CAS Number	LOR	Unit		EM1715489-041	EM1715489-042	EM1715489-043	EM1715489-044	EM1715489-045
					Result	Result	Result	Result	Result
EA029-F: Excess Acid Neutralising Capacity - Continued									
EA029-H: Acid Base Accounting									
ANC Fineness Factor	----	0.5	-		**1.5**	**1.5**	**1.5**	**1.5**	**1.5**
Net Acidity (sulfur units)	----	0.02	% S		<0.02	**0.04**	<0.02	<0.02	<0.02
Net Acidity (acidity units)	----	10	mole H+ / t		**12**	**25**	<10	<10	<10
Liming Rate	----	1	kg CaCO3/t		<1	**2**	<1	<1	<1
Net Acidity excluding ANC (sulfur units)	----	0.02	% S		<0.02	**0.04**	<0.02	<0.02	**0.02**
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t		**12**	**25**	<10	<10	**14**
Liming Rate excluding ANC	----	1	kg CaCO3/t		<1	**2**	<1	<1	**1**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	DB3 10m	DB4 2m	DB4 10.5m	DB4 13.0m	DB4 18.0m
			Client sampling date / time	05-Oct-2017 00:00	13-Oct-2017 00:00	13-Oct-2017 00:00	13-Oct-2017 00:00	13-Oct-2017 00:00
Compound	CAS Number	LOR	Unit	EM1715489-046	EM1715489-047	EM1715489-048	EM1715489-049	EM1715489-050
				Result	Result	Result	Result	Result
EA029-A: pH Measurements								
pH KCl (23A)	----	0.1	pH Unit	6.3	5.1	6.5	8.4	7.4
pH OX (23B)	----	0.1	pH Unit	6.2	5.2	6.4	7.7	7.0
EA029-B: Acidity Trail								
Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	4	<2	<2	<2
Titratable Peroxide Acidity (23G)	----	2	mole H+ / t	3	10	<2	<2	<2
Titratable Sulfidic Acidity (23H)	----	2	mole H+ / t	3	6	<2	<2	<2
sulfidic - Titratable Actual Acidity (s-23F)	----	0.020	% pyrite S	<0.020	<0.020	<0.020	<0.020	<0.020
sulfidic - Titratable Peroxide Acidity (s-23G)	----	0.020	% pyrite S	<0.020	<0.020	<0.020	<0.020	<0.020
sulfidic - Titratable Sulfidic Acidity (s-23H)	----	0.020	% pyrite S	<0.020	<0.020	<0.020	<0.020	<0.020
EA029-C: Sulfur Trail								
KCl Extractable Sulfur (23Ce)	----	0.020	% S	<0.020	<0.020	<0.020	0.021	<0.020
Peroxide Sulfur (23De)	----	0.020	% S	<0.020	<0.020	<0.020	0.092	<0.020
Peroxide Oxidisable Sulfur (23E)	----	0.020	% S	<0.020	<0.020	<0.020	0.071	<0.020
acidity - Peroxide Oxidisable Sulfur (a-23E)	----	10	mole H+ / t	<10	<10	<10	44	<10
EA029-D: Calcium Values								
KCl Extractable Calcium (23Vh)	----	0.020	% Ca	0.094	0.069	0.111	0.267	0.124
Peroxide Calcium (23Wh)	----	0.020	% Ca	0.100	0.073	0.111	0.463	0.124
Acid Reacted Calcium (23X)	----	0.020	% Ca	<0.020	<0.020	<0.020	0.196	<0.020
acidity - Acid Reacted Calcium (a-23X)	----	10	mole H+ / t	<10	<10	<10	98	<10
sulfidic - Acid Reacted Calcium (s-23X)	----	0.020	% S	<0.020	<0.020	<0.020	0.157	<0.020
EA029-E: Magnesium Values								
KCl Extractable Magnesium (23Sm)	----	0.020	% Mg	0.048	0.069	0.083	0.067	0.045
Peroxide Magnesium (23Tm)	----	0.020	% Mg	0.049	0.073	0.083	0.082	0.050
Acid Reacted Magnesium (23U)	----	0.020	% Mg	<0.020	<0.020	<0.020	<0.020	<0.020
Acidity - Acid Reacted Magnesium (a-23U)	----	10	mole H+ / t	<10	<10	<10	12	<10
sulfidic - Acid Reacted Magnesium (s-23U)	----	0.020	% S	<0.020	<0.020	<0.020	<0.020	<0.020
EA029-F: Excess Acid Neutralising Capacity								
Excess Acid Neutralising Capacity (23Q)	----	0.020	% CaCO3	----	----	----	0.759	0.154
acidity - Excess Acid Neutralising Capacity (a-23Q)	----	10	mole H+ / t	----	----	----	152	31
sulfidic - Excess Acid Neutralising Capacity (s-23Q)	----	0.020	% S	----	----	----	0.243	0.049

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	DB3 10m	DB4 2m	DB4 10.5m	DB4 13.0m	DB4 18.0m
				Client sampling date / time	05-Oct-2017 00:00	13-Oct-2017 00:00	13-Oct-2017 00:00	13-Oct-2017 00:00	13-Oct-2017 00:00
Compound	CAS Number	LOR	Unit		EM1715489-046	EM1715489-047	EM1715489-048	EM1715489-049	EM1715489-050
					Result	Result	Result	Result	Result
EA029-F: Excess Acid Neutralising Capacity - Continued									
EA029-H: Acid Base Accounting									
ANC Fineness Factor	----	0.5	-		**1.5**	**1.5**	**1.5**	**1.5**	**1.5**
Net Acidity (sulfur units)	----	0.02	% S		<0.02	<0.02	<0.02	<0.02	<0.02
Net Acidity (acidity units)	----	10	mole H+ / t		<10	<10	<10	<10	<10
Liming Rate	----	1	kg CaCO3/t		<1	<1	<1	<1	<1
Net Acidity excluding ANC (sulfur units)	----	0.02	% S		<0.02	<0.02	<0.02	**0.07**	<0.02
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t		<10	<10	<10	**44**	<10
Liming Rate excluding ANC	----	1	kg CaCO3/t		<1	<1	<1	**3**	<1

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	DB4 3.5m	DB5 0.5m	DB5 8.0m	DB5 12.5m	DB5 14m
			Client sampling date / time	13-Oct-2017 00:00	12-Oct-2017 00:00	12-Oct-2017 00:00	12-Oct-2017 00:00	12-Oct-2017 00:00
Compound	CAS Number	LOR	Unit	EM1715489-051	EM1715489-052	EM1715489-053	EM1715489-054	EM1715489-055
				Result	Result	Result	Result	Result
EA029-A: pH Measurements								
pH KCl (23A)	----	0.1	pH Unit	**5.7**	**4.7**	**5.9**	**5.7**	**6.1**
pH OX (23B)	----	0.1	pH Unit	**2.8**	**3.9**	**5.6**	**5.8**	**4.7**
EA029-B: Acidity Trail								
Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	**9**	<2	<2	<2
Titratable Peroxide Acidity (23G)	----	2	mole H+ / t	**88**	**10**	**4**	**28**	**3**
Titratable Sulfidic Acidity (23H)	----	2	mole H+ / t	**88**	<2	**4**	**28**	**3**
sulfidic - Titratable Actual Acidity (s-23F)	----	0.020	% pyrite S	<0.020	<0.020	<0.020	<0.020	<0.020
sulfidic - Titratable Peroxide Acidity (s-23G)	----	0.020	% pyrite S	**0.141**	<0.020	<0.020	**0.044**	<0.020
sulfidic - Titratable Sulfidic Acidity (s-23H)	----	0.020	% pyrite S	**0.141**	<0.020	<0.020	**0.044**	<0.020
EA029-C: Sulfur Trail								
KCl Extractable Sulfur (23Ce)	----	0.020	% S	**0.027**	<0.020	<0.020	<0.020	<0.020
Peroxide Sulfur (23De)	----	0.020	% S	**0.176**	<0.020	<0.020	**0.052**	<0.020
Peroxide Oxidisable Sulfur (23E)	----	0.020	% S	**0.148**	<0.020	<0.020	**0.052**	<0.020
acidity - Peroxide Oxidisable Sulfur (a-23E)	----	10	mole H+ / t	**93**	<10	<10	**32**	<10
EA029-D: Calcium Values								
KCl Extractable Calcium (23Vh)	----	0.020	% Ca	**0.044**	**0.078**	**0.040**	**0.045**	**0.026**
Peroxide Calcium (23Wh)	----	0.020	% Ca	**0.044**	**0.086**	**0.042**	**0.050**	**0.028**
Acid Reacted Calcium (23X)	----	0.020	% Ca	<0.020	<0.020	<0.020	<0.020	<0.020
acidity - Acid Reacted Calcium (a-23X)	----	10	mole H+ / t	<10	<10	<10	<10	<10
sulfidic - Acid Reacted Calcium (s-23X)	----	0.020	% S	<0.020	<0.020	<0.020	<0.020	<0.020
EA029-E: Magnesium Values								
KCl Extractable Magnesium (23Sm)	----	0.020	% Mg	<0.020	**0.068**	**0.032**	**0.033**	<0.020
Peroxide Magnesium (23Tm)	----	0.020	% Mg	<0.020	**0.076**	**0.033**	**0.035**	<0.020
Acid Reacted Magnesium (23U)	----	0.020	% Mg	<0.020	<0.020	<0.020	<0.020	<0.020
Acidity - Acid Reacted Magnesium (a-23U)	----	10	mole H+ / t	<10	<10	<10	<10	<10
sulfidic - Acid Reacted Magnesium (s-23U)	----	0.020	% S	<0.020	<0.020	<0.020	<0.020	<0.020
EA029-H: Acid Base Accounting								
ANC Fineness Factor	----	0.5	-	**1.5**	**1.5**	**1.5**	**1.5**	**1.5**
Net Acidity (sulfur units)	----	0.02	% S	**0.15**	<0.02	<0.02	**0.05**	<0.02
Net Acidity (acidity units)	----	10	mole H+ / t	**93**	<10	<10	**32**	<10
Liming Rate	----	1	kg CaCO3/t	**7**	<1	<1	**2**	<1

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	DB4 3.5m	DB5 0.5m	DB5 8.0m	DB5 12.5m	DB5 14m
				Client sampling date / time	13-Oct-2017 00:00	12-Oct-2017 00:00	12-Oct-2017 00:00	12-Oct-2017 00:00	12-Oct-2017 00:00
Compound	CAS Number	LOR	Unit		EM1715489-051	EM1715489-052	EM1715489-053	EM1715489-054	EM1715489-055
					Result	Result	Result	Result	Result
EA029-H: Acid Base Accounting - Continued									
Net Acidity excluding ANC (sulfur units)	----	0.02	% S		**0.15**	<0.02	<0.02	**0.05**	<0.02
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t		**93**	<10	<10	**32**	<10
Liming Rate excluding ANC	----	1	kg CaCO3/t		**7**	<1	<1	**2**	<1

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EN1704238**	Page	: 1 of 24
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Newcastle
Contact	: OLFA NAZARIO	Contact	:
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 5/585 Maitland Road Mayfield West NSW Australia 2304
Telephone	: +61 03 9861 1111	Telephone	: +61 2 4014 2500
Project	: Mordialloc Bypass	Date Samples Received	: 12-Oct-2017 09:00
Order number	: ----	Date Analysis Commenced	: 13-Oct-2017
C-O-C number	: ----	Issue Date	: 18-Oct-2017 13:19
Sampler	: BP		
Site	: Mordialloc Bypass Project		
Quote number	: ME/423/17		
No. of samples received	: 14		
No. of samples analysed	: 14		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dale Semple	Analyst	Newcastle - Organics, Mayfield West, NSW
Daniel Junek	Senior Air Analyst	Newcastle - Organics, Mayfield West, NSW
Daniel Junek	Senior Air Analyst	Newcastle, Mayfield West, NSW

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP101: Particular samples required dilution due to the presence of high level hydrocarbons. Where applicable, LOR values have been adjusted accordingly.
- EP101, EP103: Results reported in mg/m³ are calculated from PPMV results based on a temperature of 25°C and atmospheric pressure of 101.3 kPa.
- CAN-001: Results for Pressure - As Received are measured under controlled conditions using calibrated laboratory gauges. These results are expressed as an Absolute Pressure. Equivalent gauge pressures may be calculated by subtracting the Pressure - Laboratory Atmosphere taken at the time of measurement.
- CAN-001: Results for Pressure - Gauge as Received are obtained from uncalibrated field gauges and are indicative only. These results may not precisely match calibrated gauge readings and may vary from field measurements due to changes in temperature and pressure
- EP104: Results reported in mg/m³ are calculated from Mol% results based on a temperature of 25°C and atmospheric pressure of 101.3 kPa
- EP104: Sample canisters were received at sub-ambient pressures and required dilution in the laboratory prior to analysis. LOR values have been adjusted accordingly

Analytical Results

Sub-Matrix: AIR (Matrix: AIR)				Client sample ID	GB07 C873_S014	GB04 C5063_S229	GB04 C3020_S055	GB5 C991_S218	GB5 C3024_S121
				Client sampling date / time	09-Oct-2017 00:00	09-Oct-2017 00:00	09-Oct-2017 00:00	09-Oct-2017 00:00	09-Oct-2017 00:00
Compound	CAS Number	LOR	Unit		EN1704238-001	EN1704238-002	EN1704238-003	EN1704238-004	EN1704238-005
					Result	Result	Result	Result	Result
EP101: VOCs by USEPA Method TO15 (Calculated Concentration)									
Freon 12	75-71-8	0.250	mg/m³		----	----	<0.250	----	**0.277**
Chloromethane	74-87-3	0.100	mg/m³		----	----	<0.100	----	<0.100
Freon 114	76-14-2	0.350	mg/m³		----	----	<0.350	----	<0.350
Vinyl chloride	75-01-4	0.0051	mg/m³		----	----	**0.163**	----	**0.159**
Bromomethane	74-83-9	0.190	mg/m³		----	----	<0.190	----	<0.190
Chloroethane	75-00-3	0.130	mg/m³		----	----	<0.130	----	<0.130
Freon 11	75-69-4	0.280	mg/m³		----	----	<0.280	----	<0.280
1.1-Dichloroethene	75-35-4	0.200	mg/m³		----	----	<0.200	----	<0.200
Dichloromethane	75-09-2	0.170	mg/m³		----	----	<0.170	----	<0.170
Freon 113	76-13-1	0.380	mg/m³		----	----	<0.380	----	<0.380
1.1-Dichloroethane	75-34-3	0.200	mg/m³		----	----	<0.200	----	<0.200
cis-1.2-Dichloroethene	156-59-2	0.0200	mg/m³		----	----	**0.0444**	----	<0.0400
Chloroform	67-66-3	0.240	mg/m³		----	----	<0.240	----	<0.240
1.2-Dichloroethane	107-06-2	0.200	mg/m³		----	----	<0.200	----	<0.200
1.1.1-Trichloroethane	71-55-6	0.270	mg/m³		----	----	<0.270	----	<0.270
Benzene	71-43-2	0.100	mg/m³		----	----	**2.26**	----	**2.59**
Carbon Tetrachloride	56-23-5	0.310	mg/m³		----	----	<0.310	----	<0.310
1.2-Dichloropropane	78-87-5	0.230	mg/m³		----	----	<0.230	----	<0.230
Trichloroethene	79-01-6	0.0054	mg/m³		----	----	<0.0540	----	<0.0540
cis-1.3-Dichloropropylene	10061-01-5	0.230	mg/m³		----	----	<0.230	----	<0.230
trans-1.3-Dichloropropene	10061-02-6	0.230	mg/m³		----	----	<0.230	----	<0.230
1.1.2-Trichloroethane	79-00-5	0.270	mg/m³		----	----	<0.270	----	<0.270
Toluene	108-88-3	0.190	mg/m³		----	----	**0.226**	----	<0.190
1.2-Dibromoethane (EDB)	106-93-4	0.380	mg/m³		----	----	<0.380	----	<0.380
Tetrachloroethene	127-18-4	0.340	mg/m³		----	----	<0.340	----	<0.340
Chlorobenzene	108-90-7	0.230	mg/m³		----	----	<0.230	----	**4.88**
Ethylbenzene	100-41-4	0.220	mg/m³		----	----	**1.04**	----	**0.402**
meta- & para-Xylene	108-38-3 106-42-3	0.430	mg/m³		----	----	**1.38**	----	<0.430
Styrene	100-42-5	0.210	mg/m³		----	----	**0.222**	----	<0.210
1.1.2.2-Tetrachloroethane	79-34-5	0.340	mg/m³		----	----	<0.340	----	<0.340
ortho-Xylene	95-47-6	0.220	mg/m³		----	----	**0.390**	----	<0.220
4-Ethyltoluene	622-96-8	0.240	mg/m³		----	----	<0.240	----	<0.240
Total Xylenes	1330-20-7	0.650	mg/m³		----	----	**1.77**	----	<0.650
1.3.5-Trimethylbenzene	108-67-8	0.240	mg/m³		----	----	**0.496**	----	**0.276**

Analytical Results

Sub-Matrix: AIR (Matrix: AIR)				Client sample ID	GB07 C873_S014	GB04 C5063_S229	GB04 C3020_S055	GB5 C991_S218	GB5 C3024_S121
				Client sampling date / time	09-Oct-2017 00:00	09-Oct-2017 00:00	09-Oct-2017 00:00	09-Oct-2017 00:00	09-Oct-2017 00:00
Compound	CAS Number	LOR	Unit		EN1704238-001	EN1704238-002	EN1704238-003	EN1704238-004	EN1704238-005
					Result	Result	Result	Result	Result
EP101: VOCs by USEPA Method TO15 (Calculated Concentration) - Continued									
1.2.4-Trimethylbenzene	95-63-6	0.240	mg/m³		----	----	**1.18**	----	**0.658**
1.3-Dichlorobenzene	541-73-1	0.300	mg/m³		----	----	<0.300	----	<0.300
Benzylchloride	100-44-7	0.260	mg/m³		----	----	<0.260	----	<0.260
1.4-Dichlorobenzene	106-46-7	0.300	mg/m³		----	----	<0.300	----	<0.300
1.2-Dichlorobenzene	95-50-1	0.300	mg/m³		----	----	<0.300	----	<0.300
1.2.4-Trichlorobenzene	120-82-1	0.370	mg/m³		----	----	<0.370	----	<0.370
Hexachlorobutadiene	87-68-3	0.530	mg/m³		----	----	<0.530	----	<0.530
Acetone	67-64-1	0.120	mg/m³		----	----	<0.120	----	<0.120
Bromodichloromethane	75-27-4	0.340	mg/m³		----	----	<0.340	----	<0.340
1.3-Butadiene	106-99-0	0.110	mg/m³		----	----	<0.110	----	<0.110
Carbon disulfide	75-15-0	0.160	mg/m³		----	----	<0.160	----	<0.160
2-Chlorotoluene	95-49-8	0.260	mg/m³		----	----	<0.260	----	<0.260
1-Chloro-2-propene (Allyl chloride)	107-05-1	0.160	mg/m³		----	----	<0.160	----	<0.160
Cyclohexane	110-82-7	0.170	mg/m³		----	----	**9.18**	----	**5.44**
Dibromochloromethane	124-48-1	0.430	mg/m³		----	----	<0.430	----	<0.430
1.4-Dioxane	123-91-1	0.180	mg/m³		----	----	<0.180	----	<0.180
Ethylacetate	9002-89-5	0.180	mg/m³		----	----	<0.180	----	<0.180
trans-1.2-Dichloroethene	156-60-5	0.200	mg/m³		----	----	<0.200	----	<0.200
Heptane	142-82-5	0.200	mg/m³		----	----	**11.1**	----	**5.82**
Hexane	110-54-3	0.180	mg/m³		----	----	**16.8**	----	**4.30**
Isooctane	540-84-1	0.230	mg/m³		----	----	**2.26**	----	**1.80**
Isopropyl Alcohol	67-63-0	0.120	mg/m³		----	----	**0.538**	----	**0.334**
2-Butanone (MEK)	78-93-3	0.150	mg/m³		----	----	<0.150	----	<0.150
Methyl iso-Butyl ketone	108-10-1	0.200	mg/m³		----	----	<0.200	----	<0.200
2-Hexanone (MBK)	591-78-6	0.200	mg/m³		----	----	<0.200	----	<0.200
Propene	115-07-1	0.0900	mg/m³		----	----	**6.90**	----	**2.79**
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.180	mg/m³		----	----	<0.180	----	<0.180
Tetrahydrofuran	109-99-9	0.150	mg/m³		----	----	<0.150	----	<0.150
Bromoform	75-25-2	0.520	mg/m³		----	----	<0.520	----	<0.520
Vinyl Acetate	108-05-4	0.180	mg/m³		----	----	<0.180	----	**0.510**
Vinyl bromide	593-60-2	0.220	mg/m³		----	----	<0.220	----	<0.220
Ethanol	64-17-5	0.0900	mg/m³		----	----	<0.0900	----	<0.0900
Acetonitrile	75-05-8	0.0800	mg/m³		----	----	<0.0800	----	<0.0800

Analytical Results

Sub-Matrix: AIR (Matrix: AIR)				Client sample ID	GB07 C873_S014	GB04 C5063_S229	GB04 C3020_S055	GB5 C991_S218	GB5 C3024_S121
				Client sampling date / time	09-Oct-2017 00:00	09-Oct-2017 00:00	09-Oct-2017 00:00	09-Oct-2017 00:00	09-Oct-2017 00:00
Compound	CAS Number	LOR	Unit		EN1704238-001	EN1704238-002	EN1704238-003	EN1704238-004	EN1704238-005
					Result	Result	Result	Result	Result
EP101: VOCs by USEPA Method TO15 (Calculated Concentration) - Continued									
Acrolein	107-02-8	0.110	mg/m³		----	----	<0.110	----	<0.110
Acrylonitrile	107-13-1	0.110	mg/m³		----	----	<0.110	----	<0.110
tert-Butyl alcohol	75-65-0	0.150	mg/m³		----	----	<0.150	----	<0.150
2-Chloro-1.3-butadiene	126-99-8	0.180	mg/m³		----	----	<0.180	----	<0.180
Di-isopropyl Ether	108-20-3	0.210	mg/m³		----	----	<0.210	----	<0.210
Ethyl tert-Butyl Ether (ETBE)	637-92-3	0.210	mg/m³		----	----	<0.210	----	<0.210
tert-Amyl Methyl Ether (TAME)	994-05-8	0.210	mg/m³		----	----	<0.210	----	<0.210
Methyl Methacrylate	80-62-6	0.210	mg/m³		----	----	<0.210	----	<0.210
1.1.1.2-Tetrachloroethane	630-20-6	0.340	mg/m³		----	----	<0.340	----	<0.340
Isopropylbenzene	98-82-8	0.250	mg/m³		----	----	**1.94**	----	**5.80**
n-Propylbenzene	103-65-1	0.250	mg/m³		----	----	**0.386**	----	**1.08**
tert-Butylbenzene	98-06-6	0.270	mg/m³		----	----	<0.270	----	<0.270
sec-Butylbenzene	135-98-8	0.270	mg/m³		----	----	<0.270	----	<0.270
2-isopropyltoluene	527-84-4	0.270	mg/m³		----	----	<0.270	----	<0.270
n-Butylbenzene	104-51-8	0.270	mg/m³		----	----	<0.270	----	<0.270
Naphthalene	91-20-3	0.100	mg/m³		----	----	<0.100	----	<0.100
EP101-S: Reduced Sulphur Compounds in Air									
Hydrogen Sulphide	7783-06-4	20	ppbv		<20	<20	----	<20	----
EP101-S: Reduced Sulphur Compounds in Air (Calculated Concentration)									
Hydrogen Sulphide	7783-06-4	30	µg/m³		<30	<30	----	<30	----
EP103: Petroleum Hydrocarbons in Gaseous Samples									
C6 - C9 Fraction	----	5.00	ppmv		----	----	**77.4**	----	**61.7**
C10 - C14 Fraction	----	5.00	ppmv		----	----	**10.8**	----	**16.3**
EP103: Petroleum Hydrocarbons in Gaseous Samples (Calc Conc)									
C6 - C9 Fraction	----	20.0	mg/m³		----	----	**316**	----	**252**
C10 - C14 Fraction	----	35.0	mg/m³		----	----	**75.0**	----	**113**
EP103: Total Recoverable Hydrocarbons - NEPM 2013									
C6 - C10 Fraction	C6_C10	5.00	ppmv		----	----	**66.2**	----	**59.2**
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	5.00	ppmv		----	----	**64.8**	----	**58.1**
>C10 - C16 Fraction	----	5.00	ppmv		----	----	<5.00	----	**8.08**
>C10 - C16 Fraction minus Naphthalene (F2)	----	5.00	ppmv		----	----	<5.00	----	**8.08**
EP103: Total Recoverable Hydrocarbons - NEPM 2013 (Calc Conc)									

Analytical Results

Sub-Matrix: AIR (Matrix: AIR)				Client sample ID	GB07 C873_S014	GB04 C5063_S229	GB04 C3020_S055	GB5 C991_S218	GB5 C3024_S121
				Client sampling date / time	09-Oct-2017 00:00	09-Oct-2017 00:00	09-Oct-2017 00:00	09-Oct-2017 00:00	09-Oct-2017 00:00
Compound	CAS Number	LOR	Unit		EN1704238-001	EN1704238-002	EN1704238-003	EN1704238-004	EN1704238-005
					Result	Result	Result	Result	Result
EP103: Total Recoverable Hydrocarbons - NEPM 2013 (Calc Conc) - Continued									
C6 - C10 Fraction	C6_C10	20.0	mg/m³		----	----	**270**	----	**242**
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20.0	mg/m³		----	----	**265**	----	**238**
>C10 - C16 Fraction	----	40.0	mg/m³		----	----	<40.0	----	**60.8**
>C10 - C16 Fraction minus Naphthalene (F2)	----	40.0	mg/m³		----	----	<40.0	----	**60.8**
EP104: Light Hydrocarbons									
Methane	74-82-8	0.05	Mol %		<0.10	**50.1**	----	**59.5**	----
EP104: Light Hydrocarbons (Calc Conc)									
Methane	74-82-8	330000	µg/m³		<660000	**328000000**	----	**389000000**	----
EP104: Permanent Gases									
Carbon Dioxide	124-38-9	0.005	Mol %		<0.010	**28.5**	----	**36.0**	----
Carbon Monoxide	630-08-0	0.0005	Mol %		<0.0010	<0.0010	----	<0.0010	----
Hydrogen	1333-74-0	0.005	Mol %		<0.010	<0.010	----	<0.010	----
Helium	7440-59-7	0.005	Mol %		<0.010	<0.010	----	**0.025**	----
Oxygen	7782-44-7	0.10	Mol %		**18.5**	<0.20	----	<0.20	----
EP104: Permanent Gases (Calc Conc)									
Carbon Dioxide	124-38-9	90000	µg/m³		<180000	**512000000**	----	**646000000**	----
Carbon Monoxide	630-08-0	5000	µg/m³		<10000	<10000	----	<10000	----
Hydrogen	1333-74-0	4000	µg/m³		<8000	<8000	----	<8000	----
Oxygen	7782-44-7	1310000	µg/m³		**242000000**	<2620000	----	<2620000	----
Helium	7440-59-7	8000	µg/m³		<16000	<16000	----	**41000**	----
Sampling Quality Assurance									
Pressure - As received	PRESSURE	0.1	kPaa		**72.0**	**74.6**	**84.3**	**84.2**	**82.0**
Pressure - Laboratory Atmosphere	----	0.1	kPaa		**102**	**102**	**102**	**102**	**102**
Temperature as Received	----	0.1	°C		**21.0**	**21.0**	**21.0**	**21.0**	**21.0**
Vacuum - As received	----	0.03	"Hg		**8.80**	**8.03**	**5.14**	**5.17**	**5.85**
USEPA Air Toxics Method TO15r									
Freon 12	75-71-8	0.0500	ppmv		----	----	<0.0500	----	**0.0560**
Chloromethane	74-87-3	0.0500	ppmv		----	----	<0.0500	----	<0.0500
Freon 114	76-14-2	0.0500	ppmv		----	----	<0.0500	----	<0.0500
Vinyl chloride	75-01-4	0.0020	ppmv		----	----	**0.0638**	----	**0.0623**
Bromomethane	74-83-9	0.0500	ppmv		----	----	<0.0500	----	<0.0500
Chloroethane	75-00-3	0.0500	ppmv		----	----	<0.0500	----	<0.0500

Analytical Results

Sub-Matrix: AIR (Matrix: AIR)				Client sample ID	GB07 C873_S014	GB04 C5063_S229	GB04 C3020_S055	GB5 C991_S218	GB5 C3024_S121
				Client sampling date / time	09-Oct-2017 00:00	09-Oct-2017 00:00	09-Oct-2017 00:00	09-Oct-2017 00:00	09-Oct-2017 00:00
Compound	CAS Number	LOR	Unit		EN1704238-001	EN1704238-002	EN1704238-003	EN1704238-004	EN1704238-005
					Result	Result	Result	Result	Result
USEPA Air Toxics Method TO15r - Continued									
Freon 11	75-69-4	0.0500	ppmv		----	----	<0.0500	----	<0.0500
1.1-Dichloroethene	75-35-4	0.0500	ppmv		----	----	<0.0500	----	<0.0500
Dichloromethane	75-09-2	0.0500	ppmv		----	----	<0.0500	----	<0.0500
Freon 113	76-13-1	0.0500	ppmv		----	----	<0.0500	----	<0.0500
1.1-Dichloroethane	75-34-3	0.0500	ppmv		----	----	<0.0500	----	<0.0500
cis-1.2-Dichloroethene	156-59-2	0.0050	ppmv		----	----	**0.0112**	----	<0.0100
Chloroform	67-66-3	0.0500	ppmv		----	----	<0.0500	----	<0.0500
1.2-Dichloroethane	107-06-2	0.0500	ppmv		----	----	<0.0500	----	<0.0500
1.1.1-Trichloroethane	71-55-6	0.0500	ppmv		----	----	<0.0500	----	<0.0500
Benzene	71-43-2	0.0300	ppmv		----	----	**0.709**	----	**0.812**
Carbon Tetrachloride	56-23-5	0.0500	ppmv		----	----	<0.0500	----	<0.0500
1.2-Dichloropropane	78-87-5	0.0500	ppmv		----	----	<0.0500	----	<0.0500
Trichloroethene	79-01-6	0.0010	ppmv		----	----	<0.0100	----	<0.0100
cis-1.3-Dichloropropylene	10061-01-5	0.0500	ppmv		----	----	<0.0500	----	<0.0500
trans-1.3-Dichloropropene	10061-02-6	0.0500	ppmv		----	----	<0.0500	----	<0.0500
1.1.2-Trichloroethane	79-00-5	0.0500	ppmv		----	----	<0.0500	----	<0.0500
Toluene	108-88-3	0.0500	ppmv		----	----	**0.0600**	----	<0.0500
1.2-Dibromoethane (EDB)	106-93-4	0.0500	ppmv		----	----	<0.0500	----	<0.0500
Tetrachloroethene	127-18-4	0.0500	ppmv		----	----	<0.0500	----	<0.0500
Chlorobenzene	108-90-7	0.0500	ppmv		----	----	<0.0500	----	**1.06**
Ethylbenzene	100-41-4	0.0500	ppmv		----	----	**0.239**	----	**0.0927**
meta- & para-Xylene	108-38-3 106-42-3	0.100	ppmv		----	----	**0.317**	----	<0.100
Styrene	100-42-5	0.0500	ppmv		----	----	**0.0522**	----	<0.0500
1.1.2.2-Tetrachloroethane	79-34-5	0.0500	ppmv		----	----	<0.0500	----	<0.0500
ortho-Xylene	95-47-6	0.0500	ppmv		----	----	**0.0900**	----	<0.0500
4-Ethyltoluene	622-96-8	0.0500	ppmv		----	----	<0.0500	----	<0.0500
1.3.5-Trimethylbenzene	108-67-8	0.0500	ppmv		----	----	**0.101**	----	**0.0562**
1.2.4-Trimethylbenzene	95-63-6	0.0500	ppmv		----	----	**0.241**	----	**0.134**
1.3-Dichlorobenzene	541-73-1	0.0500	ppmv		----	----	<0.0500	----	<0.0500
Benzylchloride	100-44-7	0.0500	ppmv		----	----	<0.0500	----	<0.0500
1.4-Dichlorobenzene	106-46-7	0.0500	ppmv		----	----	<0.0500	----	<0.0500
1.2-Dichlorobenzene	95-50-1	0.0500	ppmv		----	----	<0.0500	----	<0.0500
1.2.4-Trichlorobenzene	120-82-1	0.0500	ppmv		----	----	<0.0500	----	<0.0500
Hexachlorobutadiene	87-68-3	0.0500	ppmv		----	----	<0.0500	----	<0.0500

Analytical Results

Sub-Matrix: AIR (Matrix: AIR)				Client sample ID	GB07 C873_S014	GB04 C5063_S229	GB04 C3020_S055	GB5 C991_S218	GB5 C3024_S121
				Client sampling date / time	09-Oct-2017 00:00	09-Oct-2017 00:00	09-Oct-2017 00:00	09-Oct-2017 00:00	09-Oct-2017 00:00
Compound	CAS Number	LOR	Unit		EN1704238-001	EN1704238-002	EN1704238-003	EN1704238-004	EN1704238-005
					Result	Result	Result	Result	Result
USEPA Air Toxics Method TO15r - Continued									
Acetone	67-64-1	0.0500	ppmv		----	----	<0.0500	----	<0.0500
Bromodichloromethane	75-27-4	0.0500	ppmv		----	----	<0.0500	----	<0.0500
1.3-Butadiene	106-99-0	0.0500	ppmv		----	----	<0.0500	----	<0.0500
Carbon disulfide	75-15-0	0.0500	ppmv		----	----	<0.0500	----	<0.0500
2-Chlorotoluene	95-49-8	0.0500	ppmv		----	----	<0.0500	----	<0.0500
1-Chloro-2-propene (Allyl chloride)	107-05-1	0.0500	ppmv		----	----	<0.0500	----	<0.0500
Cyclohexane	110-82-7	0.0500	ppmv		----	----	**2.67**	----	**1.58**
Dibromochloromethane	124-48-1	0.0500	ppmv		----	----	<0.0500	----	<0.0500
1.4-Dioxane	123-91-1	0.0500	ppmv		----	----	<0.0500	----	<0.0500
Ethylacetate	9002-89-5	0.0500	ppmv		----	----	<0.0500	----	<0.0500
trans-1.2-Dichloroethene	156-60-5	0.0500	ppmv		----	----	<0.0500	----	<0.0500
Heptane	142-82-5	0.0500	ppmv		----	----	**2.71**	----	**1.42**
Hexane	110-54-3	0.0500	ppmv		----	----	**4.78**	----	**1.22**
Isooctane	540-84-1	0.0500	ppmv		----	----	**0.484**	----	**0.385**
Isopropyl Alcohol	67-63-0	0.0500	ppmv		----	----	**0.219**	----	**0.136**
2-Butanone (MEK)	78-93-3	0.0500	ppmv		----	----	<0.0500	----	<0.0500
Methyl iso-Butyl ketone	108-10-1	0.0500	ppmv		----	----	<0.0500	----	<0.0500
2-Hexanone (MBK)	591-78-6	0.0500	ppmv		----	----	<0.0500	----	<0.0500
Propene	115-07-1	0.0500	ppmv		----	----	**4.01**	----	**1.62**
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.0500	ppmv		----	----	<0.0500	----	<0.0500
Tetrahydrofuran	109-99-9	0.0500	ppmv		----	----	<0.0500	----	<0.0500
Bromoform	75-25-2	0.0500	ppmv		----	----	<0.0500	----	<0.0500
Vinyl Acetate	108-05-4	0.0500	ppmv		----	----	<0.0500	----	**0.145**
Vinyl bromide	593-60-2	0.0500	ppmv		----	----	<0.0500	----	<0.0500
Ethanol	64-17-5	0.0500	ppmv		----	----	<0.0500	----	<0.0500
Acetonitrile	75-05-8	0.0500	ppmv		----	----	<0.0500	----	<0.0500
Acrolein	107-02-8	0.0500	ppmv		----	----	<0.0500	----	<0.0500
Acrylonitrile	107-13-1	0.0500	ppmv		----	----	<0.0500	----	<0.0500
tert-Butyl alcohol	75-65-0	0.0500	ppmv		----	----	<0.0500	----	<0.0500
2-Chloro-1.3-butadiene	126-99-8	0.0500	ppmv		----	----	<0.0500	----	<0.0500
Di-isopropyl Ether	108-20-3	0.0500	ppmv		----	----	<0.0500	----	<0.0500
Ethyl tert-Butyl Ether (ETBE)	637-92-3	0.0500	ppmv		----	----	<0.0500	----	<0.0500
tert-Amyl Methyl Ether (TAME)	994-05-8	0.0500	ppmv		----	----	<0.0500	----	<0.0500

Analytical Results

Sub-Matrix: AIR (Matrix: AIR)				Client sample ID	GB07 C873_S014	GB04 C5063_S229	GB04 C3020_S055	GB5 C991_S218	GB5 C3024_S121
				Client sampling date / time	09-Oct-2017 00:00	09-Oct-2017 00:00	09-Oct-2017 00:00	09-Oct-2017 00:00	09-Oct-2017 00:00
Compound	CAS Number	LOR	Unit		EN1704238-001	EN1704238-002	EN1704238-003	EN1704238-004	EN1704238-005
					Result	Result	Result	Result	Result
USEPA Air Toxics Method TO15r - Continued									
Methyl Methacrylate	80-62-6	0.0500	ppmv		----	----	<0.0500	----	<0.0500
1.1.1.2-Tetrachloroethane	630-20-6	0.0500	ppmv		----	----	<0.0500	----	<0.0500
Isopropylbenzene	98-82-8	0.0500	ppmv		----	----	**0.395**	----	**1.18**
n-Propylbenzene	103-65-1	0.0500	ppmv		----	----	**0.0786**	----	**0.220**
tert-Butylbenzene	98-06-6	0.0500	ppmv		----	----	<0.0500	----	<0.0500
sec-Butylbenzene	135-98-8	0.0500	ppmv		----	----	<0.0500	----	<0.0500
2-isopropyltoluene	527-84-4	0.0500	ppmv		----	----	<0.0500	----	<0.0500
n-Butylbenzene	104-51-8	0.0500	ppmv		----	----	<0.0500	----	<0.0500
Naphthalene	91-20-3	0.0190	ppmv		----	----	<0.0190	----	<0.0190
USEPA Air Toxics Method TO15r Surrogates									
4-Bromofluorobenzene	460-00-4	0.5	%		----	----	**97.8**	----	**98.8**

Analytical Results

Sub-Matrix: AIR (Matrix: AIR)				Client sample ID	GB06 C1085_S240	GB8 C737_S233	GB8 C998_S051	GB9 C1280_S221	GB9_D1 C823_S221
				Client sampling date / time	09-Oct-2017 00:00	10-Oct-2017 00:00	10-Oct-2017 00:00	10-Oct-2017 00:00	10-Oct-2017 00:00
Compound	CAS Number	LOR	Unit		EN1704238-006	EN1704238-007	EN1704238-008	EN1704238-009	EN1704238-010
					Result	Result	Result	Result	Result
EP101: VOCs by USEPA Method TO15 (Calculated Concentration)									
Freon 12	75-71-8	0.250	mg/m³		----	----	<0.250	----	----
Chloromethane	74-87-3	0.100	mg/m³		----	----	**0.108**	----	----
Freon 114	76-14-2	0.350	mg/m³		----	----	<0.350	----	----
Vinyl chloride	75-01-4	0.0051	mg/m³		----	----	**0.488**	----	----
Bromomethane	74-83-9	0.190	mg/m³		----	----	**1.44**	----	----
Chloroethane	75-00-3	0.130	mg/m³		----	----	<0.130	----	----
Freon 11	75-69-4	0.280	mg/m³		----	----	<0.280	----	----
1.1-Dichloroethene	75-35-4	0.200	mg/m³		----	----	<0.200	----	----
Dichloromethane	75-09-2	0.170	mg/m³		----	----	<0.170	----	----
Freon 113	76-13-1	0.380	mg/m³		----	----	<0.380	----	----
1.1-Dichloroethane	75-34-3	0.200	mg/m³		----	----	<0.200	----	----
cis-1.2-Dichloroethene	156-59-2	0.0200	mg/m³		----	----	<0.0200	----	----
Chloroform	67-66-3	0.240	mg/m³		----	----	<0.240	----	----
1.2-Dichloroethane	107-06-2	0.200	mg/m³		----	----	<0.200	----	----
1.1.1-Trichloroethane	71-55-6	0.270	mg/m³		----	----	<0.270	----	----
Benzene	71-43-2	0.100	mg/m³		----	----	<0.100	----	----
Carbon Tetrachloride	56-23-5	0.310	mg/m³		----	----	<0.310	----	----
1.2-Dichloropropane	78-87-5	0.230	mg/m³		----	----	<0.230	----	----
Trichloroethene	79-01-6	0.0054	mg/m³		----	----	<0.0054	----	----
cis-1.3-Dichloropropylene	10061-01-5	0.230	mg/m³		----	----	<0.230	----	----
trans-1.3-Dichloropropene	10061-02-6	0.230	mg/m³		----	----	<0.230	----	----
1.1.2-Trichloroethane	79-00-5	0.270	mg/m³		----	----	<0.270	----	----
Toluene	108-88-3	0.190	mg/m³		----	----	<0.190	----	----
1.2-Dibromoethane (EDB)	106-93-4	0.380	mg/m³		----	----	<0.380	----	----
Tetrachloroethene	127-18-4	0.340	mg/m³		----	----	<0.340	----	----
Chlorobenzene	108-90-7	0.230	mg/m³		----	----	<0.230	----	----
Ethylbenzene	100-41-4	0.220	mg/m³		----	----	<0.220	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.430	mg/m³		----	----	<0.430	----	----
Styrene	100-42-5	0.210	mg/m³		----	----	<0.210	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.340	mg/m³		----	----	<0.340	----	----
ortho-Xylene	95-47-6	0.220	mg/m³		----	----	<0.220	----	----
4-Ethyltoluene	622-96-8	0.240	mg/m³		----	----	<0.240	----	----
Total Xylenes	1330-20-7	0.650	mg/m³		----	----	<0.650	----	----
1.3.5-Trimethylbenzene	108-67-8	0.240	mg/m³		----	----	<0.240	----	----

Analytical Results

Sub-Matrix: AIR (Matrix: AIR)				Client sample ID	GB06 C1085_S240	GB8 C737_S233	GB8 C998_S051	GB9 C1280_S221	GB9_D1 C823_S221
				Client sampling date / time	09-Oct-2017 00:00	10-Oct-2017 00:00	10-Oct-2017 00:00	10-Oct-2017 00:00	10-Oct-2017 00:00
Compound	CAS Number	LOR	Unit		EN1704238-006	EN1704238-007	EN1704238-008	EN1704238-009	EN1704238-010
					Result	Result	Result	Result	Result
EP101: VOCs by USEPA Method TO15 (Calculated Concentration) - Continued									
1.2.4-Trimethylbenzene	95-63-6	0.240	mg/m³		----	----	<0.240	----	----
1.3-Dichlorobenzene	541-73-1	0.300	mg/m³		----	----	<0.300	----	----
Benzylchloride	100-44-7	0.260	mg/m³		----	----	<0.260	----	----
1.4-Dichlorobenzene	106-46-7	0.300	mg/m³		----	----	<0.300	----	----
1.2-Dichlorobenzene	95-50-1	0.300	mg/m³		----	----	<0.300	----	----
1.2.4-Trichlorobenzene	120-82-1	0.370	mg/m³		----	----	<0.370	----	----
Hexachlorobutadiene	87-68-3	0.530	mg/m³		----	----	<0.530	----	----
Acetone	67-64-1	0.120	mg/m³		----	----	<0.120	----	----
Bromodichloromethane	75-27-4	0.340	mg/m³		----	----	<0.340	----	----
1.3-Butadiene	106-99-0	0.110	mg/m³		----	----	<0.110	----	----
Carbon disulfide	75-15-0	0.160	mg/m³		----	----	<0.160	----	----
2-Chlorotoluene	95-49-8	0.260	mg/m³		----	----	<0.260	----	----
1-Chloro-2-propene (Allyl chloride)	107-05-1	0.160	mg/m³		----	----	<0.160	----	----
Cyclohexane	110-82-7	0.170	mg/m³		----	----	<0.170	----	----
Dibromochloromethane	124-48-1	0.430	mg/m³		----	----	<0.430	----	----
1.4-Dioxane	123-91-1	0.180	mg/m³		----	----	<0.180	----	----
Ethylacetate	9002-89-5	0.180	mg/m³		----	----	<0.180	----	----
trans-1.2-Dichloroethene	156-60-5	0.200	mg/m³		----	----	<0.200	----	----
Heptane	142-82-5	0.200	mg/m³		----	----	<0.200	----	----
Hexane	110-54-3	0.180	mg/m³		----	----	<0.180	----	----
Isooctane	540-84-1	0.230	mg/m³		----	----	<0.230	----	----
Isopropyl Alcohol	67-63-0	0.120	mg/m³		----	----	**1.95**	----	----
2-Butanone (MEK)	78-93-3	0.150	mg/m³		----	----	<0.150	----	----
Methyl iso-Butyl ketone	108-10-1	0.200	mg/m³		----	----	<0.200	----	----
2-Hexanone (MBK)	591-78-6	0.200	mg/m³		----	----	<0.200	----	----
Propene	115-07-1	0.0900	mg/m³		----	----	**0.504**	----	----
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.180	mg/m³		----	----	<0.180	----	----
Tetrahydrofuran	109-99-9	0.150	mg/m³		----	----	<0.150	----	----
Bromoform	75-25-2	0.520	mg/m³		----	----	<0.520	----	----
Vinyl Acetate	108-05-4	0.180	mg/m³		----	----	<0.180	----	----
Vinyl bromide	593-60-2	0.220	mg/m³		----	----	<0.220	----	----
Ethanol	64-17-5	0.0900	mg/m³		----	----	<0.0900	----	----
Acetonitrile	75-05-8	0.0800	mg/m³		----	----	<0.0800	----	----

Analytical Results

Sub-Matrix: AIR (Matrix: AIR)				Client sample ID	GB06 C1085_S240	GB8 C737_S233	GB8 C998_S051	GB9 C1280_S221	GB9_D1 C823_S221
				Client sampling date / time	09-Oct-2017 00:00	10-Oct-2017 00:00	10-Oct-2017 00:00	10-Oct-2017 00:00	10-Oct-2017 00:00
Compound	CAS Number	LOR	Unit		EN1704238-006	EN1704238-007	EN1704238-008	EN1704238-009	EN1704238-010
					Result	Result	Result	Result	Result
EP101: VOCs by USEPA Method TO15 (Calculated Concentration) - Continued									
Acrolein	107-02-8	0.110	mg/m³		----	----	<0.110	----	----
Acrylonitrile	107-13-1	0.110	mg/m³		----	----	<0.110	----	----
tert-Butyl alcohol	75-65-0	0.150	mg/m³		----	----	<0.150	----	----
2-Chloro-1.3-butadiene	126-99-8	0.180	mg/m³		----	----	<0.180	----	----
Di-isopropyl Ether	108-20-3	0.210	mg/m³		----	----	<0.210	----	----
Ethyl tert-Butyl Ether (ETBE)	637-92-3	0.210	mg/m³		----	----	<0.210	----	----
tert-Amyl Methyl Ether (TAME)	994-05-8	0.210	mg/m³		----	----	<0.210	----	----
Methyl Methacrylate	80-62-6	0.210	mg/m³		----	----	<0.210	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.340	mg/m³		----	----	<0.340	----	----
Isopropylbenzene	98-82-8	0.250	mg/m³		----	----	<0.250	----	----
n-Propylbenzene	103-65-1	0.250	mg/m³		----	----	<0.250	----	----
tert-Butylbenzene	98-06-6	0.270	mg/m³		----	----	<0.270	----	----
sec-Butylbenzene	135-98-8	0.270	mg/m³		----	----	<0.270	----	----
2-isopropyltoluene	527-84-4	0.270	mg/m³		----	----	<0.270	----	----
n-Butylbenzene	104-51-8	0.270	mg/m³		----	----	<0.270	----	----
Naphthalene	91-20-3	0.100	mg/m³		----	----	<0.100	----	----
EP101-S: Reduced Sulphur Compounds in Air									
Hydrogen Sulphide	7783-06-4	20	ppbv		<20	<20	----	<20	<20
EP101-S: Reduced Sulphur Compounds in Air (Calculated Concentration)									
Hydrogen Sulphide	7783-06-4	30	µg/m³		<30	<30	----	<30	<30
EP103: Petroleum Hydrocarbons in Gaseous Samples									
C6 - C9 Fraction	----	5.00	ppmv		----	----	<5.00	----	----
C10 - C14 Fraction	----	5.00	ppmv		----	----	<5.00	----	----
EP103: Petroleum Hydrocarbons in Gaseous Samples (Calc Conc)									
C6 - C9 Fraction	----	20.0	mg/m³		----	----	<20.0	----	----
C10 - C14 Fraction	----	35.0	mg/m³		----	----	<35.0	----	----
EP103: Total Recoverable Hydrocarbons - NEPM 2013									
C6 - C10 Fraction	C6_C10	5.00	ppmv		----	----	<5.00	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	5.00	ppmv		----	----	<5.00	----	----
>C10 - C16 Fraction	----	5.00	ppmv		----	----	<5.00	----	----
>C10 - C16 Fraction minus Naphthalene (F2)	----	5.00	ppmv		----	----	<5.00	----	----
EP103: Total Recoverable Hydrocarbons - NEPM 2013 (Calc Conc)									

Analytical Results

Sub-Matrix: AIR (Matrix: AIR)				Client sample ID	GB06 C1085_S240	GB8 C737_S233	GB8 C998_S051	GB9 C1280_S221	GB9_D1 C823_S221
				Client sampling date / time	09-Oct-2017 00:00	10-Oct-2017 00:00	10-Oct-2017 00:00	10-Oct-2017 00:00	10-Oct-2017 00:00
Compound	CAS Number	LOR	Unit		EN1704238-006	EN1704238-007	EN1704238-008	EN1704238-009	EN1704238-010
					Result	Result	Result	Result	Result
EP103: Total Recoverable Hydrocarbons - NEPM 2013 (Calc Conc) - Continued									
C6 - C10 Fraction	C6_C10	20.0	mg/m³		----	----	<20.0	----	----
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20.0	mg/m³		----	----	<20.0	----	----
>C10 - C16 Fraction	----	40.0	mg/m³		----	----	<40.0	----	----
>C10 - C16 Fraction minus Naphthalene (F2)	----	40.0	mg/m³		----	----	<40.0	----	----
EP104: Light Hydrocarbons									
Methane	74-82-8	0.05	Mol %		**47.3**	<0.10	----	**0.92**	**0.81**
EP104: Light Hydrocarbons (Calc Conc)									
Methane	74-82-8	330000	µg/m³		**309000000**	<660000	----	**6020000**	**5300000**
EP104: Permanent Gases									
Carbon Dioxide	124-38-9	0.005	Mol %		**42.4**	**19.0**	----	**14.3**	**12.7**
Carbon Monoxide	630-08-0	0.0005	Mol %		<0.0010	**0.0031**	----	<0.0010	<0.0010
Hydrogen	1333-74-0	0.005	Mol %		<0.010	**0.011**	----	<0.010	<0.010
Helium	7440-59-7	0.005	Mol %		<0.010	<0.010	----	<0.010	<0.010
Oxygen	7782-44-7	0.10	Mol %		<0.20	**6.96**	----	<0.20	<0.20
EP104: Permanent Gases (Calc Conc)									
Carbon Dioxide	124-38-9	90000	µg/m³		**763000000**	**341000000**	----	**258000000**	**228000000**
Carbon Monoxide	630-08-0	5000	µg/m³		<10000	**35000**	----	<10000	<10000
Hydrogen	1333-74-0	4000	µg/m³		<8000	**9000**	----	<8000	<8000
Oxygen	7782-44-7	1310000	µg/m³		<2620000	**91000000**	----	<2620000	<2620000
Helium	7440-59-7	8000	µg/m³		<16000	<16000	----	<16000	<16000
Sampling Quality Assurance									
Pressure - As received	PRESSURE	0.1	kPaa		**73.4**	**88.6**	**74.2**	**81.6**	**47.9**
Pressure - Laboratory Atmosphere	----	0.1	kPaa		**102**	**102**	**102**	**102**	**102**
Temperature as Received	----	0.1	°C		**21.0**	**21.0**	**21.0**	**21.0**	**21.0**
Vacuum - As received	----	0.03	"Hg		**8.39**	**3.87**	**8.12**	**5.96**	**15.9**
USEPA Air Toxics Method TO15r									
Freon 12	75-71-8	0.0500	ppmv		----	----	<0.0500	----	----
Chloromethane	74-87-3	0.0500	ppmv		----	----	**0.0523**	----	----
Freon 114	76-14-2	0.0500	ppmv		----	----	<0.0500	----	----
Vinyl chloride	75-01-4	0.0020	ppmv		----	----	**0.191**	----	----
Bromomethane	74-83-9	0.0500	ppmv		----	----	**0.371**	----	----
Chloroethane	75-00-3	0.0500	ppmv		----	----	<0.0500	----	----

Analytical Results

Sub-Matrix: AIR (Matrix: AIR)				Client sample ID	GB06 C1085_S240	GB8 C737_S233	GB8 C998_S051	GB9 C1280_S221	GB9_D1 C823_S221
				Client sampling date / time	09-Oct-2017 00:00	10-Oct-2017 00:00	10-Oct-2017 00:00	10-Oct-2017 00:00	10-Oct-2017 00:00
Compound	CAS Number	LOR	Unit		EN1704238-006	EN1704238-007	EN1704238-008	EN1704238-009	EN1704238-010
					Result	Result	Result	Result	Result
USEPA Air Toxics Method TO15r - Continued									
Freon 11	75-69-4	0.0500	ppmv		----	----	<0.0500	----	----
1.1-Dichloroethene	75-35-4	0.0500	ppmv		----	----	<0.0500	----	----
Dichloromethane	75-09-2	0.0500	ppmv		----	----	<0.0500	----	----
Freon 113	76-13-1	0.0500	ppmv		----	----	<0.0500	----	----
1.1-Dichloroethane	75-34-3	0.0500	ppmv		----	----	<0.0500	----	----
cis-1.2-Dichloroethene	156-59-2	0.0050	ppmv		----	----	<0.0050	----	----
Chloroform	67-66-3	0.0500	ppmv		----	----	<0.0500	----	----
1.2-Dichloroethane	107-06-2	0.0500	ppmv		----	----	<0.0500	----	----
1.1.1-Trichloroethane	71-55-6	0.0500	ppmv		----	----	<0.0500	----	----
Benzene	71-43-2	0.0300	ppmv		----	----	<0.0300	----	----
Carbon Tetrachloride	56-23-5	0.0500	ppmv		----	----	<0.0500	----	----
1.2-Dichloropropane	78-87-5	0.0500	ppmv		----	----	<0.0500	----	----
Trichloroethene	79-01-6	0.0010	ppmv		----	----	<0.0010	----	----
cis-1.3-Dichloropropylene	10061-01-5	0.0500	ppmv		----	----	<0.0500	----	----
trans-1.3-Dichloropropene	10061-02-6	0.0500	ppmv		----	----	<0.0500	----	----
1.1.2-Trichloroethane	79-00-5	0.0500	ppmv		----	----	<0.0500	----	----
Toluene	108-88-3	0.0500	ppmv		----	----	<0.0500	----	----
1.2-Dibromoethane (EDB)	106-93-4	0.0500	ppmv		----	----	<0.0500	----	----
Tetrachloroethene	127-18-4	0.0500	ppmv		----	----	<0.0500	----	----
Chlorobenzene	108-90-7	0.0500	ppmv		----	----	<0.0500	----	----
Ethylbenzene	100-41-4	0.0500	ppmv		----	----	<0.0500	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.100	ppmv		----	----	<0.100	----	----
Styrene	100-42-5	0.0500	ppmv		----	----	<0.0500	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.0500	ppmv		----	----	<0.0500	----	----
ortho-Xylene	95-47-6	0.0500	ppmv		----	----	<0.0500	----	----
4-Ethyltoluene	622-96-8	0.0500	ppmv		----	----	<0.0500	----	----
1.3.5-Trimethylbenzene	108-67-8	0.0500	ppmv		----	----	<0.0500	----	----
1.2.4-Trimethylbenzene	95-63-6	0.0500	ppmv		----	----	<0.0500	----	----
1.3-Dichlorobenzene	541-73-1	0.0500	ppmv		----	----	<0.0500	----	----
Benzylchloride	100-44-7	0.0500	ppmv		----	----	<0.0500	----	----
1.4-Dichlorobenzene	106-46-7	0.0500	ppmv		----	----	<0.0500	----	----
1.2-Dichlorobenzene	95-50-1	0.0500	ppmv		----	----	<0.0500	----	----
1.2.4-Trichlorobenzene	120-82-1	0.0500	ppmv		----	----	<0.0500	----	----
Hexachlorobutadiene	87-68-3	0.0500	ppmv		----	----	<0.0500	----	----

Analytical Results

Sub-Matrix: AIR (Matrix: AIR)				Client sample ID	GB06 C1085_S240	GB8 C737_S233	GB8 C998_S051	GB9 C1280_S221	GB9_D1 C823_S221
				Client sampling date / time	09-Oct-2017 00:00	10-Oct-2017 00:00	10-Oct-2017 00:00	10-Oct-2017 00:00	10-Oct-2017 00:00
Compound	CAS Number	LOR	Unit		EN1704238-006	EN1704238-007	EN1704238-008	EN1704238-009	EN1704238-010
					Result	Result	Result	Result	Result
USEPA Air Toxics Method TO15r - Continued									
Acetone	67-64-1	0.0500	ppmv		----	----	<0.0500	----	----
Bromodichloromethane	75-27-4	0.0500	ppmv		----	----	<0.0500	----	----
1.3-Butadiene	106-99-0	0.0500	ppmv		----	----	<0.0500	----	----
Carbon disulfide	75-15-0	0.0500	ppmv		----	----	<0.0500	----	----
2-Chlorotoluene	95-49-8	0.0500	ppmv		----	----	<0.0500	----	----
1-Chloro-2-propene (Allyl chloride)	107-05-1	0.0500	ppmv		----	----	<0.0500	----	----
Cyclohexane	110-82-7	0.0500	ppmv		----	----	<0.0500	----	----
Dibromochloromethane	124-48-1	0.0500	ppmv		----	----	<0.0500	----	----
1.4-Dioxane	123-91-1	0.0500	ppmv		----	----	<0.0500	----	----
Ethylacetate	9002-89-5	0.0500	ppmv		----	----	<0.0500	----	----
trans-1.2-Dichloroethene	156-60-5	0.0500	ppmv		----	----	<0.0500	----	----
Heptane	142-82-5	0.0500	ppmv		----	----	<0.0500	----	----
Hexane	110-54-3	0.0500	ppmv		----	----	<0.0500	----	----
Isooctane	540-84-1	0.0500	ppmv		----	----	<0.0500	----	----
Isopropyl Alcohol	67-63-0	0.0500	ppmv		----	----	**0.795**	----	----
2-Butanone (MEK)	78-93-3	0.0500	ppmv		----	----	<0.0500	----	----
Methyl iso-Butyl ketone	108-10-1	0.0500	ppmv		----	----	<0.0500	----	----
2-Hexanone (MBK)	591-78-6	0.0500	ppmv		----	----	<0.0500	----	----
Propene	115-07-1	0.0500	ppmv		----	----	**0.293**	----	----
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.0500	ppmv		----	----	<0.0500	----	----
Tetrahydrofuran	109-99-9	0.0500	ppmv		----	----	<0.0500	----	----
Bromoform	75-25-2	0.0500	ppmv		----	----	<0.0500	----	----
Vinyl Acetate	108-05-4	0.0500	ppmv		----	----	<0.0500	----	----
Vinyl bromide	593-60-2	0.0500	ppmv		----	----	<0.0500	----	----
Ethanol	64-17-5	0.0500	ppmv		----	----	<0.0500	----	----
Acetonitrile	75-05-8	0.0500	ppmv		----	----	<0.0500	----	----
Acrolein	107-02-8	0.0500	ppmv		----	----	<0.0500	----	----
Acrylonitrile	107-13-1	0.0500	ppmv		----	----	<0.0500	----	----
tert-Butyl alcohol	75-65-0	0.0500	ppmv		----	----	<0.0500	----	----
2-Chloro-1.3-butadiene	126-99-8	0.0500	ppmv		----	----	<0.0500	----	----
Di-isopropyl Ether	108-20-3	0.0500	ppmv		----	----	<0.0500	----	----
Ethyl tert-Butyl Ether (ETBE)	637-92-3	0.0500	ppmv		----	----	<0.0500	----	----
tert-Amyl Methyl Ether (TAME)	994-05-8	0.0500	ppmv		----	----	<0.0500	----	----

Analytical Results

Sub-Matrix: AIR (Matrix: AIR)				Client sample ID	GB06 C1085_S240	GB8 C737_S233	GB8 C998_S051	GB9 C1280_S221	GB9_D1 C823_S221
				Client sampling date / time	09-Oct-2017 00:00	10-Oct-2017 00:00	10-Oct-2017 00:00	10-Oct-2017 00:00	10-Oct-2017 00:00
Compound	CAS Number	LOR	Unit		EN1704238-006	EN1704238-007	EN1704238-008	EN1704238-009	EN1704238-010
					Result	Result	Result	Result	Result
USEPA Air Toxics Method TO15r - Continued									
Methyl Methacrylate	80-62-6	0.0500	ppmv		----	----	<0.0500	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.0500	ppmv		----	----	<0.0500	----	----
Isopropylbenzene	98-82-8	0.0500	ppmv		----	----	<0.0500	----	----
n-Propylbenzene	103-65-1	0.0500	ppmv		----	----	<0.0500	----	----
tert-Butylbenzene	98-06-6	0.0500	ppmv		----	----	<0.0500	----	----
sec-Butylbenzene	135-98-8	0.0500	ppmv		----	----	<0.0500	----	----
2-isopropyltoluene	527-84-4	0.0500	ppmv		----	----	<0.0500	----	----
n-Butylbenzene	104-51-8	0.0500	ppmv		----	----	<0.0500	----	----
Naphthalene	91-20-3	0.0190	ppmv		----	----	<0.0190	----	----
USEPA Air Toxics Method TO15r Surrogates									
4-Bromofluorobenzene	460-00-4	0.5	%		----	----	**98.8**	----	----

Analytical Results

Sub-Matrix: AIR (Matrix: AIR)			Client sample ID	GB9_D2 C5061_S221	GB10 C995_S216	GB10 C1076_S180	GB3 C828_S215	----
			Client sampling date / time	10-Oct-2017 00:00	10-Oct-2017 00:00	10-Oct-2017 00:00	10-Oct-2017 00:00	----
Compound	CAS Number	LOR	Unit	EN1704238-011	EN1704238-012	EN1704238-013	EN1704238-014	--------
				Result	Result	Result	Result	----
EP101: VOCs by USEPA Method TO15 (Calculated Concentration)								
Freon 12	75-71-8	0.250	mg/m³	----	----	<0.250	----	----
Chloromethane	74-87-3	0.100	mg/m³	----	----	<0.100	----	----
Freon 114	76-14-2	0.350	mg/m³	----	----	<0.350	----	----
Vinyl chloride	75-01-4	0.0051	mg/m³	----	----	**0.0437**	----	----
Bromomethane	74-83-9	0.190	mg/m³	----	----	**1.02**	----	----
Chloroethane	75-00-3	0.130	mg/m³	----	----	<0.130	----	----
Freon 11	75-69-4	0.280	mg/m³	----	----	<0.280	----	----
1.1-Dichloroethene	75-35-4	0.200	mg/m³	----	----	<0.200	----	----
Dichloromethane	75-09-2	0.170	mg/m³	----	----	<0.170	----	----
Freon 113	76-13-1	0.380	mg/m³	----	----	<0.380	----	----
1.1-Dichloroethane	75-34-3	0.200	mg/m³	----	----	<0.200	----	----
cis-1.2-Dichloroethene	156-59-2	0.0200	mg/m³	----	----	<0.0200	----	----
Chloroform	67-66-3	0.240	mg/m³	----	----	<0.240	----	----
1.2-Dichloroethane	107-06-2	0.200	mg/m³	----	----	<0.200	----	----
1.1.1-Trichloroethane	71-55-6	0.270	mg/m³	----	----	<0.270	----	----
Benzene	71-43-2	0.100	mg/m³	----	----	<0.100	----	----
Carbon Tetrachloride	56-23-5	0.310	mg/m³	----	----	<0.310	----	----
1.2-Dichloropropane	78-87-5	0.230	mg/m³	----	----	<0.230	----	----
Trichloroethene	79-01-6	0.0054	mg/m³	----	----	<0.0054	----	----
cis-1.3-Dichloropropylene	10061-01-5	0.230	mg/m³	----	----	<0.230	----	----
trans-1.3-Dichloropropene	10061-02-6	0.230	mg/m³	----	----	<0.230	----	----
1.1.2-Trichloroethane	79-00-5	0.270	mg/m³	----	----	<0.270	----	----
Toluene	108-88-3	0.190	mg/m³	----	----	<0.190	----	----
1.2-Dibromoethane (EDB)	106-93-4	0.380	mg/m³	----	----	<0.380	----	----
Tetrachloroethene	127-18-4	0.340	mg/m³	----	----	<0.340	----	----
Chlorobenzene	108-90-7	0.230	mg/m³	----	----	<0.230	----	----
Ethylbenzene	100-41-4	0.220	mg/m³	----	----	<0.220	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.430	mg/m³	----	----	<0.430	----	----
Styrene	100-42-5	0.210	mg/m³	----	----	<0.210	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.340	mg/m³	----	----	<0.340	----	----
ortho-Xylene	95-47-6	0.220	mg/m³	----	----	<0.220	----	----
4-Ethyltoluene	622-96-8	0.240	mg/m³	----	----	<0.240	----	----
Total Xylenes	1330-20-7	0.650	mg/m³	----	----	<0.650	----	----
1.3.5-Trimethylbenzene	108-67-8	0.240	mg/m³	----	----	<0.240	----	----

Analytical Results

Sub-Matrix: AIR (Matrix: AIR)				Client sample ID	GB9_D2 C5061_S221	GB10 C995_S216	GB10 C1076_S180	GB3 C828_S215	----
				Client sampling date / time	10-Oct-2017 00:00	10-Oct-2017 00:00	10-Oct-2017 00:00	10-Oct-2017 00:00	----
Compound	CAS Number	LOR	Unit		EN1704238-011	EN1704238-012	EN1704238-013	EN1704238-014	--------
					Result	Result	Result	Result	----
EP101: VOCs by USEPA Method TO15 (Calculated Concentration) - Continued									
1.2.4-Trimethylbenzene	95-63-6	0.240	mg/m³		----	----	<0.240	----	----
1.3-Dichlorobenzene	541-73-1	0.300	mg/m³		----	----	<0.300	----	----
Benzylchloride	100-44-7	0.260	mg/m³		----	----	<0.260	----	----
1.4-Dichlorobenzene	106-46-7	0.300	mg/m³		----	----	<0.300	----	----
1.2-Dichlorobenzene	95-50-1	0.300	mg/m³		----	----	<0.300	----	----
1.2.4-Trichlorobenzene	120-82-1	0.370	mg/m³		----	----	<0.370	----	----
Hexachlorobutadiene	87-68-3	0.530	mg/m³		----	----	<0.530	----	----
Acetone	67-64-1	0.120	mg/m³		----	----	<0.120	----	----
Bromodichloromethane	75-27-4	0.340	mg/m³		----	----	<0.340	----	----
1.3-Butadiene	106-99-0	0.110	mg/m³		----	----	<0.110	----	----
Carbon disulfide	75-15-0	0.160	mg/m³		----	----	<0.160	----	----
2-Chlorotoluene	95-49-8	0.260	mg/m³		----	----	<0.260	----	----
1-Chloro-2-propene (Allyl chloride)	107-05-1	0.160	mg/m³		----	----	<0.160	----	----
Cyclohexane	110-82-7	0.170	mg/m³		----	----	<0.170	----	----
Dibromochloromethane	124-48-1	0.430	mg/m³		----	----	<0.430	----	----
1.4-Dioxane	123-91-1	0.180	mg/m³		----	----	<0.180	----	----
Ethylacetate	9002-89-5	0.180	mg/m³		----	----	<0.180	----	----
trans-1.2-Dichloroethene	156-60-5	0.200	mg/m³		----	----	<0.200	----	----
Heptane	142-82-5	0.200	mg/m³		----	----	<0.200	----	----
Hexane	110-54-3	0.180	mg/m³		----	----	<0.180	----	----
Isooctane	540-84-1	0.230	mg/m³		----	----	<0.230	----	----
Isopropyl Alcohol	67-63-0	0.120	mg/m³		----	----	**1.80**	----	----
2-Butanone (MEK)	78-93-3	0.150	mg/m³		----	----	<0.150	----	----
Methyl iso-Butyl ketone	108-10-1	0.200	mg/m³		----	----	<0.200	----	----
2-Hexanone (MBK)	591-78-6	0.200	mg/m³		----	----	<0.200	----	----
Propene	115-07-1	0.0900	mg/m³		----	----	<0.0900	----	----
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.180	mg/m³		----	----	<0.180	----	----
Tetrahydrofuran	109-99-9	0.150	mg/m³		----	----	<0.150	----	----
Bromoform	75-25-2	0.520	mg/m³		----	----	<0.520	----	----
Vinyl Acetate	108-05-4	0.180	mg/m³		----	----	<0.180	----	----
Vinyl bromide	593-60-2	0.220	mg/m³		----	----	<0.220	----	----
Ethanol	64-17-5	0.0900	mg/m³		----	----	<0.0900	----	----
Acetonitrile	75-05-8	0.0800	mg/m³		----	----	<0.0800	----	----

Analytical Results

Sub-Matrix: AIR (Matrix: AIR)				Client sample ID	GB9_D2 C5061_S221	GB10 C995_S216	GB10 C1076_S180	GB3 C828_S215	----
				Client sampling date / time	10-Oct-2017 00:00	10-Oct-2017 00:00	10-Oct-2017 00:00	10-Oct-2017 00:00	----
Compound	CAS Number	LOR	Unit		EN1704238-011	EN1704238-012	EN1704238-013	EN1704238-014	--------
					Result	Result	Result	Result	----
EP101: VOCs by USEPA Method TO15 (Calculated Concentration) - Continued									
Acrolein	107-02-8	0.110	mg/m³		----	----	<0.110	----	----
Acrylonitrile	107-13-1	0.110	mg/m³		----	----	<0.110	----	----
tert-Butyl alcohol	75-65-0	0.150	mg/m³		----	----	<0.150	----	----
2-Chloro-1.3-butadiene	126-99-8	0.180	mg/m³		----	----	<0.180	----	----
Di-isopropyl Ether	108-20-3	0.210	mg/m³		----	----	<0.210	----	----
Ethyl tert-Butyl Ether (ETBE)	637-92-3	0.210	mg/m³		----	----	<0.210	----	----
tert-Amyl Methyl Ether (TAME)	994-05-8	0.210	mg/m³		----	----	<0.210	----	----
Methyl Methacrylate	80-62-6	0.210	mg/m³		----	----	<0.210	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.340	mg/m³		----	----	<0.340	----	----
Isopropylbenzene	98-82-8	0.250	mg/m³		----	----	<0.250	----	----
n-Propylbenzene	103-65-1	0.250	mg/m³		----	----	<0.250	----	----
tert-Butylbenzene	98-06-6	0.270	mg/m³		----	----	<0.270	----	----
sec-Butylbenzene	135-98-8	0.270	mg/m³		----	----	<0.270	----	----
2-isopropyltoluene	527-84-4	0.270	mg/m³		----	----	<0.270	----	----
n-Butylbenzene	104-51-8	0.270	mg/m³		----	----	<0.270	----	----
Naphthalene	91-20-3	0.100	mg/m³		----	----	<0.100	----	----
EP101-S: Reduced Sulphur Compounds in Air									
Hydrogen Sulphide	7783-06-4	20	ppbv		<20	<20	----	<20	----
EP101-S: Reduced Sulphur Compounds in Air (Calculated Concentration)									
Hydrogen Sulphide	7783-06-4	30	µg/m³		<30	<30	----	<30	----
EP103: Petroleum Hydrocarbons in Gaseous Samples									
C6 - C9 Fraction	----	5.00	ppmv		----	----	<5.00	----	----
C10 - C14 Fraction	----	5.00	ppmv		----	----	<5.00	----	----
EP103: Petroleum Hydrocarbons in Gaseous Samples (Calc Conc)									
C6 - C9 Fraction	----	20.0	mg/m³		----	----	<20.0	----	----
C10 - C14 Fraction	----	35.0	mg/m³		----	----	<35.0	----	----
EP103: Total Recoverable Hydrocarbons - NEPM 2013									
C6 - C10 Fraction	C6_C10	5.00	ppmv		----	----	<5.00	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	5.00	ppmv		----	----	<5.00	----	----
>C10 - C16 Fraction	----	5.00	ppmv		----	----	<5.00	----	----
>C10 - C16 Fraction minus Naphthalene (F2)	----	5.00	ppmv		----	----	<5.00	----	----
EP103: Total Recoverable Hydrocarbons - NEPM 2013 (Calc Conc)									

Analytical Results

Sub-Matrix: AIR (Matrix: AIR)				Client sample ID	GB9_D2 C5061_S221	GB10 C995_S216	GB10 C1076_S180	GB3 C828_S215	----
				Client sampling date / time	10-Oct-2017 00:00	10-Oct-2017 00:00	10-Oct-2017 00:00	10-Oct-2017 00:00	----
Compound	CAS Number	LOR	Unit		EN1704238-011	EN1704238-012	EN1704238-013	EN1704238-014	--------
					Result	Result	Result	Result	----
EP103: Total Recoverable Hydrocarbons - NEPM 2013 (Calc Conc) - Continued									
C6 - C10 Fraction	C6_C10	20.0	mg/m³		----	----	<20.0	----	----
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20.0	mg/m³		----	----	<20.0	----	----
>C10 - C16 Fraction	----	40.0	mg/m³		----	----	<40.0	----	----
>C10 - C16 Fraction minus Naphthalene (F2)	----	40.0	mg/m³		----	----	<40.0	----	----
EP104: Light Hydrocarbons									
Methane	74-82-8	0.05	Mol %		**0.94**	<0.10	----	<0.10	----
EP104: Light Hydrocarbons (Calc Conc)									
Methane	74-82-8	330000	µg/m³		**6150000**	<660000	----	<660000	----
EP104: Permanent Gases									
Carbon Dioxide	124-38-9	0.005	Mol %		**14.5**	**4.09**	----	**4.09**	----
Carbon Monoxide	630-08-0	0.0005	Mol %		<0.0010	<0.0010	----	<0.0010	----
Hydrogen	1333-74-0	0.005	Mol %		<0.010	<0.010	----	<0.010	----
Helium	7440-59-7	0.005	Mol %		<0.010	<0.010	----	<0.010	----
Oxygen	7782-44-7	0.10	Mol %		<0.20	**18.0**	----	**14.9**	----
EP104: Permanent Gases (Calc Conc)									
Carbon Dioxide	124-38-9	90000	µg/m³		**262000000**	**73500000**	----	**73600000**	----
Carbon Monoxide	630-08-0	5000	µg/m³		<10000	<10000	----	<10000	----
Hydrogen	1333-74-0	4000	µg/m³		<8000	<8000	----	<8000	----
Oxygen	7782-44-7	1310000	µg/m³		<2620000	**236000000**	----	**195000000**	----
Helium	7440-59-7	8000	µg/m³		<16000	<16000	----	<16000	----
Sampling Quality Assurance									
Pressure - As received	PRESSURE	0.1	kPaa		**80.4**	**79.2**	**97.0**	**96.3**	----
Pressure - Laboratory Atmosphere	----	0.1	kPaa		**102**	**102**	**102**	**102**	----
Temperature as Received	----	0.1	°C		**21.0**	**21.0**	**21.0**	**21.0**	----
Vacuum - As received	----	0.03	"Hg		**6.32**	**6.64**	**1.42**	**1.59**	----
USEPA Air Toxics Method TO15r									
Freon 12	75-71-8	0.0500	ppmv		----	----	<0.0500	----	----
Chloromethane	74-87-3	0.0500	ppmv		----	----	<0.0500	----	----
Freon 114	76-14-2	0.0500	ppmv		----	----	<0.0500	----	----
Vinyl chloride	75-01-4	0.0020	ppmv		----	----	**0.0171**	----	----
Bromomethane	74-83-9	0.0500	ppmv		----	----	**0.264**	----	----
Chloroethane	75-00-3	0.0500	ppmv		----	----	<0.0500	----	----

Analytical Results

Sub-Matrix: AIR (Matrix: AIR)				Client sample ID	GB9_D2 C5061_S221	GB10 C995_S216	GB10 C1076_S180	GB3 C828_S215	----
				Client sampling date / time	10-Oct-2017 00:00	10-Oct-2017 00:00	10-Oct-2017 00:00	10-Oct-2017 00:00	----
Compound	CAS Number	LOR	Unit		EN1704238-011	EN1704238-012	EN1704238-013	EN1704238-014	--------
					Result	Result	Result	Result	----
USEPA Air Toxics Method TO15r - Continued									
Freon 11	75-69-4	0.0500	ppmv		----	----	<0.0500	----	----
1.1-Dichloroethene	75-35-4	0.0500	ppmv		----	----	<0.0500	----	----
Dichloromethane	75-09-2	0.0500	ppmv		----	----	<0.0500	----	----
Freon 113	76-13-1	0.0500	ppmv		----	----	<0.0500	----	----
1.1-Dichloroethane	75-34-3	0.0500	ppmv		----	----	<0.0500	----	----
cis-1.2-Dichloroethene	156-59-2	0.0050	ppmv		----	----	<0.0050	----	----
Chloroform	67-66-3	0.0500	ppmv		----	----	<0.0500	----	----
1.2-Dichloroethane	107-06-2	0.0500	ppmv		----	----	<0.0500	----	----
1.1.1-Trichloroethane	71-55-6	0.0500	ppmv		----	----	<0.0500	----	----
Benzene	71-43-2	0.0300	ppmv		----	----	<0.0300	----	----
Carbon Tetrachloride	56-23-5	0.0500	ppmv		----	----	<0.0500	----	----
1.2-Dichloropropane	78-87-5	0.0500	ppmv		----	----	<0.0500	----	----
Trichloroethene	79-01-6	0.0010	ppmv		----	----	<0.0010	----	----
cis-1.3-Dichloropropylene	10061-01-5	0.0500	ppmv		----	----	<0.0500	----	----
trans-1.3-Dichloropropene	10061-02-6	0.0500	ppmv		----	----	<0.0500	----	----
1.1.2-Trichloroethane	79-00-5	0.0500	ppmv		----	----	<0.0500	----	----
Toluene	108-88-3	0.0500	ppmv		----	----	<0.0500	----	----
1.2-Dibromoethane (EDB)	106-93-4	0.0500	ppmv		----	----	<0.0500	----	----
Tetrachloroethene	127-18-4	0.0500	ppmv		----	----	<0.0500	----	----
Chlorobenzene	108-90-7	0.0500	ppmv		----	----	<0.0500	----	----
Ethylbenzene	100-41-4	0.0500	ppmv		----	----	<0.0500	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.100	ppmv		----	----	<0.100	----	----
Styrene	100-42-5	0.0500	ppmv		----	----	<0.0500	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.0500	ppmv		----	----	<0.0500	----	----
ortho-Xylene	95-47-6	0.0500	ppmv		----	----	<0.0500	----	----
4-Ethyltoluene	622-96-8	0.0500	ppmv		----	----	<0.0500	----	----
1.3.5-Trimethylbenzene	108-67-8	0.0500	ppmv		----	----	<0.0500	----	----
1.2.4-Trimethylbenzene	95-63-6	0.0500	ppmv		----	----	<0.0500	----	----
1.3-Dichlorobenzene	541-73-1	0.0500	ppmv		----	----	<0.0500	----	----
Benzylchloride	100-44-7	0.0500	ppmv		----	----	<0.0500	----	----
1.4-Dichlorobenzene	106-46-7	0.0500	ppmv		----	----	<0.0500	----	----
1.2-Dichlorobenzene	95-50-1	0.0500	ppmv		----	----	<0.0500	----	----
1.2.4-Trichlorobenzene	120-82-1	0.0500	ppmv		----	----	<0.0500	----	----
Hexachlorobutadiene	87-68-3	0.0500	ppmv		----	----	<0.0500	----	----

Analytical Results

Sub-Matrix: AIR (Matrix: AIR)				Client sample ID	GB9_D2 C5061_S221	GB10 C995_S216	GB10 C1076_S180	GB3 C828_S215	----
				Client sampling date / time	10-Oct-2017 00:00	10-Oct-2017 00:00	10-Oct-2017 00:00	10-Oct-2017 00:00	----
Compound	CAS Number	LOR	Unit		EN1704238-011	EN1704238-012	EN1704238-013	EN1704238-014	--------
					Result	Result	Result	Result	----
USEPA Air Toxics Method TO15r - Continued									
Acetone	67-64-1	0.0500	ppmv		----	----	<0.0500	----	----
Bromodichloromethane	75-27-4	0.0500	ppmv		----	----	<0.0500	----	----
1.3-Butadiene	106-99-0	0.0500	ppmv		----	----	<0.0500	----	----
Carbon disulfide	75-15-0	0.0500	ppmv		----	----	<0.0500	----	----
2-Chlorotoluene	95-49-8	0.0500	ppmv		----	----	<0.0500	----	----
1-Chloro-2-propene (Allyl chloride)	107-05-1	0.0500	ppmv		----	----	<0.0500	----	----
Cyclohexane	110-82-7	0.0500	ppmv		----	----	<0.0500	----	----
Dibromochloromethane	124-48-1	0.0500	ppmv		----	----	<0.0500	----	----
1.4-Dioxane	123-91-1	0.0500	ppmv		----	----	<0.0500	----	----
Ethylacetate	9002-89-5	0.0500	ppmv		----	----	<0.0500	----	----
trans-1.2-Dichloroethene	156-60-5	0.0500	ppmv		----	----	<0.0500	----	----
Heptane	142-82-5	0.0500	ppmv		----	----	<0.0500	----	----
Hexane	110-54-3	0.0500	ppmv		----	----	<0.0500	----	----
Isooctane	540-84-1	0.0500	ppmv		----	----	<0.0500	----	----
Isopropyl Alcohol	67-63-0	0.0500	ppmv		----	----	**0.731**	----	----
2-Butanone (MEK)	78-93-3	0.0500	ppmv		----	----	<0.0500	----	----
Methyl iso-Butyl ketone	108-10-1	0.0500	ppmv		----	----	<0.0500	----	----
2-Hexanone (MBK)	591-78-6	0.0500	ppmv		----	----	<0.0500	----	----
Propene	115-07-1	0.0500	ppmv		----	----	<0.0500	----	----
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.0500	ppmv		----	----	<0.0500	----	----
Tetrahydrofuran	109-99-9	0.0500	ppmv		----	----	<0.0500	----	----
Bromoform	75-25-2	0.0500	ppmv		----	----	<0.0500	----	----
Vinyl Acetate	108-05-4	0.0500	ppmv		----	----	<0.0500	----	----
Vinyl bromide	593-60-2	0.0500	ppmv		----	----	<0.0500	----	----
Ethanol	64-17-5	0.0500	ppmv		----	----	<0.0500	----	----
Acetonitrile	75-05-8	0.0500	ppmv		----	----	<0.0500	----	----
Acrolein	107-02-8	0.0500	ppmv		----	----	<0.0500	----	----
Acrylonitrile	107-13-1	0.0500	ppmv		----	----	<0.0500	----	----
tert-Butyl alcohol	75-65-0	0.0500	ppmv		----	----	<0.0500	----	----
2-Chloro-1.3-butadiene	126-99-8	0.0500	ppmv		----	----	<0.0500	----	----
Di-isopropyl Ether	108-20-3	0.0500	ppmv		----	----	<0.0500	----	----
Ethyl tert-Butyl Ether (ETBE)	637-92-3	0.0500	ppmv		----	----	<0.0500	----	----
tert-Amyl Methyl Ether (TAME)	994-05-8	0.0500	ppmv		----	----	<0.0500	----	----

Analytical Results

Sub-Matrix: AIR (Matrix: AIR)				Client sample ID	GB9_D2 C5061_S221	GB10 C995_S216	GB10 C1076_S180	GB3 C828_S215	----
				Client sampling date / time	10-Oct-2017 00:00	10-Oct-2017 00:00	10-Oct-2017 00:00	10-Oct-2017 00:00	----
Compound	CAS Number	LOR	Unit		EN1704238-011	EN1704238-012	EN1704238-013	EN1704238-014	--------
					Result	Result	Result	Result	----
USEPA Air Toxics Method TO15r - Continued									
Methyl Methacrylate	80-62-6	0.0500	ppmv		----	----	<0.0500	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.0500	ppmv		----	----	<0.0500	----	----
Isopropylbenzene	98-82-8	0.0500	ppmv		----	----	<0.0500	----	----
n-Propylbenzene	103-65-1	0.0500	ppmv		----	----	<0.0500	----	----
tert-Butylbenzene	98-06-6	0.0500	ppmv		----	----	<0.0500	----	----
sec-Butylbenzene	135-98-8	0.0500	ppmv		----	----	<0.0500	----	----
2-isopropyltoluene	527-84-4	0.0500	ppmv		----	----	<0.0500	----	----
n-Butylbenzene	104-51-8	0.0500	ppmv		----	----	<0.0500	----	----
Naphthalene	91-20-3	0.0190	ppmv		----	----	<0.0190	----	----
USEPA Air Toxics Method TO15r Surrogates									
4-Bromofluorobenzene	460-00-4	0.5	%		----	----	**99.1**	----	----

Surrogate Control Limits

Sub-Matrix: **AIR**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
USEPA Air Toxics Method TO15r Surrogates			
4-Bromofluorobenzene	460-00-4	60	140

QUALITY CONTROL REPORT

Work Order	: **EN1704238**	Page	: 1 of 8
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Newcastle
Contact	: OLFA NAZARIO	Contact	:
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 5/585 Maitland Road Mayfield West NSW Australia 2304
Telephone	: +61 03 9861 1111	Telephone	: +61 2 4014 2500
Project	: Mordialloc Bypass	Date Samples Received	: 12-Oct-2017
Order number	: ----	Date Analysis Commenced	: 13-Oct-2017
C-O-C number	: ----	Issue Date	: 18-Oct-2017
Sampler	: BP		
Site	: Mordialloc Bypass Project		
Quote number	: ME/423/17		
No. of samples received	: 14		
No. of samples analysed	: 14		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dale Semple	Analyst	Newcastle - Organics, Mayfield West, NSW
Daniel Junek	Senior Air Analyst	Newcastle - Organics, Mayfield West, NSW
Daniel Junek	Senior Air Analyst	Newcastle, Mayfield West, NSW

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **AIR**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP101: VOCs by USEPA Method TO15r (QC Lot: 1176951)									
EN1704238-003	GB04 C3020_S055	EP101-15X: Freon 12	75-71-8	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Chloromethane	74-87-3	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Freon 114	76-14-2	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Vinyl chloride	75-01-4	0.5	ppbv	0.0638 ppmv	57.8	9.72	No Limit
		EP101-15X: Bromomethane	74-83-9	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Chloroethane	75-00-3	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Freon 11	75-69-4	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1.1-Dichloroethene	75-35-4	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Dichloromethane	75-09-2	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Freon 113	76-13-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1.1-Dichloroethane	75-34-3	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: cis-1.2-Dichloroethene	156-59-2	0.5	ppbv	0.0112 ppmv	10.4	7.13	No Limit
		EP101-15X: Chloroform	67-66-3	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1.2-Dichloroethane	107-06-2	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1.1.1-Trichloroethane	71-55-6	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Benzene	71-43-2	0.5	ppbv	0.709 ppmv	656	7.71	0% - 20%
		EP101-15X: Carbon Tetrachloride	56-23-5	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1.2-Dichloropropane	78-87-5	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Trichloroethene	79-01-6	0.5	ppbv	<0.0100 ppmv	<10.0	0.00	No Limit
		EP101-15X: cis-1.3-Dichloropropylene	10061-01-5	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: trans-1.3-Dichloropropene	10061-02-6	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1.1.2-Trichloroethane	79-00-5	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Toluene	108-88-3	0.5	ppbv	0.0600 ppmv	56.3	6.46	No Limit
		EP101-15X: 1.2-Dibromoethane (EDB)	106-93-4	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Tetrachloroethene	127-18-4	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit

Sub-Matrix: **AIR**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP101: VOCs by USEPA Method TO15r (QC Lot: 1176951) - continued									
EN1704238-003	GB04 C3020_S055	EP101-15X: Chlorobenzene	108-90-7	0.5	ppbv	<0.0500 ppmv	184	114	No Limit
		EP101-15X: Ethylbenzene	100-41-4	0.5	ppbv	0.239 ppmv	225	5.89	No Limit
		EP101-15X: Styrene	100-42-5	0.5	ppbv	0.0522 ppmv	50.2	3.89	No Limit
		EP101-15X: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: ortho-Xylene	95-47-6	0.5	ppbv	0.0900 ppmv	84.1	6.80	No Limit
		EP101-15X: 4-Ethyltoluene	622-96-8	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1.3.5-Trimethylbenzene	108-67-8	0.5	ppbv	0.101 ppmv	94.6	6.28	No Limit
		EP101-15X: 1.2.4-Trimethylbenzene	95-63-6	0.5	ppbv	0.241 ppmv	227	5.97	No Limit
		EP101-15X: 1.3-Dichlorobenzene	541-73-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Benzylchloride	100-44-7	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1.4-Dichlorobenzene	106-46-7	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1.2-Dichlorobenzene	95-50-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1.2.4-Trichlorobenzene	120-82-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Hexachlorobutadiene	87-68-3	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Acetone	67-64-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Bromodichloromethane	75-27-4	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1.3-Butadiene	106-99-0	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Carbon disulfide	75-15-0	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 2-Chlorotoluene	95-49-8	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1-Chloro-2-propene (Allyl chloride)	107-05-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Cyclohexane	110-82-7	0.5	ppbv	2.67 ppmv	2520	5.98	0% - 20%
		EP101-15X: Dibromochloromethane	124-48-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1.4-Dioxane	123-91-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Ethylacetate	9002-89-5	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: trans-1.2-Dichloroethene	156-60-5	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Heptane	142-82-5	0.5	ppbv	2.71 ppmv	2550	6.18	0% - 20%
		EP101-15X: Hexane	110-54-3	0.5	ppbv	4.78 ppmv	4470	6.61	0% - 20%
		EP101-15X: Isooctane	540-84-1	0.5	ppbv	0.484 ppmv	455	6.24	No Limit
		EP101-15X: Isopropyl Alcohol	67-63-0	0.5	ppbv	0.219 ppmv	213	2.67	No Limit
		EP101-15X: 2-Butanone (MEK)	78-93-3	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Methyl iso-Butyl ketone	108-10-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 2-Hexanone (MBK)	591-78-6	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Propene	115-07-1	0.5	ppbv	4.01 ppmv	3610	10.5	0% - 20%
		EP101-15X: Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Tetrahydrofuran	109-99-9	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Bromoform	75-25-2	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Vinyl Acetate	108-05-4	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Vinyl bromide	593-60-2	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Ethanol	64-17-5	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Acetonitrile	75-05-8	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit

Sub-Matrix: **AIR**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP101: VOCs by USEPA Method TO15r (QC Lot: 1176951) - continued									
EN1704238-003	GB04 C3020_S055	EP101-15X: Acrolein	107-02-8	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Acrylonitrile	107-13-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: tert-Butyl alcohol	75-65-0	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 2-Chloro-1.3-butadiene	126-99-8	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Di-isopropyl Ether	108-20-3	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Ethyl tert-Butyl Ether (ETBE)	637-92-3	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: tert-Amyl Methyl Ether (TAME)	994-05-8	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Methyl Methacrylate	80-62-6	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Isopropylbenzene	98-82-8	0.5	ppbv	0.395 ppmv	374	5.57	No Limit
		EP101-15X: n-Propylbenzene	103-65-1	0.5	ppbv	0.0786 ppmv	73.8	6.30	No Limit
		EP101-15X: tert-Butylbenzene	98-06-6	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: sec-Butylbenzene	135-98-8	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 2-isopropyltoluene	527-84-4	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: n-Butylbenzene	104-51-8	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Naphthalene	91-20-3	0.5	ppbv	<0.0190 ppmv	<19.0	0.00	No Limit
		EP101-15X: meta- & para-Xylene	108-38-3 106-42-3	1	ppbv	0.317 ppmv	297	6.57	No Limit
EP101-S: Reduced Sulphur Compounds in Air (QC Lot: 1176186)									
EN1704238-001	GB07 C873_S014	EP101-S: Hydrogen Sulphide	7783-06-4	20	ppbv	<20	<20	0.00	No Limit
EP103: Petroleum Hydrocarbons in Gaseous Samples (QC Lot: 1176957)									
EN1704238-003	GB04 C3020_S055	EP103-PC: C6 - C9 Fraction	----	50	ppbv	77.4 ppmv	71900	7.43	0% - 50%
		EP103-PC: C10 - C14 Fraction	----	50	ppbv	10.8 ppmv	10100	6.83	No Limit
EP103: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 1176957)									
EN1704238-003	GB04 C3020_S055	EP103-PC: C6 - C10 Fraction	C6_C10	50	ppbv	66.2 ppmv	61500	7.34	0% - 50%
		EP103-PC: >C10 - C16 Fraction	----	50	ppbv	<5.00 ppmv	<5000	0.00	No Limit
EP104: Light Hydrocarbons (QC Lot: 1178788)									
EN1704238-001	GB07 C873_S014	EP104: Methane	74-82-8	0.05	Mol %	<0.10	<0.10	0.00	0% - 20%
EN1704275-001	Anonymous	EP104: Methane	74-82-8	0.05	Mol %	<0.10	<0.10	0.00	0% - 20%
EP104: Permanent Gases (QC Lot: 1178788)									
EN1704238-001	GB07 C873_S014	EP104: Carbon Monoxide	630-08-0	0.0005	Mol %	<0.0010	<0.0010	0.00	0% - 20%
		EP104: Carbon Dioxide	124-38-9	0.005	Mol %	<0.010	<0.010	0.00	0% - 20%
		EP104: Hydrogen	1333-74-0	0.005	Mol %	<0.010	<0.010	0.00	0% - 20%
		EP104: Helium	7440-59-7	0.005	Mol %	<0.010	<0.010	0.00	0% - 20%
		EP104: Oxygen	7782-44-7	0.1	Mol %	18.5	18.5	0.322	0% - 20%
EN1704275-001	Anonymous	EP104: Carbon Monoxide	630-08-0	0.0005	Mol %	<0.0010	<0.0010	0.00	0% - 20%
		EP104: Carbon Dioxide	124-38-9	0.005	Mol %	4.07	4.02	1.23	0% - 20%
		EP104: Hydrogen	1333-74-0	0.005	Mol %	<0.010	<0.010	0.00	0% - 20%
		EP104: Helium	7440-59-7	0.005	Mol %	0.547	0.542	0.938	0% - 20%

Sub-Matrix: **AIR**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP104: Permanent Gases (QC Lot: 1178788) - continued									
EN1704275-001	Anonymous	EP104: Oxygen	7782-44-7	0.1	Mol %	14.5	14.5	0.211	0% - 20%

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **AIR**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP101: VOCs by USEPA Method TO15r (QCLot: 1176951)								
EP101-15X: Freon 12	75-71-8	0.5	ppbv	<0.5	10 ppbv	102	70	130
EP101-15X: Chloromethane	74-87-3	0.5	ppbv	<0.5	10 ppbv	97.1	70	130
EP101-15X: Freon 114	76-14-2	0.5	ppbv	<0.5	10 ppbv	101	77	130
EP101-15X: Vinyl chloride	75-01-4	0.5	ppbv	<0.5	10 ppbv	104	76	130
EP101-15X: Bromomethane	74-83-9	0.5	ppbv	<0.5	10 ppbv	109	76	130
EP101-15X: Chloroethane	75-00-3	0.5	ppbv	<0.5	10 ppbv	110	70	130
EP101-15X: Freon 11	75-69-4	0.5	ppbv	<0.5	10 ppbv	88.8	82	122
EP101-15X: 1.1-Dichloroethene	75-35-4	0.5	ppbv	<0.5	10 ppbv	92.0	77	121
EP101-15X: Dichloromethane	75-09-2	0.5	ppbv	<0.5	10 ppbv	83.4	70	130
EP101-15X: Freon 113	76-13-1	0.5	ppbv	<0.5	10 ppbv	98.6	78	118
EP101-15X: 1.1-Dichloroethane	75-34-3	0.5	ppbv	<0.5	10 ppbv	102	80	120
EP101-15X: cis-1.2-Dichloroethene	156-59-2	0.5	ppbv	<0.5	10 ppbv	108	80	114
EP101-15X: Chloroform	67-66-3	0.5	ppbv	<0.5	10 ppbv	102	83	118
EP101-15X: 1.2-Dichloroethane	107-06-2	0.5	ppbv	<0.5	10 ppbv	102	76	124
EP101-15X: 1.1.1-Trichloroethane	71-55-6	0.5	ppbv	<0.5	10 ppbv	105	84	117
EP101-15X: Benzene	71-43-2	0.5	ppbv	<0.5	10 ppbv	102	81	113
EP101-15X: Carbon Tetrachloride	56-23-5	0.5	ppbv	<0.5	10 ppbv	105	83	121
EP101-15X: 1.2-Dichloropropane	78-87-5	0.5	ppbv	<0.5	10 ppbv	101	80	120
EP101-15X: Trichloroethene	79-01-6	0.5	ppbv	<0.5	10 ppbv	105	84	116
EP101-15X: cis-1.3-Dichloropropylene	10061-01-5	0.5	ppbv	<0.5	10 ppbv	114	77	116
EP101-15X: trans-1.3-Dichloropropene	10061-02-6	0.5	ppbv	<0.5	10 ppbv	109	70	119
EP101-15X: 1.1.2-Trichloroethane	79-00-5	0.5	ppbv	<0.5	10 ppbv	113	84	123
EP101-15X: Toluene	108-88-3	0.5	ppbv	<0.5	10 ppbv	107	79	120
EP101-15X: 1.2-Dibromoethane (EDB)	106-93-4	0.5	ppbv	<0.5	10 ppbv	122	81	124
EP101-15X: Tetrachloroethene	127-18-4	0.5	ppbv	<0.5	10 ppbv	116	77	124
EP101-15X: Chlorobenzene	108-90-7	0.5	ppbv	<0.5	10 ppbv	115	81	122
EP101-15X: Ethylbenzene	100-41-4	0.5	ppbv	<0.5	10 ppbv	112	81	120
EP101-15X: meta- & para-Xylene	108-38-3 106-42-3	1	ppbv	<1.0	20 ppbv	116	80	125
EP101-15X: Styrene	100-42-5	0.5	ppbv	<0.5	10 ppbv	100	70	126
EP101-15X: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	ppbv	<0.5	10 ppbv	124	83	130
EP101-15X: ortho-Xylene	95-47-6	0.5	ppbv	<0.5	10 ppbv	119	82	122
EP101-15X: 4-Ethyltoluene	622-96-8	0.5	ppbv	<0.5	10 ppbv	103	70	128
EP101-15X: 1.3.5-Trimethylbenzene	108-67-8	0.5	ppbv	<0.5	10 ppbv	126	72	126
EP101-15X: 1.2.4-Trimethylbenzene	95-63-6	0.5	ppbv	<0.5	10 ppbv	126	70	130

Sub-Matrix: **AIR**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP101: VOCs by USEPA Method TO15r (QCLot: 1176951) - continued								
EP101-15X: 1.3-Dichlorobenzene	541-73-1	0.5	ppbv	<0.5	10 ppbv	116	70	130
EP101-15X: Benzylchloride	100-44-7	0.5	ppbv	<0.5	10 ppbv	106	70	130
EP101-15X: 1.4-Dichlorobenzene	106-46-7	0.5	ppbv	<0.5	10 ppbv	116	70	130
EP101-15X: 1.2-Dichlorobenzene	95-50-1	0.5	ppbv	<0.5	10 ppbv	118	70	130
EP101-15X: 1.2.4-Trichlorobenzene	120-82-1	0.5	ppbv	<0.5	10 ppbv	92.8	70	130
EP101-15X: Hexachlorobutadiene	87-68-3	0.5	ppbv	<0.5	10 ppbv	88.6	70	130
EP101-15X: Acetone	67-64-1	0.5	ppbv	<0.5	10 ppbv	74.0	70	130
EP101-15X: Bromodichloromethane	75-27-4	0.5	ppbv	<0.5	10 ppbv	105	84	121
EP101-15X: 1.3-Butadiene	106-99-0	0.5	ppbv	<0.5	10 ppbv	106	73	130
EP101-15X: Carbon disulfide	75-15-0	0.5	ppbv	<0.5	10 ppbv	79.0	79	126
EP101-15X: 2-Chlorotoluene	95-49-8	0.5	ppbv	<0.5	10 ppbv	92.7	72	130
EP101-15X: 1-Chloro-2-propene (Allyl chloride)	107-05-1	0.5	ppbv	<0.5	10 ppbv	77.5	71	128
EP101-15X: Cyclohexane	110-82-7	0.5	ppbv	<0.5	10 ppbv	100	79	114
EP101-15X: Dibromochloromethane	124-48-1	0.5	ppbv	<0.5	10 ppbv	114	82	130
EP101-15X: 1.4-Dioxane	123-91-1	0.5	ppbv	<0.5	10 ppbv	116	70	122
EP101-15X: Ethylacetate	9002-89-5	0.5	ppbv	<0.5	10 ppbv	104	70	130
EP101-15X: trans-1.2-Dichloroethene	156-60-5	0.5	ppbv	<0.5	10 ppbv	99.3	77	123
EP101-15X: Heptane	142-82-5	0.5	ppbv	<0.5	10 ppbv	102	80	115
EP101-15X: Hexane	110-54-3	0.5	ppbv	<0.5	10 ppbv	95.5	77	120
EP101-15X: Isooctane	540-84-1	0.5	ppbv	<0.5	10 ppbv	101	72	127
EP101-15X: Isopropyl Alcohol	67-63-0	0.5	ppbv	<0.5	10 ppbv	78.9	70	129
EP101-15X: 2-Butanone (MEK)	78-93-3	0.5	ppbv	<0.5	10 ppbv	99.4	72	126
EP101-15X: Methyl iso-Butyl ketone	108-10-1	0.5	ppbv	<0.5	10 ppbv	103	74	130
EP101-15X: 2-Hexanone (MBK)	591-78-6	0.5	ppbv	<0.5	10 ppbv	107	70	130
EP101-15X: Propene	115-07-1	0.5	ppbv	<0.5	10 ppbv	95.9	70	130
EP101-15X: Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.5	ppbv	<0.5	10 ppbv	103	76	118
EP101-15X: Tetrahydrofuran	109-99-9	0.5	ppbv	<0.5	10 ppbv	100	71	127
EP101-15X: Bromoform	75-25-2	0.5	ppbv	<0.5	10 ppbv	117	74	130
EP101-15X: Vinyl Acetate	108-05-4	0.5	ppbv	<0.5	10 ppbv	100	70	122
EP101-15X: Vinyl bromide	593-60-2	0.5	ppbv	<0.5	10 ppbv	88.1	82	126
EP101-15X: Ethanol	64-17-5	0.5	ppbv	<0.5	10 ppbv	121	70	130
EP101-15X: Acetonitrile	75-05-8	0.5	ppbv	<0.5	10 ppbv	83.4	70	130
EP101-15X: Acrolein	107-02-8	0.5	ppbv	<0.5	10 ppbv	97.2	70	130
EP101-15X: Acrylonitrile	107-13-1	0.5	ppbv	<0.5	10 ppbv	81.4	70	130
EP101-15X: tert-Butyl alcohol	75-65-0	0.5	ppbv	<0.5	10 ppbv	80.2	74	127
EP101-15X: 2-Chloro-1.3-butadiene	126-99-8	0.5	ppbv	<0.5	10 ppbv	98.5	77	120
EP101-15X: Di-isopropyl Ether	108-20-3	0.5	ppbv	<0.5	10 ppbv	102	74	130
EP101-15X: Ethyl tert-Butyl Ether (ETBE)	637-92-3	0.5	ppbv	<0.5	10 ppbv	104	78	123
EP101-15X: tert-Amyl Methyl Ether (TAME)	994-05-8	0.5	ppbv	<0.5	10 ppbv	108	77	121

Sub-Matrix: **AIR**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP101: VOCs by USEPA Method TO15r (QCLot: 1176951) - continued								
EP101-15X: Methyl Methacrylate	80-62-6	0.5	ppbv	<0.5	10 ppbv	98.8	70	126
EP101-15X: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	ppbv	<0.5	10 ppbv	108	80	130
EP101-15X: Isopropylbenzene	98-82-8	0.5	ppbv	<0.5	10 ppbv	102	74	130
EP101-15X: n-Propylbenzene	103-65-1	0.5	ppbv	<0.5	10 ppbv	95.2	70	128
EP101-15X: tert-Butylbenzene	98-06-6	0.5	ppbv	<0.5	10 ppbv	101	71	130
EP101-15X: sec-Butylbenzene	135-98-8	0.5	ppbv	<0.5	10 ppbv	95.0	73	130
EP101-15X: 2-isopropyltoluene	527-84-4	0.5	ppbv	<0.5	10 ppbv	90.0	70	130
EP101-15X: n-Butylbenzene	104-51-8	0.5	ppbv	<0.5	10 ppbv	72.5	70	130
EP101-15X: Naphthalene	91-20-3	0.5	ppbv	<0.5	10 ppbv	74.4	70	130
EP101-S: Reduced Sulphur Compounds in Air (QCLot: 1176186)								
EP101-S: Hydrogen Sulphide	7783-06-4	20	ppbv	<20	100 ppbv	100	70	130
EP103: Petroleum Hydrocarbons in Gaseous Samples (QCLot: 1176957)								
EP103-PC: C6 - C9 Fraction	----	50	ppbv	<50	2800 ppbv	102	70	130
EP103-PC: C10 - C14 Fraction	----	50	ppbv	<50	1200 ppbv	115	70	130
EP103: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 1176957)								
EP103-PC: C6 - C10 Fraction	C6_C10	50	ppbv	<50	3000 ppbv	104	70	130
EP103-PC: >C10 - C16 Fraction	----	50	ppbv	<50	500 ppbv	114	70	130
EP104: Light Hydrocarbons (QCLot: 1178788)								
EP104: Methane	74-82-8	0.05	Mol %	<0.05	0.097 Mol %	97.2	90	110
EP104: Permanent Gases (QCLot: 1178788)								
EP104: Carbon Dioxide	124-38-9	0.005	Mol %	<0.005	5.098 Mol %	104	90	110
EP104: Carbon Monoxide	630-08-0	0.0005	Mol %	<0.0005	----	----	----	----
EP104: Hydrogen	1333-74-0	0.005	Mol %	<0.005	0.105 Mol %	100	90	110
EP104: Helium	7440-59-7	0.005	Mol %	<0.005	0.105 Mol %	103	90	110
EP104: Oxygen	7782-44-7	0.1	Mol %	<0.10	9.338 Mol %	94.5	90	110

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EN1704238**	Page	: 1 of 5
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Newcastle
Contact	: OLFA NAZARIO	Telephone	: +61 2 4014 2500
Project	: Mordialloc Bypass	Date Samples Received	: 12-Oct-2017
Site	: Mordialloc Bypass Project	Issue Date	: 18-Oct-2017
Sampler	: BP	No. of samples received	: 14
Order number	: ----	No. of samples analysed	: 14

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **AIR**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
Duplicate Control Samples (DCS)					
Permanent Gases and Light Hydrocarbons	1	13	7.69	10.00	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)					
Permanent Gases and Light Hydrocarbons	1	13	7.69	10.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **AIR**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / ***Container*** / *Client Sample ID(s)*	***Sample Date***	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	***Date analysed***	*Due for analysis*	*Evaluation*
EP101-S: Reduced Sulphur Compounds in Air							
Gas Canister - ALS Stainless Steel Silonite (EP101-S)							
GB07 - C873_S014, GB04 - C5063_S229, GB5 - C991_S218, GB06 - C1085_S240	**09-Oct-2017**	**----**	----	----	**16-Oct-2017**	23-Oct-2017	✓
Gas Canister - ALS Stainless Steel Silonite (EP101-S)							
GB8 - C737_S233, GB9 - C1280_S221, GB9_D1 - C823_S221, GB9_D2 - C5061_S221, GB10 - C995_S216, GB3 - C828_S215	**10-Oct-2017**	**----**	----	----	**16-Oct-2017**	24-Oct-2017	✓
EP103: Petroleum Hydrocarbons in Gaseous Samples							
Gas Canister - ALS Stainless Steel Silonite (EP103-PC)							
GB04 - C3020_S055, GB5 - C3024_S121	**09-Oct-2017**	**----**	----	----	**16-Oct-2017**	08-Nov-2017	✓
Gas Canister - ALS Stainless Steel Silonite (EP103-PC)							
GB8 - C998_S051, GB10 - C1076_S180	**10-Oct-2017**	**----**	----	----	**16-Oct-2017**	09-Nov-2017	✓
EP103: Total Recoverable Hydrocarbons - NEPM 2013							
Gas Canister - ALS Stainless Steel Silonite (EP103-PC)							
GB04 - C3020_S055, GB5 - C3024_S121	**09-Oct-2017**	**----**	----	----	**16-Oct-2017**	08-Nov-2017	✓
Gas Canister - ALS Stainless Steel Silonite (EP103-PC)							
GB8 - C998_S051, GB10 - C1076_S180	**10-Oct-2017**	**----**	----	----	**16-Oct-2017**	09-Nov-2017	✓

Matrix: **AIR**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP104: Light Hydrocarbons								
Gas Canister - ALS Stainless Steel Silonite (EP104)								
GB07 - C873_S014,	GB04 - C5063_S229,	**09-Oct-2017**	**----**	----	----	**17-Oct-2017**	08-Nov-2017	✓
GB5 - C991_S218,	GB06 - C1085_S240							
Gas Canister - ALS Stainless Steel Silonite (EP104)								
GB8 - C737_S233,	GB9 - C1280_S221,	**10-Oct-2017**	**----**	----	----	**17-Oct-2017**	09-Nov-2017	✓
GB9_D1 - C823_S221,	GB9_D2 - C5061_S221,							
GB10 - C995_S216,	GB3 - C828_S215							
EP104: Permanent Gases								
Gas Canister - ALS Stainless Steel Silonite (EP104)								
GB07 - C873_S014,	GB04 - C5063_S229,	**09-Oct-2017**	**----**	----	----	**17-Oct-2017**	08-Nov-2017	✓
GB5 - C991_S218,	GB06 - C1085_S240							
Gas Canister - ALS Stainless Steel Silonite (EP104)								
GB8 - C737_S233,	GB9 - C1280_S221,	**10-Oct-2017**	**----**	----	----	**17-Oct-2017**	09-Nov-2017	✓
GB9_D1 - C823_S221,	GB9_D2 - C5061_S221,							
GB10 - C995_S216,	GB3 - C828_S215							
Sampling Quality Assurance								
Gas Canister - ALS Stainless Steel Silonite (CAN-001)								
GB07 - C873_S014,	GB04 - C5063_S229,	**09-Oct-2017**	**----**	----	----	**13-Oct-2017**	09-Oct-2018	✓
GB04 - C3020_S055,	GB5 - C991_S218,							
GB5 - C3024_S121,	GB06 - C1085_S240							
Gas Canister - ALS Stainless Steel Silonite (CAN-001)								
GB8 - C737_S233,	GB8 - C998_S051,	**10-Oct-2017**	**----**	----	----	**13-Oct-2017**	10-Oct-2018	✓
GB9 - C1280_S221,	GB9_D1 - C823_S221,							
GB9_D2 - C5061_S221,	GB10 - C995_S216,							
GB10 - C1076_S180,	GB3 - C828_S215							
USEPA Air Toxics Method TO15r								
Gas Canister - ALS Stainless Steel Silonite (EP101-15X)								
GB04 - C3020_S055,	GB5 - C3024_S121	**09-Oct-2017**	**----**	----	----	**16-Oct-2017**	08-Nov-2017	✓
Gas Canister - ALS Stainless Steel Silonite (EP101-15X)								
GB8 - C998_S051,	GB10 - C1076_S180	**10-Oct-2017**	**----**	----	----	**16-Oct-2017**	09-Nov-2017	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **AIR**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Duplicate Control Samples (DCS)							
Permanent Gases and Light Hydrocarbons	EP104	1	13	**7.69**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Sulfur Compounds in Air Canister Samples	EP101-S	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
VOCs in Air by USEPA TO15r - Extended Suite	EP101-15X	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile TPH/TRH in Gaseous Samples	EP103-PC	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Duplicates (DUP)							
Permanent Gases and Light Hydrocarbons	EP104	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfur Compounds in Air Canister Samples	EP101-S	1	10	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
VOCs in Air by USEPA TO15r - Extended Suite	EP101-15X	1	7	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile TPH/TRH in Gaseous Samples	EP103-PC	1	4	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Permanent Gases and Light Hydrocarbons	EP104	1	13	**7.69**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Sulfur Compounds in Air Canister Samples	EP101-S	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
VOCs in Air by USEPA TO15r - Extended Suite	EP101-15X	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile TPH/TRH in Gaseous Samples	EP103-PC	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Permanent Gases and Light Hydrocarbons	EP104	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfur Compounds in Air Canister Samples	EP101-S	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
VOCs in Air by USEPA TO15r - Extended Suite	EP101-15X	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile TPH/TRH in Gaseous Samples	EP103-PC	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Canister Sampling - Field Data	CAN-001	AIR	In house: Referenced to USEPA TO14 / TO15
VOCs in Air by USEPA TO15r - Extended Suite	EP101-15X	AIR	In house: Referenced to USEPA TO15r Volatile Organic Compounds in Air by USEPA TO15. Extended Suite
VOCs in Air by USEPA TO15r - Extended Suite (mass/volume)	EP101-15X-MV	AIR	In house: Referenced to USEPA TO15r Volatile Organic Compounds in Air by USEPA TO15. Extended Suite (Calculated Concentration)
Sulfur Compounds in Air Canister Samples	EP101-S	AIR	In house: Referenced to USEPA TO15r Reduced Sulfur Compounds in Air by USEPA TO15 Analysis by GCMS with Preconcentration on Thermal Desorbtion Cold Trap
Sulfur Compounds in Air Canister Samples (Mass/Volume)	EP101-S-MV	AIR	In house: Referenced to USEPA TO15r Reduced Sulfur Compounds in Air by USEPA TO15 (Calculated Mass/Volume) Analysis by GCMS with Preconcentration on Thermal Desorbtion Cold Trap
Volatile TPH/TRH in Gaseous Samples	EP103-PC	AIR	Volatile TPH/TRH by GC-MS with Preconcentration and Thermal Desorption Injection Based on USEPA TO15, MassDEP APH (Rev1 2009) and TPH/NEPM Fractions (2013)
Volatile TPH/TRH in Gaseous Samples (Calc Conc)	EP103-PC-MV	AIR	Volatile TPH/TRH by GC-MS with Preconcentration and Thermal Desorption Injection Based on USEPA TO15, MassDEP APH (Rev1 2009) and TPH/NEPM Fractions (2013) Calculated from ppbv results based on given Temperature and Atmospheric Pressure and mid-range molecular weights
Permanent Gases and Light Hydrocarbons	EP104	AIR	Hydrocarbons, Carbon Dioxide and Carbon Monoxide by GC-FID-TCD. Gases by GC-TCD In house: Referenced to ASTM D1945 applied to Gases and Light Hydrocarbons (C1-C4) using capillary GC
Permanent Gases and Light Hydrocarbons (mass/volume)	EP104-MV	AIR	Permanent Gases and Light Hydrocarbons - Calculated as mass/volume concentration from percentage composition and given termperature and pressure.

QUALITY CONTROL REPORT

Work Order	: **EN1704238**	Page	: 1 of 8
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Newcastle
Contact	: OLFA NAZARIO	Contact	:
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 5/585 Maitland Road Mayfield West NSW Australia 2304
Telephone	: +61 03 9861 1111	Telephone	: +61 2 4014 2500
Project	: Mordialloc Bypass	Date Samples Received	: 12-Oct-2017
Order number	: ----	Date Analysis Commenced	: 13-Oct-2017
C-O-C number	: ----	Issue Date	: 18-Oct-2017
Sampler	: BP		
Site	: Mordialloc Bypass Project		
Quote number	: ME/423/17		
No. of samples received	: 14		
No. of samples analysed	: 14		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dale Semple	Analyst	Newcastle - Organics, Mayfield West, NSW
Daniel Junek	Senior Air Analyst	Newcastle - Organics, Mayfield West, NSW
Daniel Junek	Senior Air Analyst	Newcastle, Mayfield West, NSW

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **AIR**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP101: VOCs by USEPA Method TO15r (QC Lot: 1176951)									
EN1704238-003	GB04 C3020_S055	EP101-15X: Freon 12	75-71-8	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Chloromethane	74-87-3	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Freon 114	76-14-2	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Vinyl chloride	75-01-4	0.5	ppbv	0.0638 ppmv	57.8	9.72	No Limit
		EP101-15X: Bromomethane	74-83-9	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Chloroethane	75-00-3	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Freon 11	75-69-4	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1.1-Dichloroethene	75-35-4	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Dichloromethane	75-09-2	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Freon 113	76-13-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1.1-Dichloroethane	75-34-3	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: cis-1.2-Dichloroethene	156-59-2	0.5	ppbv	0.0112 ppmv	10.4	7.13	No Limit
		EP101-15X: Chloroform	67-66-3	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1.2-Dichloroethane	107-06-2	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1.1.1-Trichloroethane	71-55-6	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Benzene	71-43-2	0.5	ppbv	0.709 ppmv	656	7.71	0% - 20%
		EP101-15X: Carbon Tetrachloride	56-23-5	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1.2-Dichloropropane	78-87-5	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Trichloroethene	79-01-6	0.5	ppbv	<0.0100 ppmv	<10.0	0.00	No Limit
		EP101-15X: cis-1.3-Dichloropropylene	10061-01-5	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: trans-1.3-Dichloropropene	10061-02-6	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1.1.2-Trichloroethane	79-00-5	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Toluene	108-88-3	0.5	ppbv	0.0600 ppmv	56.3	6.46	No Limit
		EP101-15X: 1.2-Dibromoethane (EDB)	106-93-4	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Tetrachloroethene	127-18-4	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit

Sub-Matrix: **AIR**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP101: VOCs by USEPA Method TO15r (QC Lot: 1176951) - continued									
EN1704238-003	GB04 C3020_S055	EP101-15X: Chlorobenzene	108-90-7	0.5	ppbv	<0.0500 ppmv	184	114	No Limit
		EP101-15X: Ethylbenzene	100-41-4	0.5	ppbv	0.239 ppmv	225	5.89	No Limit
		EP101-15X: Styrene	100-42-5	0.5	ppbv	0.0522 ppmv	50.2	3.89	No Limit
		EP101-15X: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: ortho-Xylene	95-47-6	0.5	ppbv	0.0900 ppmv	84.1	6.80	No Limit
		EP101-15X: 4-Ethyltoluene	622-96-8	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1.3.5-Trimethylbenzene	108-67-8	0.5	ppbv	0.101 ppmv	94.6	6.28	No Limit
		EP101-15X: 1.2.4-Trimethylbenzene	95-63-6	0.5	ppbv	0.241 ppmv	227	5.97	No Limit
		EP101-15X: 1.3-Dichlorobenzene	541-73-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Benzylchloride	100-44-7	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1.4-Dichlorobenzene	106-46-7	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1.2-Dichlorobenzene	95-50-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1.2.4-Trichlorobenzene	120-82-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Hexachlorobutadiene	87-68-3	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Acetone	67-64-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Bromodichloromethane	75-27-4	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1.3-Butadiene	106-99-0	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Carbon disulfide	75-15-0	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 2-Chlorotoluene	95-49-8	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1-Chloro-2-propene (Allyl chloride)	107-05-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Cyclohexane	110-82-7	0.5	ppbv	2.67 ppmv	2520	5.98	0% - 20%
		EP101-15X: Dibromochloromethane	124-48-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1.4-Dioxane	123-91-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Ethylacetate	9002-89-5	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: trans-1.2-Dichloroethene	156-60-5	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Heptane	142-82-5	0.5	ppbv	2.71 ppmv	2550	6.18	0% - 20%
		EP101-15X: Hexane	110-54-3	0.5	ppbv	4.78 ppmv	4470	6.61	0% - 20%
		EP101-15X: Isooctane	540-84-1	0.5	ppbv	0.484 ppmv	455	6.24	No Limit
		EP101-15X: Isopropyl Alcohol	67-63-0	0.5	ppbv	0.219 ppmv	213	2.67	No Limit
		EP101-15X: 2-Butanone (MEK)	78-93-3	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Methyl iso-Butyl ketone	108-10-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 2-Hexanone (MBK)	591-78-6	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Propene	115-07-1	0.5	ppbv	4.01 ppmv	3610	10.5	0% - 20%
		EP101-15X: Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Tetrahydrofuran	109-99-9	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Bromoform	75-25-2	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Vinyl Acetate	108-05-4	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Vinyl bromide	593-60-2	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Ethanol	64-17-5	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Acetonitrile	75-05-8	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit

Sub-Matrix: **AIR**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP101: VOCs by USEPA Method TO15r (QC Lot: 1176951) - continued									
EN1704238-003	GB04 C3020_S055	EP101-15X: Acrolein	107-02-8	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Acrylonitrile	107-13-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: tert-Butyl alcohol	75-65-0	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 2-Chloro-1.3-butadiene	126-99-8	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Di-isopropyl Ether	108-20-3	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Ethyl tert-Butyl Ether (ETBE)	637-92-3	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: tert-Amyl Methyl Ether (TAME)	994-05-8	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Methyl Methacrylate	80-62-6	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Isopropylbenzene	98-82-8	0.5	ppbv	0.395 ppmv	374	5.57	No Limit
		EP101-15X: n-Propylbenzene	103-65-1	0.5	ppbv	0.0786 ppmv	73.8	6.30	No Limit
		EP101-15X: tert-Butylbenzene	98-06-6	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: sec-Butylbenzene	135-98-8	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 2-isopropyltoluene	527-84-4	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: n-Butylbenzene	104-51-8	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Naphthalene	91-20-3	0.5	ppbv	<0.0190 ppmv	<19.0	0.00	No Limit
		EP101-15X: meta- & para-Xylene	108-38-3 106-42-3	1	ppbv	0.317 ppmv	297	6.57	No Limit
EP101-S: Reduced Sulphur Compounds in Air (QC Lot: 1176186)									
EN1704238-001	GB07 C873_S014	EP101-S: Hydrogen Sulphide	7783-06-4	20	ppbv	<20	<20	0.00	No Limit
EP103: Petroleum Hydrocarbons in Gaseous Samples (QC Lot: 1176957)									
EN1704238-003	GB04 C3020_S055	EP103-PC: C6 - C9 Fraction	----	50	ppbv	77.4 ppmv	71900	7.43	0% - 50%
		EP103-PC: C10 - C14 Fraction	----	50	ppbv	10.8 ppmv	10100	6.83	No Limit
EP103: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 1176957)									
EN1704238-003	GB04 C3020_S055	EP103-PC: C6 - C10 Fraction	C6_C10	50	ppbv	66.2 ppmv	61500	7.34	0% - 50%
		EP103-PC: >C10 - C16 Fraction	----	50	ppbv	<5.00 ppmv	<5000	0.00	No Limit
EP104: Light Hydrocarbons (QC Lot: 1178788)									
EN1704238-001	GB07 C873_S014	EP104: Methane	74-82-8	0.05	Mol %	<0.10	<0.10	0.00	0% - 20%
EN1704275-001	Anonymous	EP104: Methane	74-82-8	0.05	Mol %	<0.10	<0.10	0.00	0% - 20%
EP104: Permanent Gases (QC Lot: 1178788)									
EN1704238-001	GB07 C873_S014	EP104: Carbon Monoxide	630-08-0	0.0005	Mol %	<0.0010	<0.0010	0.00	0% - 20%
		EP104: Carbon Dioxide	124-38-9	0.005	Mol %	<0.010	<0.010	0.00	0% - 20%
		EP104: Hydrogen	1333-74-0	0.005	Mol %	<0.010	<0.010	0.00	0% - 20%
		EP104: Helium	7440-59-7	0.005	Mol %	<0.010	<0.010	0.00	0% - 20%
		EP104: Oxygen	7782-44-7	0.1	Mol %	18.5	18.5	0.322	0% - 20%
EN1704275-001	Anonymous	EP104: Carbon Monoxide	630-08-0	0.0005	Mol %	<0.0010	<0.0010	0.00	0% - 20%
		EP104: Carbon Dioxide	124-38-9	0.005	Mol %	4.07	4.02	1.23	0% - 20%
		EP104: Hydrogen	1333-74-0	0.005	Mol %	<0.010	<0.010	0.00	0% - 20%
		EP104: Helium	7440-59-7	0.005	Mol %	0.547	0.542	0.938	0% - 20%

Sub-Matrix: **AIR**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP104: Permanent Gases (QC Lot: 1178788) - continued									
EN1704275-001	Anonymous	EP104: Oxygen	7782-44-7	0.1	Mol %	14.5	14.5	0.211	0% - 20%

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control terms Laboratory Control Sample (LCS) and Laboratory Control Sample Duplicate (DCS) refers to certified reference materials, or known interference free matrices spiked with target analytes. The purpose of these QC parameters are to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS and DCS.

Sub-Matrix: **AIR**

		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	DCS	Low	High	Value	Control Limit
EP101: VOCs by USEPA Method TO15r (QCLot: 1176951)											
EP101-15X: Freon 12	75-71-8	0.5	ppbv	<0.5	10 ppbv	102	102	70	130	25	25
EP101-15X: Chloromethane	74-87-3	0.5	ppbv	<0.5	10 ppbv	97.1	96.3	70	130	25	25
EP101-15X: Freon 114	76-14-2	0.5	ppbv	<0.5	10 ppbv	101	102	77	130	25	25
EP101-15X: Vinyl chloride	75-01-4	0.5	ppbv	<0.5	10 ppbv	104	104	76	130	25	25
EP101-15X: Bromomethane	74-83-9	0.5	ppbv	<0.5	10 ppbv	109	111	76	130	25	25
EP101-15X: Chloroethane	75-00-3	0.5	ppbv	<0.5	10 ppbv	110	110	70	130	25	25
EP101-15X: Freon 11	75-69-4	0.5	ppbv	<0.5	10 ppbv	88.8	88.7	82	122	25	25
EP101-15X: 1.1-Dichloroethene	75-35-4	0.5	ppbv	<0.5	10 ppbv	92.0	92.4	77	121	25	25
EP101-15X: Dichloromethane	75-09-2	0.5	ppbv	<0.5	10 ppbv	83.4	83.8	70	130	25	25
EP101-15X: Freon 113	76-13-1	0.5	ppbv	<0.5	10 ppbv	98.6	98.1	78	118	25	25
EP101-15X: 1.1-Dichloroethane	75-34-3	0.5	ppbv	<0.5	10 ppbv	102	102	80	120	25	25
EP101-15X: cis-1.2-Dichloroethene	156-59-2	0.5	ppbv	<0.5	10 ppbv	108	108	80	114	25	25
EP101-15X: Chloroform	67-66-3	0.5	ppbv	<0.5	10 ppbv	102	102	83	118	25	25
EP101-15X: 1.2-Dichloroethane	107-06-2	0.5	ppbv	<0.5	10 ppbv	102	103	76	124	25	25
EP101-15X: 1.1.1-Trichloroethane	71-55-6	0.5	ppbv	<0.5	10 ppbv	105	105	84	117	25	25
EP101-15X: Benzene	71-43-2	0.5	ppbv	<0.5	10 ppbv	102	102	81	113	25	25
EP101-15X: Carbon Tetrachloride	56-23-5	0.5	ppbv	<0.5	10 ppbv	105	105	83	121	25	25
EP101-15X: 1.2-Dichloropropane	78-87-5	0.5	ppbv	<0.5	10 ppbv	101	100	80	120	25	25
EP101-15X: Trichloroethene	79-01-6	0.5	ppbv	<0.5	10 ppbv	105	105	84	116	25	25
EP101-15X: cis-1.3-Dichloropropylene	10061-01-5	0.5	ppbv	<0.5	10 ppbv	114	114	77	116	25	25
EP101-15X: trans-1.3-Dichloropropene	10061-02-6	0.5	ppbv	<0.5	10 ppbv	109	109	70	119	25	25
EP101-15X: 1.1.2-Trichloroethane	79-00-5	0.5	ppbv	<0.5	10 ppbv	113	113	84	123	25	25
EP101-15X: Toluene	108-88-3	0.5	ppbv	<0.5	10 ppbv	107	107	79	120	25	25
EP101-15X: 1.2-Dibromoethane (EDB)	106-93-4	0.5	ppbv	<0.5	10 ppbv	122	122	81	124	25	25
EP101-15X: Tetrachloroethene	127-18-4	0.5	ppbv	<0.5	10 ppbv	116	116	77	124	25	25
EP101-15X: Chlorobenzene	108-90-7	0.5	ppbv	<0.5	10 ppbv	115	115	81	122	25	25
EP101-15X: Ethylbenzene	100-41-4	0.5	ppbv	<0.5	10 ppbv	112	112	81	120	25	25
EP101-15X: meta- & para-Xylene	108-38-3 106-42-3	1	ppbv	<1.0	20 ppbv	116	115	80	125	25	25
EP101-15X: Styrene	100-42-5	0.5	ppbv	<0.5	10 ppbv	100	99.8	70	126	25	25
EP101-15X: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	ppbv	<0.5	10 ppbv	124	123	83	130	25	25
EP101-15X: ortho-Xylene	95-47-6	0.5	ppbv	<0.5	10 ppbv	119	118	82	122	25	25
EP101-15X: 4-Ethyltoluene	622-96-8	0.5	ppbv	<0.5	10 ppbv	103	102	70	128	25	25

Sub-Matrix: **AIR**

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
		LOR	Unit	Result	Concentration	LCS	DCS	Low	High	Value	Control Limit
EP101: VOCs by USEPA Method TO15r (QCLot: 1176951) - continued											
EP101-15X: 1.3.5-Trimethylbenzene	108-67-8	0.5	ppbv	<0.5	10 ppbv	126	125	72	126	25	25
EP101-15X: 1.2.4-Trimethylbenzene	95-63-6	0.5	ppbv	<0.5	10 ppbv	126	125	70	130	25	25
EP101-15X: 1.3-Dichlorobenzene	541-73-1	0.5	ppbv	<0.5	10 ppbv	116	116	70	130	25	25
EP101-15X: Benzylchloride	100-44-7	0.5	ppbv	<0.5	10 ppbv	106	106	70	130	25	25
EP101-15X: 1.4-Dichlorobenzene	106-46-7	0.5	ppbv	<0.5	10 ppbv	116	116	70	130	25	25
EP101-15X: 1.2-Dichlorobenzene	95-50-1	0.5	ppbv	<0.5	10 ppbv	118	118	70	130	25	25
EP101-15X: 1.2.4-Trichlorobenzene	120-82-1	0.5	ppbv	<0.5	10 ppbv	92.8	94.0	70	130	25	25
EP101-15X: Hexachlorobutadiene	87-68-3	0.5	ppbv	<0.5	10 ppbv	88.6	88.5	70	130	25	25
EP101-15X: Acetone	67-64-1	0.5	ppbv	<0.5	10 ppbv	74.0	73.7	70	130	25	25
EP101-15X: Bromodichloromethane	75-27-4	0.5	ppbv	<0.5	10 ppbv	105	105	84	121	25	25
EP101-15X: 1.3-Butadiene	106-99-0	0.5	ppbv	<0.5	10 ppbv	106	107	73	130	25	25
EP101-15X: Carbon disulfide	75-15-0	0.5	ppbv	<0.5	10 ppbv	79.0	79.3	79	126	25	25
EP101-15X: 2-Chlorotoluene	95-49-8	0.5	ppbv	<0.5	10 ppbv	92.7	92.6	72	130	25	25
EP101-15X: 1-Chloro-2-propene (Allyl chloride)	107-05-1	0.5	ppbv	<0.5	10 ppbv	77.5	77.2	71	128	25	25
EP101-15X: Cyclohexane	110-82-7	0.5	ppbv	<0.5	10 ppbv	100	99.8	79	114	25	25
EP101-15X: Dibromochloromethane	124-48-1	0.5	ppbv	<0.5	10 ppbv	114	113	82	130	25	25
EP101-15X: 1.4-Dioxane	123-91-1	0.5	ppbv	<0.5	10 ppbv	116	116	70	122	25	25
EP101-15X: Ethylacetate	9002-89-5	0.5	ppbv	<0.5	10 ppbv	104	105	70	130	25	25
EP101-15X: trans-1.2-Dichloroethene	156-60-5	0.5	ppbv	<0.5	10 ppbv	99.3	98.8	77	123	25	25
EP101-15X: Heptane	142-82-5	0.5	ppbv	<0.5	10 ppbv	102	102	80	115	25	25
EP101-15X: Hexane	110-54-3	0.5	ppbv	<0.5	10 ppbv	95.5	93.9	77	120	25	25
EP101-15X: Isooctane	540-84-1	0.5	ppbv	<0.5	10 ppbv	101	101	72	127	25	25
EP101-15X: Isopropyl Alcohol	67-63-0	0.5	ppbv	<0.5	10 ppbv	78.9	79.5	70	129	25	25
EP101-15X: 2-Butanone (MEK)	78-93-3	0.5	ppbv	<0.5	10 ppbv	99.4	99.7	72	126	25	25
EP101-15X: Methyl iso-Butyl ketone	108-10-1	0.5	ppbv	<0.5	10 ppbv	103	103	74	130	25	25
EP101-15X: 2-Hexanone (MBK)	591-78-6	0.5	ppbv	<0.5	10 ppbv	107	107	70	130	25	25
EP101-15X: Propene	115-07-1	0.5	ppbv	<0.5	10 ppbv	95.9	96.5	70	130	25	25
EP101-15X: Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.5	ppbv	<0.5	10 ppbv	103	103	76	118	25	25
EP101-15X: Tetrahydrofuran	109-99-9	0.5	ppbv	<0.5	10 ppbv	100	100	71	127	25	25
EP101-15X: Bromoform	75-25-2	0.5	ppbv	<0.5	10 ppbv	117	116	74	130	25	25
EP101-15X: Vinyl Acetate	108-05-4	0.5	ppbv	<0.5	10 ppbv	100	101	70	122	25	25
EP101-15X: Vinyl bromide	593-60-2	0.5	ppbv	<0.5	10 ppbv	88.1	88.2	82	126	25	25
EP101-15X: Ethanol	64-17-5	0.5	ppbv	<0.5	10 ppbv	121	122	70	130	25	25
EP101-15X: Acetonitrile	75-05-8	0.5	ppbv	<0.5	10 ppbv	83.4	83.8	70	130	25	25
EP101-15X: Acrolein	107-02-8	0.5	ppbv	<0.5	10 ppbv	97.2	97.7	70	130	25	25
EP101-15X: Acrylonitrile	107-13-1	0.5	ppbv	<0.5	10 ppbv	81.4	81.5	70	130	25	25
EP101-15X: tert-Butyl alcohol	75-65-0	0.5	ppbv	<0.5	10 ppbv	80.2	81.0	74	127	25	25
EP101-15X: 2-Chloro-1.3-butadiene	126-99-8	0.5	ppbv	<0.5	10 ppbv	98.5	99.0	77	120	25	25
EP101-15X: Di-isopropyl Ether	108-20-3	0.5	ppbv	<0.5	10 ppbv	102	102	74	130	25	25
EP101-15X: Ethyl tert-Butyl Ether (ETBE)	637-92-3	0.5	ppbv	<0.5	10 ppbv	104	105	78	123	25	25

Sub-Matrix: **AIR**

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
		LOR	Unit	Result	Concentration	LCS	DCS	Low	High	Value	Control Limit
EP101: VOCs by USEPA Method TO15r (QCLot: 1176951) - continued											
EP101-15X: tert-Amyl Methyl Ether (TAME)	994-05-8	0.5	ppbv	<0.5	10 ppbv	108	108	77	121	25	25
EP101-15X: Methyl Methacrylate	80-62-6	0.5	ppbv	<0.5	10 ppbv	98.8	98.4	70	126	25	25
EP101-15X: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	ppbv	<0.5	10 ppbv	108	108	80	130	25	25
EP101-15X: Isopropylbenzene	98-82-8	0.5	ppbv	<0.5	10 ppbv	102	101	74	130	25	25
EP101-15X: n-Propylbenzene	103-65-1	0.5	ppbv	<0.5	10 ppbv	95.2	95.1	70	128	25	25
EP101-15X: tert-Butylbenzene	98-06-6	0.5	ppbv	<0.5	10 ppbv	101	100	71	130	25	25
EP101-15X: sec-Butylbenzene	135-98-8	0.5	ppbv	<0.5	10 ppbv	95.0	94.0	73	130	25	25
EP101-15X: 2-isopropyltoluene	527-84-4	0.5	ppbv	<0.5	10 ppbv	90.0	89.2	70	130	25	25
EP101-15X: n-Butylbenzene	104-51-8	0.5	ppbv	<0.5	10 ppbv	72.5	72.2	70	130	25	25
EP101-15X: Naphthalene	91-20-3	0.5	ppbv	<0.5	10 ppbv	74.4	77.0	70	130	25	25
EP101-S: Reduced Sulphur Compounds in Air (QCLot: 1176186)											
EP101-S: Hydrogen Sulphide	7783-06-4	20	ppbv	<20	100 ppbv	100	110	70	130	25	25
EP103: Petroleum Hydrocarbons in Gaseous Samples (QCLot: 1176957)											
EP103-PC: C6 - C9 Fraction	----	50	ppbv	<50	2800 ppbv	102	102	70	130	25	25
EP103-PC: C10 - C14 Fraction	----	50	ppbv	<50	1200 ppbv	115	114	70	130	25	25
EP103: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 1176957)											
EP103-PC: C6 - C10 Fraction	C6_C10	50	ppbv	<50	3000 ppbv	104	103	70	130	25	25
EP103-PC: >C10 - C16 Fraction	----	50	ppbv	<50	500 ppbv	114	112	70	130	25	25
EP104: Light Hydrocarbons (QCLot: 1178788)											
EP104: Methane	74-82-8	0.05	Mol %	<0.05	0.097 Mol %	97.2	95.6	90	110	25	25
EP104: Permanent Gases (QCLot: 1178788)											
EP104: Carbon Dioxide	124-38-9	0.005	Mol %	<0.005	5.098 Mol %	104	103	90	110	25	25
EP104: Carbon Monoxide	630-08-0	0.0005	Mol %	<0.0005	----	----	----	----	----	----	----
EP104: Hydrogen	1333-74-0	0.005	Mol %	<0.005	0.105 Mol %	100	98.1	90	110	25	25
EP104: Helium	7440-59-7	0.005	Mol %	<0.005	0.105 Mol %	103	101	90	110	25	25
EP104: Oxygen	7782-44-7	0.1	Mol %	<0.10	9.338 Mol %	94.5	95.3	90	110	25	25

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

batch no BN

AIR CANISTER CHAIN OF CUSTODY

ALS

If sourced from an ALS Laboratory: please tick →

Client Supplied Canister(s)? Y / N

CLIENT: WSP	TURNAROUND REQUIREMENTS : ☐ Standard TAT (List due date):	LABORATORY USE ONLY (Circle)	Receiver to initial and date/time
OFFICE:	(Standard TAT may be extended for multiple sequential analysis suites) ☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact? Rec Lab Y / N NE Y / N	N/A
PROJECT: Mordialloc Bypass PROJECT NO:	ALS QUOTE NO.:	Valves closed on Receipt? Rec Lab Y / N NE Y / N	N/A
CANISTER REQUEST NO: PURCHASE ORDER NO.:	COUNTRY OF ORIGIN:	Canister/Sampler Complete and Not Damaged Rec Yes / No	
PROJECT MANAGER: Gilfa Nazario	CONTACT PH:	Other comment: Temperature °C	
SAMPLER: BP	SAMPLER MOBILE:		
COC Emailed to ALS? (YES / NO)	EDD FORMAT (or default):		
Email Reports to (will default to PM if no other addresses are listed): G. Nazario			
Email Invoice to (will default to PM if no other addresses are listed): brittany.purves@wsp.com			

COC SEQUENCE NUMBER (Circle): COC: 1 2 3 4 5 6 7 — OF: 1 2 3 4 5 6 7

RELINQUISHED BY:	RELINQUISHED BY:	RELINQUISHED BY:	RELINQUISHED BY:
Signature and date/time	Signature and date/time	Signature and date/time	Signature and date/time
RECEIVED BY:	RECEIVED BY:	RECEIVED BY: 12/10/17 9:00	RECEIVED BY:
Signature and date/time	Signature and date/time	Signature and date/time	Signature and date/time

COMMENTS/SPECIAL HANDLING/REPLACEMENT OR RETURN INSTRUCTIONS: 10/10, 16:20 TNT: 845166501

GAS SAMPLE CONTAINER INFORMATION

Canister Gauge Pressures (PSI): Refer to Canister Verification Reports and COAs for pressures measured by the Lab

Reporting Requirements — LORs: Ambient Air; Soil Gas (NEPM); Other / Indoor — Units: ppbv, µg/m³; ppmv, mg/m³

ANALYSES REQUESTED — Suite Codes must be listed to attract suite price

ALS USE ONLY: LAB ID	CANISTER SERIAL NO.	FLOW CONTROLLER SERIAL NO.	CLIENT SAMPLE ID	DATE / TIME SAMPLED	MATRIX (eg Air, Soil Gas)	Pre-Sampling	Post Sampling	LORs: Ambient Air	LORs: Soil Gas (NEPM)	LORs: Other / Indoor	Units: ppbv, µg/m³	Units: ppmv, mg/m³	SP-PH3 615X NEPM TPH	EP104 GM	EP101-H2S	Additional Information
1	~~099~~ 873	014	GB 07 (yellow)	9/10/17	Air	-28	-8				X			X	X	Please refer to Quote number ME/623/17
2	~~5631~~ 5063	5229	GB04 (yellow)	9/10/17	Air	-29	-8				X			X	X	
3	~~11337~~ 3020	055	GB 04 (VOC green)	9/10/17	Air	-30	-8					X	X			
4	991	~~5218~~ 5218	GB5 (yellow)	9/10/17	Air	-34	-8				X			X	X	
5	3024	~~3024~~ 1211	GB5 (VOC green)	9/10/17	Air	-30	-8					X	X			* Permanent Gas + methane (EP104GM) reported in %.
6	1085	5240	GB06 (yellow)	9/10/17	Air	-29	-7				X			X	X	
7	737	5233	GB8 (yellow)	10/10/17	Air	-36	-8				X			X	X	
8	998	051	GB8 (green dot)	10/10/17	Air	-29	-8					X	X			
9	1280	5221	GB9 (yellow)	"	"	-32	-8				X			X	X	
10	823	5221	GB9_D1 (yellow)	"	"	-28	-7				X			X	X	
11	5061	5221	GB9_D2 (yellow)	"	"	-31	-8				X			X	X	
12	995	5216	GB10 (yellow)	"	"	-30	-8				X			X	X	
13	1076	180	GB10 (green dot)	"	"	-32	-7					X	X			
14	828	5215	GB3 (yellow)	"	"	>-30	-8				X			X	X	

Environmental Division
Newcastle
Work Order Reference
EN1704238

Telephone : +61 2 4014 2500

Job Specific Instructions:

AIR SAMPLING EQUIPMENT — DISPATCH RECORD

Inquiries: Client Services - Newcastle **Phone: +61 (02) 4014 2500** E-mail: samples.newcastle@alsenviro.com

Dispatch to:			
Client / Office:	WSP Melbourne	ALS Use ONLY	
Contact:	Olfa Nazario	Request Received By:	KLG
Telephone:	0431 193 218	Deliver By:	ASAP
ALS Quotation:		Dispatched By:	
Delivery Address:	Level 15, 28 ~~Freshwater Place~~	Workorder:	
	~~Southbank VIC 3006~~	Agreed Rent Free Period:	14 days

SPECIAL INSTRUCTIONS: SEND VIA ALS MELBOURNE - 2-4 Westfall Rd Springvale VIC 3171

Air Sampling Equipment Request

CANISTERS

No	Canister Type	Size	Gauge	Valve	Cap	Rental[1]
5	VERIFIED Minican™	1.4L	No	QT	Yes	$120 ea
13	NON- VERIFIED Minican™	1.4L	No	QT	Yes	$120 ea

Analysts Initials & Date

Leak Checked	Certified OK
VS	28/9/17
VS	28/9/17

CONNECTORS AND FLOW CONTROL DEVICES

No	Equipment Type	Duration (hrs)	Flow (mL/min)	T-Piece	Gauge	Certified	Sealed / Vacuum	Connection Q Quick Connect S Swagelok		Rental[1]
6	Verified Soil Gas Sampling Train		50mL/min	No	Yes	Yes	Yes / No	S		Incl Above
10	Non- Verified Soil Gas Sampling Train		50mL/min	No	Yes	Yes	Yes / Yes	Q		Incl Above
2	Duplicate Soil Gas Sampler VERIFIED		50mL/min	Yes	Yes	Yes	Yes / Yes	Q		Incl Above
18	Female QT Connectors	-	-	-	-	-	-	Q		$120 ea. Replacement
1	Male QT Connector	-	-	-	-	-	-	Q		$120 ea. Replacement
1	Pressure Gauge - QT	-	-	-	-	-	Yes / Yes	Q		$250 ea. Replacement
	Sampling Kit Case – Soil Gas	-	-	-	-	-	Yes	NA		$200 Replacement
	~~Tyvec Decon~~	-	-	-	-	-	-	NA		$80 ea.
	¼" Swagelok connectors and ferrules (spares)	-	-	-	-	-	-			$5 ea. Replacement

☐ Other (specify)

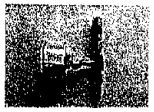
[1] *Refer to Acceptance of Terms*

ALS use only			
Sampling Guide Included (Y / N)	Packed by:	Dispatch Time / Date	28/9/17
Number of Boxes:	4	Consignment Note Number:	EG900940 1381
Courier / Dispatcher:	TNT	Consignment Dispatched by:	Glass

RIGHT SOLUTIONS
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www.alsglobal.com

AIR SAMPLING EQUIPMENT — DISPATCH RECORD

ALS SUPPLIED EQUIPMENT

Item	Quantity	Item Description	Serial Nos	
	5	1.4 L Silonite Mini-Can with QT Valve VERIFIED – GREEN DOTS IN CASES	718 1076 ✓ 998 ✓	3020 ✓ 3024 ✓
	13	1.4 L Silonite Mini-Can with QT Valve NOT VERIFIED YELLOW DOTS IN TNT BOXES	1280 ✓ 745. 995. ✓ 828. ✓ 708. 823. ✓ 737. ✓	5061 ✓ 873 ✓ 5063 ✓ 991 ✓ 1085 ✓ 1303
	10	Soil Gas Sampling Train (Compact Micro) with QT Connections 50mL/min Not verified.	$200. $209. $215 ✓ $216 ✓ $218 ✓	$221. ✓ $229. ✓ $233. ✓ $240. ✓ $246. ✓
	6	Soil Gas Sampling Train (Compact) with QT Connections 50mL/min Verified.	014. ✓ 055 ✓ 057. 081. ✓	121. ✓ 119.

ENFMCDR1.1 11-05-11
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AIR SAMPLING EQUIPMENT DISPATCH RECORD

Item	Quantity	Item Description	Serial Nos
	2	Soil Gas Duplicate Sampling Train with QT Connections 50mL/min verified	051 ✓ 110
		Vacuum Gauge with female QT Connection (-30 Hg)	013
		Female QT to ¼" tube connector	Rec. 9x 12/10. ✓
		Male QT to ¼" tube connector	
		Bases	

AIR SAMPLING EQUIPMENT DISPATCH RECORD

Acceptance of Terms:

Acceptance and use of the accompanying ALS Air Sampling Equipment constitutes acceptance of the following terms:

1. This equipment remains the property of ALS Laboratory Group.
2. Subject to the conditions below and unless stated otherwise in the relevant quotation, the supply and use of this equipment is included the price of analysis.
3. No responsibility is accepted by ALS for equipment requirements that have been incorrectly or incompletely specified by the client. Interfacing of ALS equipment with other sampling equipment or structures is solely the client's responsibility.
4. Sampling equipment is configured and supplied based on client specified requirements. ALS will take all reasonable care to meet these specifications, but will not accept responsibility for changes in equipment calibration or failures during transit. Replacement equipment will be provided at no charge if required.
5. Equipment calibration and verification records are available for review on request. Verification reports are provided with equipment and electronic copies are available on request.
6. This air sampling equipment is provided solely for the use of the nominated client. Responsibility for ensuring the equipment is not damaged and for returning this equipment to ALS remains with the nominated client until all equipment is returned to the ALS Group.
7. Unless otherwise agreed in writing, if equipment is not returned within the agreed rent free period after dispatch, the quoted rental fees above will apply per week per unit thereafter. If equipment is returned unused, the cleaning fees quoted will apply (1 weeks rental charge). If sampling equipment return is delayed, please contact the laboratory prior to expiry of the rent free period to negotiate and extension.
8. Irreparably damaged equipment and any equipment not returned within 40 days will be charged to the client at a replacement cost per unit equal to 15 weeks rent less rental costs already paid.
9. Cleaning costs will apply for equipment marked or defaced by the client. Please attach labels for

If these conditions are not acceptable please return all equipment to ALS Newcastle immediately.

EQUIPMENT SUPPLY AND LOGISTICS

Additional air sampling equipment can be ordered through any ALS Environmental Laboratory and supplied direct to your site or office by courier. For the fastest turnaround, equipment should be returned direct to Newcastle Laboratory.

ALS Environmental, Newcastle
5/585 Maitland Road
Mayfield West, NSW 2304

Note that Dangerous Goods Transport Regulations may apply after sampling if the air cylinders are pressurised or contain hazardous materials.

ENFMCDR1.1 11-05-11

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ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EN1704387**	Page	: 1 of 10
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Newcastle
Contact	: OLFA NAZARIO	Contact	:
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 5/585 Maitland Road Mayfield West NSW Australia 2304
Telephone	: +61 03 9861 1111	Telephone	: +61 2 4014 2500
Project	: Mordialloc Bypass	Date Samples Received	: 24-Oct-2017 09:00
Order number	: ----	Date Analysis Commenced	: 24-Oct-2017
C-O-C number	: ----	Issue Date	: 01-Nov-2017 16:23
Sampler	: BP		
Site	: Mordialloc Bypass Project		
Quote number	: ME/423/17		
No. of samples received	: 4		
No. of samples analysed	: 4		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dale Semple	Analyst	Newcastle - Organics, Mayfield West, NSW
Daniel Junek	Senior Air Analyst	Newcastle - Organics, Mayfield West, NSW
Daniel Junek	Senior Air Analyst	Newcastle, Mayfield West, NSW

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Analysis of permanent gases and light hydrocarbons conducted by ALS Coal Newcastle, NATA accreditation no. 15784, site no 1422.
- EP101: Results reported in µg/m³ are calculated from PPBV results based on a temperature of 25°C and atmospheric pressure of 101.3 kPa.
- EP103: Results reported in mg/m³ are calculated from PPBV results based on a temperature of 25°C and atmospheric pressure of 101.3 kPa.
- CAN-001: Results for Pressure - As Received are measured under controlled conditions using calibrated laboratory gauges. These results are expressed as an Absolute Pressure. Equivalent gauge pressures may be calculated by subtracting the Pressure - Laboratory Atmosphere taken at the time of measurement.
- CAN-001: Results for Pressure - Gauge as Received are obtained from uncalibrated field gauges and are indicative only. These results may not precisely match calibrated gauge readings and may vary from field measurements due to changes in temperature and pressure
- EP104: Results reported in mg/m³ are calculated from Mol% results based on a temperature of 25°C and atmospheric pressure of 101.3 kPa
- EP104: Sample canisters were received at sub-ambient pressures and required dilution in the laboratory prior to analysis. LOR values have been adjusted accordingly

Analytical Results

Sub-Matrix: AIR (Matrix: AIR)			Client sample ID	GB2 C1303_S209	GB2 C718_S110	GB1 C708_S200	Unused C745	----
			Client sampling date / time	20-Oct-2017 00:00	20-Oct-2017 00:00	20-Oct-2017 00:00	20-Oct-2017 00:00	----
Compound	CAS Number	LOR	Unit	EN1704387-001	EN1704387-002	EN1704387-003	EN1704387-004	--------
				Result	Result	Result	Result	----
EP101: VOCs by USEPA Method TO15 (Calculated Concentration)								
Freon 12	75-71-8	0.250	mg/m³	----	<0.250	----	----	----
Chloromethane	74-87-3	0.100	mg/m³	----	<0.100	----	----	----
Freon 114	76-14-2	0.350	mg/m³	----	<0.350	----	----	----
Vinyl chloride	75-01-4	0.0051	mg/m³	----	**0.263**	----	----	----
Bromomethane	74-83-9	0.190	mg/m³	----	**1.12**	----	----	----
Chloroethane	75-00-3	0.130	mg/m³	----	<0.130	----	----	----
Freon 11	75-69-4	0.280	mg/m³	----	<0.280	----	----	----
1.1-Dichloroethene	75-35-4	0.200	mg/m³	----	<0.200	----	----	----
Dichloromethane	75-09-2	0.170	mg/m³	----	<0.170	----	----	----
Freon 113	76-13-1	0.380	mg/m³	----	<0.380	----	----	----
1.1-Dichloroethane	75-34-3	0.200	mg/m³	----	<0.200	----	----	----
cis-1.2-Dichloroethene	156-59-2	0.0200	mg/m³	----	<0.0200	----	----	----
Chloroform	67-66-3	0.240	mg/m³	----	<0.240	----	----	----
1.2-Dichloroethane	107-06-2	0.200	mg/m³	----	<0.200	----	----	----
1.1.1-Trichloroethane	71-55-6	0.270	mg/m³	----	<0.270	----	----	----
Benzene	71-43-2	0.100	mg/m³	----	<0.100	----	----	----
Carbon Tetrachloride	56-23-5	0.310	mg/m³	----	<0.310	----	----	----
1.2-Dichloropropane	78-87-5	0.230	mg/m³	----	<0.230	----	----	----
Trichloroethene	79-01-6	0.0054	mg/m³	----	<0.0054	----	----	----
cis-1.3-Dichloropropylene	10061-01-5	0.230	mg/m³	----	<0.230	----	----	----
trans-1.3-Dichloropropene	10061-02-6	0.230	mg/m³	----	<0.230	----	----	----
1.1.2-Trichloroethane	79-00-5	0.270	mg/m³	----	<0.270	----	----	----
Toluene	108-88-3	0.190	mg/m³	----	<0.190	----	----	----
1.2-Dibromoethane (EDB)	106-93-4	0.380	mg/m³	----	<0.380	----	----	----
Tetrachloroethene	127-18-4	0.340	mg/m³	----	<0.340	----	----	----
Chlorobenzene	108-90-7	0.230	mg/m³	----	<0.230	----	----	----
Ethylbenzene	100-41-4	0.220	mg/m³	----	<0.220	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.430	mg/m³	----	<0.430	----	----	----
Styrene	100-42-5	0.210	mg/m³	----	<0.210	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.340	mg/m³	----	<0.340	----	----	----
ortho-Xylene	95-47-6	0.220	mg/m³	----	<0.220	----	----	----
4-Ethyltoluene	622-96-8	0.240	mg/m³	----	<0.240	----	----	----
Total Xylenes	1330-20-7	0.650	mg/m³	----	<0.650	----	----	----
1.3.5-Trimethylbenzene	108-67-8	0.240	mg/m³	----	<0.240	----	----	----

Analytical Results

Sub-Matrix: AIR (Matrix: AIR)				Client sample ID	GB2 C1303_S209	GB2 C718_S110	GB1 C708_S200	Unused C745	----
				Client sampling date / time	20-Oct-2017 00:00	20-Oct-2017 00:00	20-Oct-2017 00:00	20-Oct-2017 00:00	----
Compound	CAS Number	LOR	Unit		EN1704387-001	EN1704387-002	EN1704387-003	EN1704387-004	--------
					Result	Result	Result	Result	----
EP101: VOCs by USEPA Method TO15 (Calculated Concentration) - Continued									
1.2.4-Trimethylbenzene	95-63-6	0.240	mg/m³		----	<0.240	----	----	----
1.3-Dichlorobenzene	541-73-1	0.300	mg/m³		----	<0.300	----	----	----
Benzylchloride	100-44-7	0.260	mg/m³		----	<0.260	----	----	----
1.4-Dichlorobenzene	106-46-7	0.300	mg/m³		----	<0.300	----	----	----
1.2-Dichlorobenzene	95-50-1	0.300	mg/m³		----	<0.300	----	----	----
1.2.4-Trichlorobenzene	120-82-1	0.370	mg/m³		----	<0.370	----	----	----
Hexachlorobutadiene	87-68-3	0.530	mg/m³		----	<0.530	----	----	----
Acetone	67-64-1	0.120	mg/m³		----	<0.120	----	----	----
Bromodichloromethane	75-27-4	0.340	mg/m³		----	<0.340	----	----	----
1.3-Butadiene	106-99-0	0.110	mg/m³		----	<0.110	----	----	----
Carbon disulfide	75-15-0	0.160	mg/m³		----	<0.160	----	----	----
2-Chlorotoluene	95-49-8	0.260	mg/m³		----	<0.260	----	----	----
1-Chloro-2-propene (Allyl chloride)	107-05-1	0.160	mg/m³		----	<0.160	----	----	----
Cyclohexane	110-82-7	0.170	mg/m³		----	<0.170	----	----	----
Dibromochloromethane	124-48-1	0.430	mg/m³		----	<0.430	----	----	----
1.4-Dioxane	123-91-1	0.180	mg/m³		----	<0.180	----	----	----
Ethylacetate	9002-89-5	0.180	mg/m³		----	<0.180	----	----	----
trans-1.2-Dichloroethene	156-60-5	0.200	mg/m³		----	<0.200	----	----	----
Heptane	142-82-5	0.200	mg/m³		----	<0.200	----	----	----
Hexane	110-54-3	0.180	mg/m³		----	<0.180	----	----	----
Isooctane	540-84-1	0.230	mg/m³		----	<0.230	----	----	----
Isopropyl Alcohol	67-63-0	0.120	mg/m³		----	**0.127**	----	----	----
2-Butanone (MEK)	78-93-3	0.150	mg/m³		----	<0.150	----	----	----
Methyl iso-Butyl ketone	108-10-1	0.200	mg/m³		----	<0.200	----	----	----
2-Hexanone (MBK)	591-78-6	0.200	mg/m³		----	<0.200	----	----	----
Propene	115-07-1	0.0900	mg/m³		----	<0.0900	----	----	----
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.180	mg/m³		----	<0.180	----	----	----
Tetrahydrofuran	109-99-9	0.150	mg/m³		----	<0.150	----	----	----
Bromoform	75-25-2	0.520	mg/m³		----	<0.520	----	----	----
Vinyl Acetate	108-05-4	0.180	mg/m³		----	<0.180	----	----	----
Vinyl bromide	593-60-2	0.220	mg/m³		----	<0.220	----	----	----
Ethanol	64-17-5	0.0900	mg/m³		----	<0.0900	----	----	----
Acetonitrile	75-05-8	0.0800	mg/m³		----	<0.0800	----	----	----

Analytical Results

Sub-Matrix: AIR (Matrix: AIR)				Client sample ID	GB2 C1303_S209	GB2 C718_S110	GB1 C708_S200	Unused C745	----
				Client sampling date / time	20-Oct-2017 00:00	20-Oct-2017 00:00	20-Oct-2017 00:00	20-Oct-2017 00:00	----
Compound	CAS Number	LOR	Unit		EN1704387-001	EN1704387-002	EN1704387-003	EN1704387-004	--------
					Result	Result	Result	Result	----
EP101: VOCs by USEPA Method TO15 (Calculated Concentration) - Continued									
Acrolein	107-02-8	0.110	mg/m³		----	<0.110	----	----	----
Acrylonitrile	107-13-1	0.110	mg/m³		----	**0.132**	----	----	----
tert-Butyl alcohol	75-65-0	0.150	mg/m³		----	<0.150	----	----	----
2-Chloro-1.3-butadiene	126-99-8	0.180	mg/m³		----	<0.180	----	----	----
Di-isopropyl Ether	108-20-3	0.210	mg/m³		----	<0.210	----	----	----
Ethyl tert-Butyl Ether (ETBE)	637-92-3	0.210	mg/m³		----	<0.210	----	----	----
tert-Amyl Methyl Ether (TAME)	994-05-8	0.210	mg/m³		----	<0.210	----	----	----
Methyl Methacrylate	80-62-6	0.210	mg/m³		----	<0.210	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.340	mg/m³		----	<0.340	----	----	----
Isopropylbenzene	98-82-8	0.250	mg/m³		----	<0.250	----	----	----
n-Propylbenzene	103-65-1	0.250	mg/m³		----	<0.250	----	----	----
tert-Butylbenzene	98-06-6	0.270	mg/m³		----	<0.270	----	----	----
sec-Butylbenzene	135-98-8	0.270	mg/m³		----	<0.270	----	----	----
2-isopropyltoluene	527-84-4	0.270	mg/m³		----	<0.270	----	----	----
n-Butylbenzene	104-51-8	0.270	mg/m³		----	<0.270	----	----	----
Naphthalene	91-20-3	0.100	mg/m³		----	<0.100	----	----	----
EP101-S: Reduced Sulphur Compounds in Air									
Hydrogen Sulphide	7783-06-4	20	ppbv		<50	----	<50	----	----
EP101-S: Reduced Sulphur Compounds in Air (Calculated Concentration)									
Hydrogen Sulphide	7783-06-4	30	µg/m³		<80	----	<80	----	----
EP103: Petroleum Hydrocarbons in Gaseous Samples									
C6 - C9 Fraction	----	5.00	ppmv		----	<5.00	----	----	----
C10 - C14 Fraction	----	5.00	ppmv		----	<5.00	----	----	----
EP103: Petroleum Hydrocarbons in Gaseous Samples (Calc Conc)									
C6 - C9 Fraction	----	20.0	mg/m³		----	<20.0	----	----	----
C10 - C14 Fraction	----	35.0	mg/m³		----	<35.0	----	----	----
EP103: Total Recoverable Hydrocarbons - NEPM 2013									
C6 - C10 Fraction	C6_C10	5.00	ppmv		----	<5.00	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	5.00	ppmv		----	<5.00	----	----	----
>C10 - C16 Fraction	----	5.00	ppmv		----	<5.00	----	----	----
>C10 - C16 Fraction minus Naphthalene (F2)	----	5.00	ppmv		----	<5.00	----	----	----
EP103: Total Recoverable Hydrocarbons - NEPM 2013 (Calc Conc)									

Analytical Results

Sub-Matrix: AIR (Matrix: AIR)				Client sample ID	GB2 C1303_S209	GB2 C718_S110	GB1 C708_S200	Unused C745	----
				Client sampling date / time	20-Oct-2017 00:00	20-Oct-2017 00:00	20-Oct-2017 00:00	20-Oct-2017 00:00	----
Compound	CAS Number	LOR	Unit		EN1704387-001	EN1704387-002	EN1704387-003	EN1704387-004	--------
					Result	Result	Result	Result	----
EP103: Total Recoverable Hydrocarbons - NEPM 2013 (Calc Conc) - Continued									
C6 - C10 Fraction	C6_C10	20.0	mg/m³		----	<20.0	----	----	----
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20.0	mg/m³		----	<20.0	----	----	----
>C10 - C16 Fraction	----	40.0	mg/m³		----	<40.0	----	----	----
>C10 - C16 Fraction minus Naphthalene (F2)	----	40.0	mg/m³		----	<40.0	----	----	----
EP104: Light Hydrocarbons									
Methane	74-82-8	0.05	Mol %		<0.10	----	<0.10	----	----
EP104: Light Hydrocarbons (Calc Conc)									
Methane	74-82-8	330	mg/m³		<660	----	<660	----	----
EP104: Permanent Gases									
Carbon Dioxide	124-38-9	0.005	Mol %		**8.38**	----	**0.540**	----	----
Carbon Monoxide	630-08-0	0.0005	Mol %		<0.0010	----	<0.0010	----	----
Hydrogen	1333-74-0	0.005	Mol %		<0.010	----	<0.010	----	----
Helium	7440-59-7	0.005	Mol %		<0.010	----	<0.010	----	----
Oxygen	7782-44-7	0.10	Mol %		**4.90**	----	**20.6**	----	----
EP104: Permanent Gases (Calc Conc)									
Carbon Dioxide	124-38-9	90	mg/m³		**151000**	----	**9710**	----	----
Carbon Monoxide	630-08-0	5	mg/m³		<10	----	<10	----	----
Hydrogen	1333-74-0	4	mg/m³		<8	----	<8	----	----
Oxygen	7782-44-7	1310	mg/m³		**64100**	----	**269000**	----	----
Helium	7440-59-7	8	mg/m³		<16	----	<16	----	----
Sampling Quality Assurance									
Pressure - As received	PRESSURE	0.1	kPaa		**90.7**	**82.8**	**91.7**	<0.1	----
Pressure - Laboratory Atmosphere	----	0.1	kPaa		**102**	**102**	**102**	**102**	----
Temperature as Received	----	0.1	°C		**21.0**	**21.0**	**21.0**	**21.0**	----
Vacuum - As received	----	0.03	"Hg		**3.31**	**5.64**	**2.98**	**30.1**	----
USEPA Air Toxics Method TO15r									
Freon 12	75-71-8	0.0500	ppmv		----	<0.0500	----	----	----
Chloromethane	74-87-3	0.0500	ppmv		----	<0.0500	----	----	----
Freon 114	76-14-2	0.0500	ppmv		----	<0.0500	----	----	----
Vinyl chloride	75-01-4	0.0020	ppmv		----	**0.103**	----	----	----
Bromomethane	74-83-9	0.0500	ppmv		----	**0.289**	----	----	----
Chloroethane	75-00-3	0.0500	ppmv		----	<0.0500	----	----	----

Analytical Results

Sub-Matrix: AIR (Matrix: AIR)				Client sample ID	GB2 C1303_S209	GB2 C718_S110	GB1 C708_S200	Unused C745	----
				Client sampling date / time	20-Oct-2017 00:00	20-Oct-2017 00:00	20-Oct-2017 00:00	20-Oct-2017 00:00	----
Compound	CAS Number	LOR	Unit		EN1704387-001	EN1704387-002	EN1704387-003	EN1704387-004	--------
					Result	Result	Result	Result	----
USEPA Air Toxics Method TO15r - Continued									
Freon 11	75-69-4	0.0500	ppmv		----	<0.0500	----	----	----
1.1-Dichloroethene	75-35-4	0.0500	ppmv		----	<0.0500	----	----	----
Dichloromethane	75-09-2	0.0500	ppmv		----	<0.0500	----	----	----
Freon 113	76-13-1	0.0500	ppmv		----	<0.0500	----	----	----
1.1-Dichloroethane	75-34-3	0.0500	ppmv		----	<0.0500	----	----	----
cis-1.2-Dichloroethene	156-59-2	0.0050	ppmv		----	<0.0050	----	----	----
Chloroform	67-66-3	0.0500	ppmv		----	<0.0500	----	----	----
1.2-Dichloroethane	107-06-2	0.0500	ppmv		----	<0.0500	----	----	----
1.1.1-Trichloroethane	71-55-6	0.0500	ppmv		----	<0.0500	----	----	----
Benzene	71-43-2	0.0300	ppmv		----	<0.0300	----	----	----
Carbon Tetrachloride	56-23-5	0.0500	ppmv		----	<0.0500	----	----	----
1.2-Dichloropropane	78-87-5	0.0500	ppmv		----	<0.0500	----	----	----
Trichloroethene	79-01-6	0.0010	ppmv		----	<0.0010	----	----	----
cis-1.3-Dichloropropylene	10061-01-5	0.0500	ppmv		----	<0.0500	----	----	----
trans-1.3-Dichloropropene	10061-02-6	0.0500	ppmv		----	<0.0500	----	----	----
1.1.2-Trichloroethane	79-00-5	0.0500	ppmv		----	<0.0500	----	----	----
Toluene	108-88-3	0.0500	ppmv		----	<0.0500	----	----	----
1.2-Dibromoethane (EDB)	106-93-4	0.0500	ppmv		----	<0.0500	----	----	----
Tetrachloroethene	127-18-4	0.0500	ppmv		----	<0.0500	----	----	----
Chlorobenzene	108-90-7	0.0500	ppmv		----	<0.0500	----	----	----
Ethylbenzene	100-41-4	0.0500	ppmv		----	<0.0500	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.100	ppmv		----	<0.100	----	----	----
Styrene	100-42-5	0.0500	ppmv		----	<0.0500	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.0500	ppmv		----	<0.0500	----	----	----
ortho-Xylene	95-47-6	0.0500	ppmv		----	<0.0500	----	----	----
4-Ethyltoluene	622-96-8	0.0500	ppmv		----	<0.0500	----	----	----
1.3.5-Trimethylbenzene	108-67-8	0.0500	ppmv		----	<0.0500	----	----	----
1.2.4-Trimethylbenzene	95-63-6	0.0500	ppmv		----	<0.0500	----	----	----
1.3-Dichlorobenzene	541-73-1	0.0500	ppmv		----	<0.0500	----	----	----
Benzylchloride	100-44-7	0.0500	ppmv		----	<0.0500	----	----	----
1.4-Dichlorobenzene	106-46-7	0.0500	ppmv		----	<0.0500	----	----	----
1.2-Dichlorobenzene	95-50-1	0.0500	ppmv		----	<0.0500	----	----	----
1.2.4-Trichlorobenzene	120-82-1	0.0500	ppmv		----	<0.0500	----	----	----
Hexachlorobutadiene	87-68-3	0.0500	ppmv		----	<0.0500	----	----	----

Analytical Results

Sub-Matrix: AIR (Matrix: AIR)				Client sample ID	GB2 C1303_S209	GB2 C718_S110	GB1 C708_S200	Unused C745	----
				Client sampling date / time	20-Oct-2017 00:00	20-Oct-2017 00:00	20-Oct-2017 00:00	20-Oct-2017 00:00	----
Compound	CAS Number	LOR	Unit		EN1704387-001	EN1704387-002	EN1704387-003	EN1704387-004	--------
					Result	Result	Result	Result	----
USEPA Air Toxics Method TO15r - Continued									
Acetone	67-64-1	0.0500	ppmv		----	<0.0500	----	----	----
Bromodichloromethane	75-27-4	0.0500	ppmv		----	<0.0500	----	----	----
1.3-Butadiene	106-99-0	0.0500	ppmv		----	<0.0500	----	----	----
Carbon disulfide	75-15-0	0.0500	ppmv		----	<0.0500	----	----	----
2-Chlorotoluene	95-49-8	0.0500	ppmv		----	<0.0500	----	----	----
1-Chloro-2-propene (Allyl chloride)	107-05-1	0.0500	ppmv		----	<0.0500	----	----	----
Cyclohexane	110-82-7	0.0500	ppmv		----	<0.0500	----	----	----
Dibromochloromethane	124-48-1	0.0500	ppmv		----	<0.0500	----	----	----
1.4-Dioxane	123-91-1	0.0500	ppmv		----	<0.0500	----	----	----
Ethylacetate	9002-89-5	0.0500	ppmv		----	<0.0500	----	----	----
trans-1.2-Dichloroethene	156-60-5	0.0500	ppmv		----	<0.0500	----	----	----
Heptane	142-82-5	0.0500	ppmv		----	<0.0500	----	----	----
Hexane	110-54-3	0.0500	ppmv		----	<0.0500	----	----	----
Isooctane	540-84-1	0.0500	ppmv		----	<0.0500	----	----	----
Isopropyl Alcohol	67-63-0	0.0500	ppmv		----	**0.0519**	----	----	----
2-Butanone (MEK)	78-93-3	0.0500	ppmv		----	<0.0500	----	----	----
Methyl iso-Butyl ketone	108-10-1	0.0500	ppmv		----	<0.0500	----	----	----
2-Hexanone (MBK)	591-78-6	0.0500	ppmv		----	<0.0500	----	----	----
Propene	115-07-1	0.0500	ppmv		----	<0.0500	----	----	----
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.0500	ppmv		----	<0.0500	----	----	----
Tetrahydrofuran	109-99-9	0.0500	ppmv		----	<0.0500	----	----	----
Bromoform	75-25-2	0.0500	ppmv		----	<0.0500	----	----	----
Vinyl Acetate	108-05-4	0.0500	ppmv		----	<0.0500	----	----	----
Vinyl bromide	593-60-2	0.0500	ppmv		----	<0.0500	----	----	----
Ethanol	64-17-5	0.0500	ppmv		----	<0.0500	----	----	----
Acetonitrile	75-05-8	0.0500	ppmv		----	<0.0500	----	----	----
Acrolein	107-02-8	0.0500	ppmv		----	<0.0500	----	----	----
Acrylonitrile	107-13-1	0.0500	ppmv		----	**0.0611**	----	----	----
tert-Butyl alcohol	75-65-0	0.0500	ppmv		----	<0.0500	----	----	----
2-Chloro-1.3-butadiene	126-99-8	0.0500	ppmv		----	<0.0500	----	----	----
Di-isopropyl Ether	108-20-3	0.0500	ppmv		----	<0.0500	----	----	----
Ethyl tert-Butyl Ether (ETBE)	637-92-3	0.0500	ppmv		----	<0.0500	----	----	----
tert-Amyl Methyl Ether (TAME)	994-05-8	0.0500	ppmv		----	<0.0500	----	----	----

Analytical Results

Sub-Matrix: AIR (Matrix: AIR)				Client sample ID	GB2 C1303_S209	GB2 C718_S110	GB1 C708_S200	Unused C745	----
				Client sampling date / time	20-Oct-2017 00:00	20-Oct-2017 00:00	20-Oct-2017 00:00	20-Oct-2017 00:00	----
Compound	CAS Number	LOR	Unit		EN1704387-001	EN1704387-002	EN1704387-003	EN1704387-004	--------
					Result	Result	Result	Result	----
USEPA Air Toxics Method TO15r - Continued									
Methyl Methacrylate	80-62-6	0.0500	ppmv		----	<0.0500	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.0500	ppmv		----	<0.0500	----	----	----
Isopropylbenzene	98-82-8	0.0500	ppmv		----	<0.0500	----	----	----
n-Propylbenzene	103-65-1	0.0500	ppmv		----	<0.0500	----	----	----
tert-Butylbenzene	98-06-6	0.0500	ppmv		----	<0.0500	----	----	----
sec-Butylbenzene	135-98-8	0.0500	ppmv		----	<0.0500	----	----	----
2-isopropyltoluene	527-84-4	0.0500	ppmv		----	<0.0500	----	----	----
n-Butylbenzene	104-51-8	0.0500	ppmv		----	<0.0500	----	----	----
Naphthalene	91-20-3	0.0190	ppmv		----	<0.0190	----	----	----
USEPA Air Toxics Method TO15r Surrogates									
4-Bromofluorobenzene	460-00-4	0.5	%		----	**110**	----	----	----

Surrogate Control Limits

Sub-Matrix: **AIR**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
USEPA Air Toxics Method TO15r Surrogates			
4-Bromofluorobenzene	460-00-4	60	140

QUALITY CONTROL REPORT

Work Order	: **EN1704387**	Page	: 1 of 7
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Newcastle
Contact	: OLFA NAZARIO	Contact	:
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 5/585 Maitland Road Mayfield West NSW Australia 2304
Telephone	: +61 03 9861 1111	Telephone	: +61 2 4014 2500
Project	: Mordialloc Bypass	Date Samples Received	: 24-Oct-2017
Order number	: ----	Date Analysis Commenced	: 24-Oct-2017
C-O-C number	: ----	Issue Date	: 01-Nov-2017
Sampler	: BP		
Site	: Mordialloc Bypass Project		
Quote number	: ME/423/17		
No. of samples received	: 4		
No. of samples analysed	: 4		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
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General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **AIR**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP101: VOCs by USEPA Method TO15r (QC Lot: 1195019)									
EN1704380-001	Anonymous	EP101-15X: Freon 12	75-71-8	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Chloromethane	74-87-3	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Freon 114	76-14-2	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Vinyl chloride	75-01-4	0.5	ppbv	<0.0020 ppmv	<2.0	0.00	No Limit
		EP101-15X: Bromomethane	74-83-9	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Chloroethane	75-00-3	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Freon 11	75-69-4	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1.1-Dichloroethene	75-35-4	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Dichloromethane	75-09-2	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Freon 113	76-13-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1.1-Dichloroethane	75-34-3	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: cis-1.2-Dichloroethene	156-59-2	0.5	ppbv	<0.0050 ppmv	<5.0	0.00	No Limit
		EP101-15X: Chloroform	67-66-3	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1.2-Dichloroethane	107-06-2	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1.1.1-Trichloroethane	71-55-6	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Benzene	71-43-2	0.5	ppbv	<0.0300 ppmv	<30.0	0.00	No Limit
		EP101-15X: Carbon Tetrachloride	56-23-5	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1.2-Dichloropropane	78-87-5	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Trichloroethene	79-01-6	0.5	ppbv	<0.0010 ppmv	<1.0	0.00	No Limit
		EP101-15X: cis-1.3-Dichloropropylene	10061-01-5	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: trans-1.3-Dichloropropene	10061-02-6	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1.1.2-Trichloroethane	79-00-5	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Toluene	108-88-3	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1.2-Dibromoethane (EDB)	106-93-4	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Tetrachloroethene	127-18-4	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit

Sub-Matrix: **AIR**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP101: VOCs by USEPA Method TO15r (QC Lot: 1195019) - continued									
EN1704380-001	Anonymous	EP101-15X: Chlorobenzene	108-90-7	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Ethylbenzene	100-41-4	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Styrene	100-42-5	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: ortho-Xylene	95-47-6	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 4-Ethyltoluene	622-96-8	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1.3.5-Trimethylbenzene	108-67-8	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1.2.4-Trimethylbenzene	95-63-6	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1.3-Dichlorobenzene	541-73-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Benzylchloride	100-44-7	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1.4-Dichlorobenzene	106-46-7	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1.2-Dichlorobenzene	95-50-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1.2.4-Trichlorobenzene	120-82-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Hexachlorobutadiene	87-68-3	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Acetone	67-64-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Bromodichloromethane	75-27-4	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1.3-Butadiene	106-99-0	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Carbon disulfide	75-15-0	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 2-Chlorotoluene	95-49-8	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1-Chloro-2-propene (Allyl chloride)	107-05-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Cyclohexane	110-82-7	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Dibromochloromethane	124-48-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1.4-Dioxane	123-91-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Ethylacetate	9002-89-5	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: trans-1.2-Dichloroethene	156-60-5	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Heptane	142-82-5	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Hexane	110-54-3	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Isooctane	540-84-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Isopropyl Alcohol	67-63-0	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 2-Butanone (MEK)	78-93-3	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Methyl iso-Butyl ketone	108-10-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 2-Hexanone (MBK)	591-78-6	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Propene	115-07-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Tetrahydrofuran	109-99-9	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Bromoform	75-25-2	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Vinyl Acetate	108-05-4	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Vinyl bromide	593-60-2	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Ethanol	64-17-5	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Acetonitrile	75-05-8	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit

Sub-Matrix: **AIR**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP101: VOCs by USEPA Method TO15r (QC Lot: 1195019) - continued									
EN1704380-001	Anonymous	EP101-15X: Acrolein	107-02-8	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Acrylonitrile	107-13-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: tert-Butyl alcohol	75-65-0	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 2-Chloro-1.3-butadiene	126-99-8	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Di-isopropyl Ether	108-20-3	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Ethyl tert-Butyl Ether (ETBE)	637-92-3	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: tert-Amyl Methyl Ether (TAME)	994-05-8	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Methyl Methacrylate	80-62-6	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Isopropylbenzene	98-82-8	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: n-Propylbenzene	103-65-1	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: tert-Butylbenzene	98-06-6	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: sec-Butylbenzene	135-98-8	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: 2-isopropyltoluene	527-84-4	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: n-Butylbenzene	104-51-8	0.5	ppbv	<0.0500 ppmv	<50.0	0.00	No Limit
		EP101-15X: Naphthalene	91-20-3	0.5	ppbv	<0.0190 ppmv	<19.0	0.00	No Limit
		EP101-15X: meta- & para-Xylene	108-38-3 106-42-3	1	ppbv	<0.100 ppmv	<100	0.00	No Limit
EP101-S: Reduced Sulphur Compounds in Air (QC Lot: 1198267)									
EN1704387-001	GB2 C1303_S209	EP101-S: Hydrogen Sulphide	7783-06-4	20	ppbv	<50	<50	0.00	No Limit
EP103: Petroleum Hydrocarbons in Gaseous Samples (QC Lot: 1195022)									
EN1704368-001	Anonymous	EP103-PC: C6 - C9 Fraction	----	50	ppbv	<5.00 ppmv	<5000	0.00	No Limit
		EP103-PC: C10 - C14 Fraction	----	50	ppbv	<5.00 ppmv	<5000	0.00	No Limit
EP103: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 1195022)									
EN1704368-001	Anonymous	EP103-PC: C6 - C10 Fraction	C6_C10	50	ppbv	<5.00 ppmv	<5000	0.00	No Limit
		EP103-PC: >C10 - C16 Fraction	----	50	ppbv	<5.00 ppmv	<5000	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **AIR**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP101: VOCs by USEPA Method TO15r (QCLot: 1195019)								
EP101-15X: Freon 12	75-71-8	0.5	ppbv	<0.5	10 ppbv	99.8	70	130
EP101-15X: Chloromethane	74-87-3	0.5	ppbv	<0.5	10 ppbv	86.8	70	130
EP101-15X: Freon 114	76-14-2	0.5	ppbv	<0.5	10 ppbv	99.3	77	130
EP101-15X: Vinyl chloride	75-01-4	0.5	ppbv	<0.5	10 ppbv	92.6	76	130
EP101-15X: Bromomethane	74-83-9	0.5	ppbv	<0.5	10 ppbv	103	76	130
EP101-15X: Chloroethane	75-00-3	0.5	ppbv	<0.5	10 ppbv	103	70	130
EP101-15X: Freon 11	75-69-4	0.5	ppbv	<0.5	10 ppbv	108	82	122
EP101-15X: 1.1-Dichloroethene	75-35-4	0.5	ppbv	<0.5	10 ppbv	96.8	77	121
EP101-15X: Dichloromethane	75-09-2	0.5	ppbv	<0.5	10 ppbv	93.4	70	130
EP101-15X: Freon 113	76-13-1	0.5	ppbv	<0.5	10 ppbv	107	78	118
EP101-15X: 1.1-Dichloroethane	75-34-3	0.5	ppbv	<0.5	10 ppbv	97.3	80	120
EP101-15X: cis-1.2-Dichloroethene	156-59-2	0.5	ppbv	<0.5	10 ppbv	101	80	114
EP101-15X: Chloroform	67-66-3	0.5	ppbv	<0.5	10 ppbv	101	83	118
EP101-15X: 1.2-Dichloroethane	107-06-2	0.5	ppbv	<0.5	10 ppbv	99.5	76	124
EP101-15X: 1.1.1-Trichloroethane	71-55-6	0.5	ppbv	<0.5	10 ppbv	105	84	117
EP101-15X: Benzene	71-43-2	0.5	ppbv	<0.5	10 ppbv	95.7	81	113
EP101-15X: Carbon Tetrachloride	56-23-5	0.5	ppbv	<0.5	10 ppbv	108	83	121
EP101-15X: 1.2-Dichloropropane	78-87-5	0.5	ppbv	<0.5	10 ppbv	90.4	80	120
EP101-15X: Trichloroethene	79-01-6	0.5	ppbv	<0.5	10 ppbv	102	84	116
EP101-15X: cis-1.3-Dichloropropylene	10061-01-5	0.5	ppbv	<0.5	10 ppbv	98.9	77	116
EP101-15X: trans-1.3-Dichloropropene	10061-02-6	0.5	ppbv	<0.5	10 ppbv	101	70	119
EP101-15X: 1.1.2-Trichloroethane	79-00-5	0.5	ppbv	<0.5	10 ppbv	106	84	123
EP101-15X: Toluene	108-88-3	0.5	ppbv	<0.5	10 ppbv	103	79	120
EP101-15X: 1.2-Dibromoethane (EDB)	106-93-4	0.5	ppbv	<0.5	10 ppbv	109	81	124
EP101-15X: Tetrachloroethene	127-18-4	0.5	ppbv	<0.5	10 ppbv	122	77	124
EP101-15X: Chlorobenzene	108-90-7	0.5	ppbv	<0.5	10 ppbv	107	81	122
EP101-15X: Ethylbenzene	100-41-4	0.5	ppbv	<0.5	10 ppbv	103	81	120
EP101-15X: meta- & para-Xylene	108-38-3 106-42-3	1	ppbv	<1.0	20 ppbv	106	80	125
EP101-15X: Styrene	100-42-5	0.5	ppbv	<0.5	10 ppbv	109	70	126
EP101-15X: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	ppbv	<0.5	10 ppbv	106	83	130
EP101-15X: ortho-Xylene	95-47-6	0.5	ppbv	<0.5	10 ppbv	105	82	122
EP101-15X: 4-Ethyltoluene	622-96-8	0.5	ppbv	<0.5	10 ppbv	114	70	128
EP101-15X: 1.3.5-Trimethylbenzene	108-67-8	0.5	ppbv	<0.5	10 ppbv	103	72	126
EP101-15X: 1.2.4-Trimethylbenzene	95-63-6	0.5	ppbv	<0.5	10 ppbv	106	70	130

Sub-Matrix: **AIR**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP101: VOCs by USEPA Method TO15r (QCLot: 1195019) - continued								
EP101-15X: 1.3-Dichlorobenzene	541-73-1	0.5	ppbv	<0.5	10 ppbv	118	70	130
EP101-15X: Benzylchloride	100-44-7	0.5	ppbv	<0.5	10 ppbv	82.8	70	130
EP101-15X: 1.4-Dichlorobenzene	106-46-7	0.5	ppbv	<0.5	10 ppbv	116	70	130
EP101-15X: 1.2-Dichlorobenzene	95-50-1	0.5	ppbv	<0.5	10 ppbv	110	70	130
EP101-15X: 1.2.4-Trichlorobenzene	120-82-1	0.5	ppbv	<0.5	10 ppbv	84.7	70	130
EP101-15X: Hexachlorobutadiene	87-68-3	0.5	ppbv	<0.5	10 ppbv	94.7	70	130
EP101-15X: Acetone	67-64-1	0.5	ppbv	<0.5	10 ppbv	80.7	70	130
EP101-15X: Bromodichloromethane	75-27-4	0.5	ppbv	<0.5	10 ppbv	103	84	121
EP101-15X: 1.3-Butadiene	106-99-0	0.5	ppbv	<0.5	10 ppbv	91.4	73	130
EP101-15X: Carbon disulfide	75-15-0	0.5	ppbv	<0.5	10 ppbv	95.8	79	126
EP101-15X: 2-Chlorotoluene	95-49-8	0.5	ppbv	<0.5	10 ppbv	120	72	130
EP101-15X: 1-Chloro-2-propene (Allyl chloride)	107-05-1	0.5	ppbv	<0.5	10 ppbv	90.6	71	128
EP101-15X: Cyclohexane	110-82-7	0.5	ppbv	<0.5	10 ppbv	96.8	79	114
EP101-15X: Dibromochloromethane	124-48-1	0.5	ppbv	<0.5	10 ppbv	112	82	130
EP101-15X: 1.4-Dioxane	123-91-1	0.5	ppbv	<0.5	10 ppbv	102	70	122
EP101-15X: Ethylacetate	9002-89-5	0.5	ppbv	<0.5	10 ppbv	98.5	70	130
EP101-15X: trans-1.2-Dichloroethene	156-60-5	0.5	ppbv	<0.5	10 ppbv	96.1	77	123
EP101-15X: Heptane	142-82-5	0.5	ppbv	<0.5	10 ppbv	95.8	80	115
EP101-15X: Hexane	110-54-3	0.5	ppbv	<0.5	10 ppbv	91.0	77	120
EP101-15X: Isooctane	540-84-1	0.5	ppbv	<0.5	10 ppbv	92.1	72	127
EP101-15X: Isopropyl Alcohol	67-63-0	0.5	ppbv	<0.5	10 ppbv	83.2	70	129
EP101-15X: 2-Butanone (MEK)	78-93-3	0.5	ppbv	<0.5	10 ppbv	100	72	126
EP101-15X: Methyl iso-Butyl ketone	108-10-1	0.5	ppbv	<0.5	10 ppbv	91.9	74	130
EP101-15X: 2-Hexanone (MBK)	591-78-6	0.5	ppbv	<0.5	10 ppbv	103	70	130
EP101-15X: Propene	115-07-1	0.5	ppbv	<0.5	10 ppbv	84.2	70	130
EP101-15X: Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.5	ppbv	<0.5	10 ppbv	100	76	118
EP101-15X: Tetrahydrofuran	109-99-9	0.5	ppbv	<0.5	10 ppbv	94.3	71	127
EP101-15X: Bromoform	75-25-2	0.5	ppbv	<0.5	10 ppbv	118	74	130
EP101-15X: Vinyl Acetate	108-05-4	0.5	ppbv	<0.5	10 ppbv	102	70	122
EP101-15X: Vinyl bromide	593-60-2	0.5	ppbv	<0.5	10 ppbv	110	82	126
EP101-15X: Ethanol	64-17-5	0.5	ppbv	<0.5	10 ppbv	89.4	70	130
EP101-15X: Acetonitrile	75-05-8	0.5	ppbv	<0.5	10 ppbv	86.7	70	130
EP101-15X: Acrolein	107-02-8	0.5	ppbv	<0.5	10 ppbv	87.5	70	130
EP101-15X: Acrylonitrile	107-13-1	0.5	ppbv	<0.5	10 ppbv	91.7	70	130
EP101-15X: tert-Butyl alcohol	75-65-0	0.5	ppbv	<0.5	10 ppbv	102	74	127
EP101-15X: 2-Chloro-1.3-butadiene	126-99-8	0.5	ppbv	<0.5	10 ppbv	97.5	77	120
EP101-15X: Di-isopropyl Ether	108-20-3	0.5	ppbv	<0.5	10 ppbv	89.1	74	130
EP101-15X: Ethyl tert-Butyl Ether (ETBE)	637-92-3	0.5	ppbv	<0.5	10 ppbv	92.9	78	123
EP101-15X: tert-Amyl Methyl Ether (TAME)	994-05-8	0.5	ppbv	<0.5	10 ppbv	97.8	77	121

Sub-Matrix: **AIR**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP101: VOCs by USEPA Method TO15r (QCLot: 1195019) - continued								
EP101-15X: Methyl Methacrylate	80-62-6	0.5	ppbv	<0.5	10 ppbv	95.8	70	126
EP101-15X: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	ppbv	<0.5	10 ppbv	112	80	130
EP101-15X: Isopropylbenzene	98-82-8	0.5	ppbv	<0.5	10 ppbv	114	74	130
EP101-15X: n-Propylbenzene	103-65-1	0.5	ppbv	<0.5	10 ppbv	116	70	128
EP101-15X: tert-Butylbenzene	98-06-6	0.5	ppbv	<0.5	10 ppbv	111	71	130
EP101-15X: sec-Butylbenzene	135-98-8	0.5	ppbv	<0.5	10 ppbv	112	73	130
EP101-15X: 2-isopropyltoluene	527-84-4	0.5	ppbv	<0.5	10 ppbv	111	70	130
EP101-15X: n-Butylbenzene	104-51-8	0.5	ppbv	<0.5	10 ppbv	115	70	130
EP101-15X: Naphthalene	91-20-3	0.5	ppbv	<0.5	10 ppbv	78.4	70	130
EP101-S: Reduced Sulphur Compounds in Air (QCLot: 1198267)								
EP101-S: Hydrogen Sulphide	7783-06-4	20	ppbv	<20	100 ppbv	111	70	130
EP103: Petroleum Hydrocarbons in Gaseous Samples (QCLot: 1195022)								
EP103-PC: C6 - C9 Fraction	----	50	ppbv	<50	2800 ppbv	93.8	70	130
EP103-PC: C10 - C14 Fraction	----	50	ppbv	<50	1200 ppbv	114	70	130
EP103: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 1195022)								
EP103-PC: C6 - C10 Fraction	C6_C10	50	ppbv	<50	3000 ppbv	97.9	70	130
EP103-PC: >C10 - C16 Fraction	----	50	ppbv	<50	500 ppbv	115	70	130

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EN1704387**	Page	: 1 of 4
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Newcastle
Contact	: OLFA NAZARIO	Telephone	: +61 2 4014 2500
Project	: Mordialloc Bypass	Date Samples Received	: 24-Oct-2017
Site	: Mordialloc Bypass Project	Issue Date	: 01-Nov-2017
Sampler	: BP	No. of samples received	: 4
Order number	: ----	No. of samples analysed	: 4

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **AIR**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP101-S: Reduced Sulphur Compounds in Air							
Gas Canister - ALS Stainless Steel Silonite (EP101-S)							
GB2 - C1303_S209, GB1 - C708_S200	**20-Oct-2017**	**----**	----	----	**25-Oct-2017**	03-Nov-2017	✓
EP103: Petroleum Hydrocarbons in Gaseous Samples							
Gas Canister - ALS Stainless Steel Silonite (EP103-PC)							
GB2 - C718_S110	**20-Oct-2017**	**----**	----	----	**24-Oct-2017**	19-Nov-2017	✓
EP103: Total Recoverable Hydrocarbons - NEPM 2013							
Gas Canister - ALS Stainless Steel Silonite (EP103-PC)							
GB2 - C718_S110	**20-Oct-2017**	**----**	----	----	**24-Oct-2017**	19-Nov-2017	✓
EP104: Light Hydrocarbons							
Gas Canister - ALS Stainless Steel Silonite (EP104)							
GB2 - C1303_S209, GB1 - C708_S200	**20-Oct-2017**	**----**	----	----	**01-Nov-2017**	19-Nov-2017	✓
EP104: Permanent Gases							
Gas Canister - ALS Stainless Steel Silonite (EP104)							
GB2 - C1303_S209, GB1 - C708_S200	**20-Oct-2017**	**----**	----	----	**01-Nov-2017**	19-Nov-2017	✓
Sampling Quality Assurance							
Gas Canister - ALS Stainless Steel Silonite (CAN-001)							
GB2 - C1303_S209, GB2 - C718_S110, GB1 - C708_S200, Unused - C745	**20-Oct-2017**	**----**	----	----	**24-Oct-2017**	20-Oct-2018	✓
USEPA Air Toxics Method TO15r							
Gas Canister - ALS Stainless Steel Silonite (EP101-15X)							
GB2 - C718_S110	**20-Oct-2017**	**----**	----	----	**24-Oct-2017**	19-Nov-2017	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **AIR**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Duplicate Control Samples (DCS)							
Sulfur Compounds in Air Canister Samples	EP101-S	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
VOCs in Air by USEPA TO15r - Extended Suite	EP101-15X	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile TPH/TRH in Gaseous Samples	EP103-PC	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Duplicates (DUP)							
Sulfur Compounds in Air Canister Samples	EP101-S	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
VOCs in Air by USEPA TO15r - Extended Suite	EP101-15X	1	3	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile TPH/TRH in Gaseous Samples	EP103-PC	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Sulfur Compounds in Air Canister Samples	EP101-S	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
VOCs in Air by USEPA TO15r - Extended Suite	EP101-15X	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile TPH/TRH in Gaseous Samples	EP103-PC	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Sulfur Compounds in Air Canister Samples	EP101-S	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
VOCs in Air by USEPA TO15r - Extended Suite	EP101-15X	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile TPH/TRH in Gaseous Samples	EP103-PC	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Canister Sampling - Field Data	CAN-001	AIR	In house: Referenced to USEPA TO14 / TO15
VOCs in Air by USEPA TO15r - Extended Suite	EP101-15X	AIR	In house: Referenced to USEPA TO15r Volatile Organic Compounds in Air by USEPA TO15. Extended Suite
VOCs in Air by USEPA TO15r - Extended Suite (mass/volume)	EP101-15X-MV	AIR	In house: Referenced to USEPA TO15r Volatile Organic Compounds in Air by USEPA TO15. Extended Suite (Calculated Concentration)
Sulfur Compounds in Air Canister Samples	EP101-S	AIR	In house: Referenced to USEPA TO15r Reduced Sulfur Compounds in Air by USEPA TO15 Analysis by GCMS with Preconcentration on Thermal Desorbtion Cold Trap
Sulfur Compounds in Air Canister Samples (Mass/Volume)	EP101-S-MV	AIR	In house: Referenced to USEPA TO15r Reduced Sulfur Compounds in Air by USEPA TO15 (Calculated Mass/Volume) Analysis by GCMS with Preconcentration on Thermal Desorbtion Cold Trap
Volatile TPH/TRH in Gaseous Samples	EP103-PC	AIR	Volatile TPH/TRH by GC-MS with Preconcentration and Thermal Desorption Injection Based on USEPA TO15, MassDEP APH (Rev1 2009) and TPH/NEPM Fractions (2013)
Volatile TPH/TRH in Gaseous Samples (Calc Conc)	EP103-PC-MV	AIR	Volatile TPH/TRH by GC-MS with Preconcentration and Thermal Desorption Injection Based on USEPA TO15, MassDEP APH (Rev1 2009) and TPH/NEPM Fractions (2013) Calculated from ppbv results based on given Temperature and Atmospheric Pressure and mid-range molecular weights
Permanent Gases and Light Hydrocarbons	EP104	AIR	Hydrocarbons, Carbon Dioxide and Carbon Monoxide by GC-FID-TCD. Gases by GC-TCD In house: Referenced to ASTM D1945 applied to Gases and Light Hydrocarbons (C1-C4) using capillary GC
Permanent Gases and Light Hydrocarbons (mass/volume)	EP104-MV	AIR	Permanent Gases and Light Hydrocarbons - Calculated as mass/volume concentration from percentage composition and given termperature and pressure.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EN1704387**

Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Newcastle
Contact	: OLFA NAZARIO	Contact	:
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 5/585 Maitland Road Mayfield West NSW Australia 2304
E-mail	: olfa.nazario@wsp.com	E-mail	:
Telephone	: +61 03 9861 1111	Telephone	: +61 2 4014 2500
Facsimile	: +61 03 9861 1144	Facsimile	: +61 2 4967 7382
Project	: Mordialloc Bypass	Page	: 1 of 2
Order number	: ----	Quote number	: EM2017PARBRIVIC0010 (ME/423/17)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Mordialloc Bypass Project		
Sampler	: BP		

Dates

Date Samples Received	: 24-Oct-2017 09:00	Issue Date	: 24-Oct-2017
Client Requested Due Date	: 31-Oct-2017	Scheduled Reporting Date	: **31-Oct-2017**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: ----	Temperature	: ----
Receipt Detail	:	No. of samples received / analysed	: 4 / 4

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **AIR**

Laboratory sample ID	Client sampling date / time	Client sample ID	AIR - CAN-SG1 Canister Sampling - Soil Gas Field Data	AIR - EP101-H2S Hydrogen Sulphide in Air Canister Samples	AIR - EP104GM Permanent Gases and Methane	AIR - SG-PH3 Soil Gas - TO15X/NEPM TRH
EN1704387-001	20-Oct-2017 00:00	GB2 C1303_S209	✓	✓	✓	
EN1704387-002	20-Oct-2017 00:00	GB2 C718_S110				✓
EN1704387-003	20-Oct-2017 00:00	GB1 C708_S200	✓	✓	✓	
EN1704387-004	20-Oct-2017 00:00	Unused C745	✓			

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ALL INVOICES

- A4 - AU Tax Invoice (INV)	Email	apinvoices@wsp.com

OLFA NAZARIO

- *AU Certificate of Analysis - NATA (COA)	Email	olfa.nazario@wsp.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	olfa.nazario@wsp.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	olfa.nazario@wsp.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	olfa.nazario@wsp.com
- A4 - AU Tax Invoice (INV)	Email	olfa.nazario@wsp.com
- Chain of Custody (CoC) (COC)	Email	olfa.nazario@wsp.com
- EDI Format - ENMRG (ENMRG)	Email	olfa.nazario@wsp.com
- EDI Format - ESDAT (ESDAT)	Email	olfa.nazario@wsp.com

Rated AS BN: TNT: 503 83085

AIR CANISTER CHAIN OF CUSTODY

ALS

If sourced from an ALS Laboratory: **please tick** →

Client Supplied Canister(s)? Y / N

ADELAIDE 21 Burma Road Pooraka SA 5095
Ph: 08 8359 0890 E: adelaide@alsglobal.com

BRISBANE 32 Shand Street Stafford QLD 4053
Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com

CANBERRA 2 Bay 23 Leighton Place Hume ACT 2620
Ph: 02 6260 4400 E: canberra@alsglobal.com

GOLD COAST 74 Hermitage Road Pimpama QLD 4209
Ph: 07 5547 4800 E: goldcoast@alsglobal.com

MELBOURNE 4 Westall Rd Springvale VIC 3171
Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com

NEWCASTLE 5/25 Bishop Drive Beresfield NSW 2322
Ph: 02 4014 2500 E: samples.newcastle@alsglobal.com

PERTH 10 Hod Way Malaga WA 6090
Ph: 08 9209 7655 E: samples.perth@alsglobal.com

SYDNEY 277-289 Woodpark Road Smithfield NSW 2164
Ph: 02 8784 8555 E: samples.sydney@alsglobal.com

TOWNSVILLE 14-15 Desma Court Garbutt QLD 4814
Ph: 07 4796 0600 E: townsville.environmental@alsglobal.com

WOLLONGONG Unit 1, 99 Kenny Street Wollongong NSW 2500
Ph: 02 4225 3125 E: wollongong@alsglobal.com

CLIENT: WSP	TURNAROUND REQUIREMENTS: ☑ Standard TAT (List due date):	LABORATORY USE ONLY (Circle)	Received by / Date/time
OFFICE: Melbourne	(Standard TAT may be extended for multiple sequential analysis suites) ☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact? Yes / No	Rec Lab Y / N NEW Y / N N/A
PROJECT: Mordialloc Bypass PROJECT NO:	ALS QUOTE NO.: ME/423/17	COC SEQUENCE NUMBER (Circle)	Valves closed on Receipt? Yes / No	Rec Lab Y / N NEW Y / N N/A
CANISTER REQUEST NO: PURCHASE ORDER NO.:	COUNTRY OF ORIGIN:	COC: 1 2 3 4 5 6 7	Canister/Sampler Complete and Not Damaged: Yes / No
PROJECT MANAGER: O. Nazario	CONTACT PH:	OF: 1 2 3 4 5 6 7	Other comment: Temperature °C:
SAMPLER: BP	SAMPLER MOBILE:		
COC Emailed to ALS? (YES / NO)	EDD FORMAT (or default):		
Email Reports to (will default to PM if no other addresses are listed): O. Nazario			
Email Invoice to (will default to PM if no other addresses are listed):			

RELINQUISHED BY:	RELINQUISHED BY:	RELINQUISHED BY:	RELINQUISHED BY:
Brittany Signature and date/time	Signature and date/time	Signature and date/time	Signature and date/time
RECEIVED BY: Signature and date/time 20/10 1230	RECEIVED BY: Signature and date/time 9am	RECEIVED BY: Signature and date/time	RECEIVED BY: Signature and date/time

COMMENTS/SPECIAL HANDLING/REPLACEMENT OR RETURN INSTRUCTIONS:

GAS SAMPLE CONTAINER INFORMATION

Canister Gauge Pressures (PSI)

Refer to Canister Verification Reports and COAs for pressures measured by the Lab

ANALYSES REQUESTED

Suite Codes must be listed to attract suite price

Additional Information

ALS USE ONLY	CANISTER / SAMPLE DETAILS					Canister Gauge Pressures (PSI)		Reporting Requirements						ANALYSES REQUESTED						Additional Information
								LORs			Units			Suite Codes must be listed to attract suite price						
LAB ID	CANISTER SERIAL NO.	FLOW CONTROLLER SERIAL NO.	CLIENT SAMPLE ID	DATE / TIME SAMPLED	MATRIX (eg Air, Soil Gas)	Pre-Sampling	Post Sampling	Ambient Air	Soil Gas (NEPM)	Other / Indoor	ppbv, µg/m³	ppmv, mg/m³		S^G-PH3	EP104 GM	EP101-H2S				Comments on LORs required, potential hazards, likely contaminant levels, or samples requiring specific QC analysis etc. (LOR defaults to routine method LOR after dilution)
1	1303	5209	GB2	20/10/17	Gas	-32	-8		x						x	x				* Refer to quote for units
2	718	110	GB2	20/10/17	Gas	-30	-8		x					x						
3	708	5200	GB1	20/10/17	Gas	-32	-8		x						x	x				
4	745		unused																	

Environmental Division
Newcastle
Work Order Reference
EN1704387

Telephone : +61 2 4014 2500

Job Specific Instructions:

AIR SAMPLING EQUIPMENT DISPATCH RECORD

Inquiries: Client Services - Newcastle **Phone: +61 (02) 4014 2500** E-mail: samples.newcastle@alsenviro.com

Dispatch to:			
Client / Office:	WSP Melbourne	**ALS Use ONLY**	
Contact:	Olfa Nazario	**Request Received By:**	KLG
Telephone:	0431 193 218	**Deliver By:**	ASAP
ALS Quotation:		**Dispatched By:**	
Delivery Address:	Level 15, 28 ~~Freshwater Place~~	**Workorder:**	
	~~Southbank VIC 3006~~	**Agreed Rent Free Period:**	14 days

SPECIAL INSTRUCTIONS: SEND VIA ALS MELBOURNE - 2-4 Westfall Rd Springvale VIC 3171

Air Sampling Equipment Request

CANISTERS

No	Canister Type	Size	Gauge	Valve	Cap	Rental[1]	Analysts Initials & Date: Leak Checked	Certified OK
5	VERIFIED Minican™	1.4L	No	QT	Yes	$120 ea	VS	28/9/17
13	NON– VERIFIED Minican™	1.4L	No	QT	Yes	$120 ea	VS	28/9/17

CONNECTORS AND FLOW CONTROL DEVICES

No	Equipment Type	Duration (hrs)	Flow (mL/min)	T-Piece	Gauge	Certified	Sealed / Vacuum	Connection Q Quick Connect S Swagelok		Rental[1]
6	Verified Soil Gas Sampling Train		50mL/min	No	Yes	Yes	Yes / No	S		Incl Above
10	Non- Verified Soil Gas Sampling Train		50mL/min	No	Yes	Yes	Yes / Yes	Q		Incl Above
2	Duplicate Soil Gas Sampler VERIFIED		50mL/min	Yes	Yes	Yes	Yes / Yes	Q		Incl Above
18	Female QT Connectors	-	-	-	-	-	-	Q		$120 ea. Replacement
1	Male QT Connector	-	-	-	-	-	-	Q		$120 ea. Replacement
1	Pressure Gauge - QT	-	-	-	-	-	Yes / Yes	Q		$250 ea. Replacement
	Sampling Kit Case – Soil Gas	-	-	-	-	-	Yes	NA		$200 Replacement
~~15~~	~~Beeco~~	-	-	-	-	-	-	NA		$80 ea.
	¼" Swagelok connectors and ferrules (spares)	-	-	-	-	-	-			$5 ea. Replacement

☐ Other (specify) _____

[1] *Refer to Acceptance of Terms*

ALS use only			
Sampling Guide Included (Y / N)	Packed by:	Dispatch Time / Date	28/9/17
Number of Boxes:	4	Consignment Note Number:	EGN009401381
Courier / Dispatcher:	TNT	Consignment Dispatched by:	DBass

RIGHT SOLUTIONS

Brisbane · Adelaide · Bendigo · Canberra · Geelong · Gladstone · Melbourne (Scoresby) · Melbourne (Springvale) · Mudgee · Newcastle · Nowra · Perth · Wollongong · Sydney · Townsville · Traralgon · Wangaratta

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AIR SAMPLING EQUIPMENT DISPATCH RECORD

ALS SUPPLIED EQUIPMENT

Item	Quantity	Item Description	Serial Nos	
	5	1.4 L Silonite Mini-Can with QT Valve VERIFIED – GREEN DOTS IN CASES	718 ✓ 1076 ✓ 998 ✓	3020 ✓ 3024 ✓
	13	1.4 L Silonite Mini-Can with QT Valve NOT VERIFIED YELLOW DOTS IN TNT BOXES	1280 ✓ 745 ✓ 995 ✓ 828 ✓ 708 ✓ 823 ✓ 777 ✓	5061 ✓ 873 ✓ 5063 ✓ 991 ✓ 1085 ✓ 1303 ✓
	10	Soil Gas Sampling Train (Compact Micro) with QT Connections 50mL/min Not verified.	$200 ✓ $209 ✓ $215 ✓ $216 ✓ $218 ✓	$221 ✓ $229 ✓ $233 ✓ $240 ✓ $246 ✓
	6	Soil Gas Sampling Train (Compact) with QT Connections 50mL/min Verified.	014 ✓ 055 ✓ 057 ✓ 081 ✓	121 ✓ 119 ✓

ENFMCDR1.1 11-05-11

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AIR SAMPLING EQUIPMENT DISPATCH RECORD

Item	Quantity	Item Description	Serial Nos
	2	Soil Gas Duplicate Sampling Train with QT Connections 50mL/min verified	051 ✓ 110 ✓
		Vacuum Gauge with female QT Connection (-30 Hg)	013 ✓
	18	Female QT to ¼" tube connector	Rec. 9 x 12/10. ✓ rec 8 x 24/10
		Male QT to ¼" tube connector	
		Bases	

AIR SAMPLING EQUIPMENT DISPATCH RECORD

Acceptance of Terms:
Acceptance and use of the accompanying ALS Air Sampling Equipment constitutes acceptance of the following terms:

1. This equipment remains the property of ALS Laboratory Group.
2. Subject to the conditions below and unless stated otherwise in the relevant quotation, the supply and use of this equipment is included the price of analysis.
3. No responsibility is accepted by ALS for equipment requirements that have been incorrectly or incompletely specified by the client. Interfacing of ALS equipment with other sampling equipment or structures is solely the client's responsibility.
4. Sampling equipment is configured and supplied based on client specified requirements. ALS will take all reasonable care to meet these specifications, but will not accept responsibility for changes in equipment calibration or failures during transit. Replacement equipment will be provided at no charge if required.
5. Equipment calibration and verification records are available for review on request. Verification reports are provided with equipment and electronic copies are available on request.
6. This air sampling equipment is provided solely for the use of the nominated client. Responsibility for ensuring the equipment is not damaged and for returning this equipment to ALS remains with the nominated client until all equipment is returned to the ALS Group.
7. Unless otherwise agreed in writing, if equipment is not returned within the agreed rent free period after dispatch, the quoted rental fees above will apply per week per unit thereafter. If equipment is returned unused, the cleaning fees quoted will apply (1 weeks rental charge). If sampling equipment return is delayed, please contact the laboratory prior to expiry of the rent free period to negotiate and extension.
8. Irreparably damaged equipment and any equipment not returned within 40 days will be charged to the client at a replacement cost per unit equal to 15 weeks rent, less rental costs already paid.
9. Cleaning costs will apply for equipment marked or defaced by the client. Please attach labels for

If these conditions are not acceptable please return all equipment to ALS Newcastle immediately.

EQUIPMENT SUPPLY AND LOGISTICS

Additional air sampling equipment can be ordered through any ALS Environmental Laboratory and supplied direct to your site or office by courier. For the fastest turnaround, equipment should be returned direct to Newcastle Laboratory.

ALS Environmental, Newcastle
5/585 Maitland Road
Mayfield West, NSW 2304

Note that Dangerous Goods Transport Regulations may apply after sampling if the air cylinders are pressurised or contain hazardous materials.

ENFMCDR1.1 11-05-11
RIGHT SOLUTIONS
Brisbane · Adelaide · Bendigo · Canberra · Geelong · Gladstone · Melbourne (Scoresby) · Melbourne (Springvale) · Mudgee · Newcastle · Nowra · Perth · Wollongong · Sydney · Townsville · Traralgon · Wangaratta
www.alsglobal.com

ALS Environmental

A trading name of Australian Laboratory Services Pty Ltd ABN 84 009 936 029. An ALS Limited Company www.alsglobal.com

TAX INVOICE: L575893

WSP Australia Pty Ltd
OLFA NAZARIO
Level 15, 28 Freshwater Place
SOUTHBANK
VIC, AUSTRALIA 3006

Work Order	Project / Overall Description	Site	Order number	C-O-C number	Contact
EN1704387	Mordialloc Bypass / ----	Mordialloc Bypass Project	----	----	OLFA NAZARIO

Issue Date : **01-Nov-2017**
Due Date : **01-Dec-2017**

Taxable value : **AUD$** **1,230.00**
Tax Incurred (GST) : **AUD$** **123.00**
Amount Payable : **AUD$** **1,353.00**

Work Order Breakdown

Method	Sale Item Descriptions	Quantity	Unit Value (AUD$)	Value (AUD$)	GST (AUD$)	Line Total (AUD$)
Work Order: **EN1704387**	Quote number: **ME/423/17**				Submatrix summary: **4 AIRS**	
*Misc	Workorder Admin Fee	1.00	40.00	40.00	4.00	44.00
*Misc	Canister Cleaning Fee - Unused 450ml/1.4L Canister $120/system	1.00	120.00	120.00	12.00	132.00
*EP101-H2S	Hydrogen Sulphide in Air Canister Samples	2.00	160.00	320.00	32.00	352.00
EP104GM	Permanent Gases and Methane	2.00	85.00	170.00	17.00	187.00
SG-PH3	Soil Gas - TO15X/NEPM TRH	1.00	580.00	580.00	58.00	638.00

** denotes non-discountable item*

- **Please direct all queries to Environmental Division Newcastle on +61 2 4014 2500.**

REMITTANCE ADVICE

POST TO: Australian Laboratory Services Pty Ltd
P.O. Box 66 Everton Park
QLD 4053 Australia

EMAIL TO: remittances@alsglobal.com

Vendor bank details
Bank: **Commonwealth Bank**
BSB: **064 000**
Account: **12672843**
Swift Code: **CTBAAU2S**

or Credit Card
Visa
Mastercard

or Cheque
Payable to Australian Laboratory Services Pty Ltd

Amount Payable
AUD$ 1,353.00
ALS Client Reference
PARBRIVIC

TAX INVOICE
L575893

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1713546**	Page	: 1 of 18
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: OLFA NAZARIO	Contact	: Graeme Jablonskas
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9609
Project	: 2271345A	Date Samples Received	: 03-Oct-2017 15:50
Order number	: ----	Date Analysis Commenced	: 03-Oct-2017
C-O-C number	: 85167	Issue Date	: 09-Oct-2017 14:55
Sampler	: ----		
Site	: Mordialloc		
Quote number	: EN/008/15		
No. of samples received	: 6		
No. of samples analysed	: 6		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Nancy Wang	Senior Semivolatile Instrument Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- TDS by method EA-015 for EM1713546 #2,3 may bias high due to the presence of fine particulate matter, which may pass through the prescribed GF/C paper.
- EA015H: EM1713546 #5. TDS has been confirmed via re-analysis
- EK026SF:EM1713523-002 Poor matrix spike recovery for TCN due to matrix effects. This has been confirmed by re-analysis.
- Sample LEACHATE was filtered through a 0.45um filter prior to the dissolved metals analysis.
- Ionic Balance out of acceptable limits for sample #1 due to analytes not quantified in this report.
- Ionic balances were calculated using: major anions - chloride, alkalinity and sulfate; and major cations - calcium, magnesium, potassium and sodium.
- Ionic balances were calculated using: major anions - chloride, alkalinity, sulfate ; and major cations - calcium, magnesium, potassium, sodium and ammonia #5.
- ED045G: The presence of thiocyanate can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.
- EG035F: EM1713502-002 Poor matrix spike recovery for dissolved mercury due to sample matrix. Confirmed by re-extraction and re-analysis.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)			Client sample ID	GW17-26-01	GW172602-D	GW17-26-02	----	----
			Client sampling date / time	03-Oct-2017 00:00	03-Oct-2017 00:00	03-Oct-2017 00:00	----	----
Compound	CAS Number	LOR	Unit	EM1713546-001	EM1713546-002	EM1713546-003	--------	--------
				Result	Result	Result	----	----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**4.80**	**4.12**	**4.13**	----	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	**559**	**1170**	**1150**	----	----
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	<1	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	**39**	<1	<1	----	----
Total Alkalinity as CaCO3	----	1	mg/L	**39**	<1	<1	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	**89**	**175**	**179**	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	**173**	**407**	**408**	----	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	**17**	**5**	**5**	----	----
Magnesium	7439-95-4	1	mg/L	**9**	**26**	**26**	----	----
Sodium	7440-23-5	1	mg/L	**118**	**245**	**243**	----	----
Potassium	7440-09-7	1	mg/L	**1**	<1	<1	----	----
EG020F: Dissolved Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	<0.001	**0.002**	**0.002**	----	----
Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	<0.05	----	----
Barium	7440-39-3	0.001	mg/L	**0.035**	**0.010**	**0.010**	----	----
Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	<0.001	----	----
Cadmium	7440-43-9	0.0001	mg/L	**0.0001**	**0.0002**	**0.0001**	----	----
Cobalt	7440-48-4	0.001	mg/L	**0.008**	**0.022**	**0.023**	----	----
Chromium	7440-47-3	0.001	mg/L	<0.001	**0.001**	**0.001**	----	----
Copper	7440-50-8	0.001	mg/L	**0.004**	**0.001**	**0.001**	----	----
Manganese	7439-96-5	0.001	mg/L	**0.086**	**0.039**	**0.039**	----	----
Nickel	7440-02-0	0.001	mg/L	**0.058**	**0.032**	**0.031**	----	----
Lead	7439-92-1	0.001	mg/L	**0.002**	**0.002**	**0.002**	----	----
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	<0.01	----	----
Vanadium	7440-62-2	0.01	mg/L	<0.01	**0.01**	**0.01**	----	----
Zinc	7440-66-6	0.005	mg/L	**0.892**	**0.168**	**0.169**	----	----
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	----	----

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Client sample ID	GW17-26-01	GW172602-D	GW17-26-02	----	----
				Client sampling date / time	03-Oct-2017 00:00	03-Oct-2017 00:00	03-Oct-2017 00:00	----	----
Compound	CAS Number	LOR	Unit		EM1713546-001	EM1713546-002	EM1713546-003	--------	--------
					Result	Result	Result	----	----
EK026SF: Total CN by Segmented Flow Analyser									
Total Cyanide	57-12-5	0.004	mg/L		<0.004	<0.004	<0.004	----	----
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		**0.12**	**0.04**	**0.04**	----	----
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L		**0.15**	**0.04**	**0.04**	----	----
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L		**6.50**	**4.94**	**4.86**	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		**6.65**	**4.98**	**4.90**	----	----
EN055: Ionic Balance									
Total Anions	----	0.01	meq/L		**7.51**	**15.1**	**15.2**	----	----
Total Cations	----	0.01	meq/L		**6.75**	**13.0**	**13.0**	----	----
Ionic Balance	----	0.01	%		**5.36**	**7.38**	**8.08**	----	----
EP005: Total Organic Carbon (TOC)									
Total Organic Carbon	----	1	mg/L		**19**	**8**	**10**	----	----
EP033: C1 - C4 Hydrocarbon Gases									
Methane	74-82-8	10	µg/L		**124**	<10	<10	----	----
EP074A: Monocyclic Aromatic Hydrocarbons									
Styrene	100-42-5	5	µg/L		<5	<5	<5	----	----
Isopropylbenzene	98-82-8	5	µg/L		<5	<5	<5	----	----
n-Propylbenzene	103-65-1	5	µg/L		<5	<5	<5	----	----
1.3.5-Trimethylbenzene	108-67-8	5	µg/L		<5	<5	<5	----	----
sec-Butylbenzene	135-98-8	5	µg/L		<5	<5	<5	----	----
1.2.4-Trimethylbenzene	95-63-6	5	µg/L		<5	<5	<5	----	----
tert-Butylbenzene	98-06-6	5	µg/L		<5	<5	<5	----	----
p-Isopropyltoluene	99-87-6	5	µg/L		<5	<5	<5	----	----
n-Butylbenzene	104-51-8	5	µg/L		<5	<5	<5	----	----
EP074B: Oxygenated Compounds									
Vinyl Acetate	108-05-4	50	µg/L		<50	<50	<50	----	----
2-Butanone (MEK)	78-93-3	50	µg/L		<50	<50	<50	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L		<50	<50	<50	----	----
2-Hexanone (MBK)	591-78-6	50	µg/L		<50	<50	<50	----	----
EP074C: Sulfonated Compounds									

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Client sample ID	GW17-26-01	GW172602-D	GW17-26-02	----	----
				Client sampling date / time	03-Oct-2017 00:00	03-Oct-2017 00:00	03-Oct-2017 00:00	----	----
Compound	CAS Number	LOR	Unit		EM1713546-001	EM1713546-002	EM1713546-003	--------	--------
					Result	Result	Result	----	----
EP074C: Sulfonated Compounds - Continued									
Carbon disulfide	75-15-0	5	µg/L		<5	<5	<5	----	----
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	5	µg/L		<5	<5	<5	----	----
1.2-Dichloropropane	78-87-5	5	µg/L		<5	<5	<5	----	----
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L		<5	<5	<5	----	----
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L		<5	<5	<5	----	----
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L		<5	<5	<5	----	----
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	50	µg/L		<50	<50	<50	----	----
Chloromethane	74-87-3	50	µg/L		<50	<50	<50	----	----
Vinyl chloride	75-01-4	50	µg/L		<50	<50	<50	----	----
Bromomethane	74-83-9	50	µg/L		<50	<50	<50	----	----
Chloroethane	75-00-3	50	µg/L		<50	<50	<50	----	----
Trichlorofluoromethane	75-69-4	50	µg/L		<50	<50	<50	----	----
1.1-Dichloroethene	75-35-4	5	µg/L		<5	<5	<5	----	----
Iodomethane	74-88-4	5	µg/L		<5	<5	<5	----	----
trans-1.2-Dichloroethene	156-60-5	5	µg/L		<5	<5	<5	----	----
1.1-Dichloroethane	75-34-3	5	µg/L		<5	<5	<5	----	----
cis-1.2-Dichloroethene	156-59-2	5	µg/L		<5	<5	<5	----	----
1.1.1-Trichloroethane	71-55-6	5	µg/L		<5	<5	<5	----	----
1.1-Dichloropropylene	563-58-6	5	µg/L		<5	<5	<5	----	----
Carbon Tetrachloride	56-23-5	5	µg/L		<5	<5	<5	----	----
1.2-Dichloroethane	107-06-2	5	µg/L		<5	<5	<5	----	----
Trichloroethene	79-01-6	5	µg/L		<5	<5	<5	----	----
Dibromomethane	74-95-3	5	µg/L		<5	<5	<5	----	----
1.1.2-Trichloroethane	79-00-5	5	µg/L		<5	<5	<5	----	----
1.3-Dichloropropane	142-28-9	5	µg/L		<5	<5	<5	----	----
Tetrachloroethene	127-18-4	5	µg/L		<5	<5	<5	----	----
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L		<5	<5	<5	----	----
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L		<5	<5	<5	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L		<5	<5	<5	----	----
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L		<5	<5	<5	----	----
1.2.3-Trichloropropane	96-18-4	5	µg/L		<5	<5	<5	----	----
Pentachloroethane	76-01-7	5	µg/L		<5	<5	<5	----	----

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Client sample ID	GW17-26-01	GW172602-D	GW17-26-02	----	----
				Client sampling date / time	03-Oct-2017 00:00	03-Oct-2017 00:00	03-Oct-2017 00:00	----	----
Compound	CAS Number	LOR	Unit		EM1713546-001	EM1713546-002	EM1713546-003	--------	--------
					Result	Result	Result	----	----
EP074E: Halogenated Aliphatic Compounds - Continued									
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L		<5	<5	<5	----	----
Hexachlorobutadiene	87-68-3	5	µg/L		<5	<5	<5	----	----
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	5	µg/L		<5	<5	<5	----	----
Bromobenzene	108-86-1	5	µg/L		<5	<5	<5	----	----
2-Chlorotoluene	95-49-8	5	µg/L		<5	<5	<5	----	----
4-Chlorotoluene	106-43-4	5	µg/L		<5	<5	<5	----	----
1.3-Dichlorobenzene	541-73-1	5	µg/L		<5	<5	<5	----	----
1.4-Dichlorobenzene	106-46-7	5	µg/L		<5	<5	<5	----	----
1.2-Dichlorobenzene	95-50-1	5	µg/L		<5	<5	<5	----	----
1.2.4-Trichlorobenzene	120-82-1	5	µg/L		<5	<5	<5	----	----
1.2.3-Trichlorobenzene	87-61-6	5	µg/L		<5	<5	<5	----	----
EP074G: Trihalomethanes									
Chloroform	67-66-3	5	µg/L		<5	<5	<5	----	----
Bromodichloromethane	75-27-4	5	µg/L		<5	<5	<5	----	----
Dibromochloromethane	124-48-1	5	µg/L		<5	<5	<5	----	----
Bromoform	75-25-2	5	µg/L		<5	<5	<5	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	1.0	µg/L		<1.0	<1.0	<1.0	----	----
2-Chlorophenol	95-57-8	1.0	µg/L		<1.0	<1.0	<1.0	----	----
2-Methylphenol	95-48-7	1.0	µg/L		<1.0	<1.0	<1.0	----	----
3- & 4-Methylphenol	1319-77-3	2.0	µg/L		<2.0	<2.0	<2.0	----	----
2-Nitrophenol	88-75-5	1.0	µg/L		<1.0	<1.0	<1.0	----	----
2.4-Dimethylphenol	105-67-9	1.0	µg/L		<1.0	<1.0	<1.0	----	----
2.4-Dichlorophenol	120-83-2	1.0	µg/L		<1.0	<1.0	<1.0	----	----
2.6-Dichlorophenol	87-65-0	1.0	µg/L		<1.0	<1.0	<1.0	----	----
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L		<1.0	<1.0	<1.0	----	----
2.4.6-Trichlorophenol	88-06-2	1.0	µg/L		<1.0	<1.0	<1.0	----	----
2.4.5-Trichlorophenol	95-95-4	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Pentachlorophenol	87-86-5	2.0	µg/L		<2.0	<2.0	<2.0	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Acenaphthylene	208-96-8	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Acenaphthene	83-32-9	1.0	µg/L		<1.0	<1.0	<1.0	----	----

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Client sample ID	GW17-26-01	GW172602-D	GW17-26-02	----	----
				Client sampling date / time	03-Oct-2017 00:00	03-Oct-2017 00:00	03-Oct-2017 00:00	----	----
Compound	CAS Number	LOR	Unit		EM1713546-001	EM1713546-002	EM1713546-003	--------	--------
					Result	Result	Result	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Fluorene	86-73-7	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Phenanthrene	85-01-8	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Anthracene	120-12-7	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Fluoranthene	206-44-0	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Pyrene	129-00-0	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Chrysene	218-01-9	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	<0.5	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L		<1.0	<1.0	<1.0	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L		<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L		<0.5	<0.5	<0.5	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	<20	<20	----	----
C10 - C14 Fraction	----	50	µg/L		<50	<50	<50	----	----
C15 - C28 Fraction	----	100	µg/L		**130**	<100	<100	----	----
C29 - C36 Fraction	----	50	µg/L		<50	<50	<50	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L		**130**	<50	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	<20	<20	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		<20	<20	<20	----	----
>C10 - C16 Fraction	----	100	µg/L		<100	<100	<100	----	----
>C16 - C34 Fraction	----	100	µg/L		**130**	<100	<100	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L		**130**	<100	<100	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L		<100	<100	<100	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	<1	----	----
Toluene	108-88-3	2	µg/L		<2	<2	<2	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	<2	<2	----	----

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Client sample ID	GW17-26-01	GW172602-D	GW17-26-02	----	----
				Client sampling date / time	03-Oct-2017 00:00	03-Oct-2017 00:00	03-Oct-2017 00:00	----	----
Compound	CAS Number	LOR	Unit		EM1713546-001	EM1713546-002	EM1713546-003	--------	--------
					Result	Result	Result	----	----
EP080: BTEXN - Continued									
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	<2	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	<2	<2	----	----
^ Total Xylenes	1330-20-7	2	µg/L		<2	<2	<2	----	----
^ Sum of BTEX	----	1	µg/L		<1	<1	<1	----	----
Naphthalene	91-20-3	5	µg/L		<5	<5	<5	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	5	%		94.4	91.6	88.8	----	----
Toluene-D8	2037-26-5	5	%		91.2	91.6	84.8	----	----
4-Bromofluorobenzene	460-00-4	5	%		92.2	91.9	88.9	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		30.2	33.2	27.7	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%		81.5	88.5	67.6	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%		75.1	73.7	70.0	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		66.7	77.7	57.7	----	----
Anthracene-d10	1719-06-8	1.0	%		91.7	90.7	87.2	----	----
4-Terphenyl-d14	1718-51-0	1.0	%		83.5	87.3	72.2	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		98.2	95.4	92.2	----	----
Toluene-D8	2037-26-5	2	%		87.0	87.3	80.8	----	----
4-Bromofluorobenzene	460-00-4	2	%		91.4	90.5	86.9	----	----

Analytical Results

Sub-Matrix: LEACHATE (Matrix: WATER)				Client sample ID	LEACHATE	----	----	----	----
				Client sampling date / time	03-Oct-2017 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM1713546-005	--------	--------	--------	--------
					Result	----	----	----	----
EA005P: pH by PC Titrator									
pH Value	----	0.01	pH Unit		**6.78**	----	----	----	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C									
Total Dissolved Solids @180°C	----	10	mg/L		**1580**	----	----	----	----
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	----	----	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	----	----	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		**1670**	----	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L		**1670**	----	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		<1	----	----	----	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		**387**	----	----	----	----
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		**56**	----	----	----	----
Magnesium	7439-95-4	1	mg/L		**43**	----	----	----	----
Sodium	7440-23-5	1	mg/L		**356**	----	----	----	----
Potassium	7440-09-7	1	mg/L		**96**	----	----	----	----
EG020F: Dissolved Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		**0.003**	----	----	----	----
Boron	7440-42-8	0.05	mg/L		**38.0**	----	----	----	----
Barium	7440-39-3	0.001	mg/L		**0.886**	----	----	----	----
Beryllium	7440-41-7	0.001	mg/L		<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	----	----	----	----
Cobalt	7440-48-4	0.001	mg/L		**0.020**	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		**0.023**	----	----	----	----
Copper	7440-50-8	0.001	mg/L		<0.001	----	----	----	----
Manganese	7439-96-5	0.001	mg/L		**0.081**	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		**0.134**	----	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	----	----	----	----
Selenium	7782-49-2	0.01	mg/L		<0.01	----	----	----	----
Vanadium	7440-62-2	0.01	mg/L		<0.01	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		**0.037**	----	----	----	----
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	----	----	----	----

Analytical Results

Sub-Matrix: LEACHATE (Matrix: WATER)				Client sample ID	LEACHATE	----	----	----	----
				Client sampling date / time	03-Oct-2017 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM1713546-005	--------	--------	--------	--------
					Result	----	----	----	----
EK026SF: Total CN by Segmented Flow Analyser									
Total Cyanide	57-12-5	0.004	mg/L		<0.004	----	----	----	----
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		**231**	----	----	----	----
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L		**0.02**	----	----	----	----
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L		**0.02**	----	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		**0.04**	----	----	----	----
EN055: Ionic Balance									
Total Anions	----	0.01	meq/L		**44.3**	----	----	----	----
Total Cations	----	0.01	meq/L		**40.8**	----	----	----	----
Ionic Balance	----	0.01	%		**4.16**	----	----	----	----
EP005: Total Organic Carbon (TOC)									
Total Organic Carbon	----	1	mg/L		**137**	----	----	----	----
EP033: C1 - C4 Hydrocarbon Gases									
Methane	74-82-8	10	µg/L		**8280**	----	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons									
Styrene	100-42-5	5	µg/L		<5	----	----	----	----
Isopropylbenzene	98-82-8	5	µg/L		**35**	----	----	----	----
n-Propylbenzene	103-65-1	5	µg/L		**9**	----	----	----	----
1.3.5-Trimethylbenzene	108-67-8	5	µg/L		<5	----	----	----	----
sec-Butylbenzene	135-98-8	5	µg/L		<5	----	----	----	----
1.2.4-Trimethylbenzene	95-63-6	5	µg/L		<5	----	----	----	----
tert-Butylbenzene	98-06-6	5	µg/L		<5	----	----	----	----
p-Isopropyltoluene	99-87-6	5	µg/L		<5	----	----	----	----
n-Butylbenzene	104-51-8	5	µg/L		<5	----	----	----	----
EP074B: Oxygenated Compounds									
Vinyl Acetate	108-05-4	50	µg/L		<50	----	----	----	----
2-Butanone (MEK)	78-93-3	50	µg/L		<50	----	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L		<50	----	----	----	----
2-Hexanone (MBK)	591-78-6	50	µg/L		<50	----	----	----	----
EP074C: Sulfonated Compounds									

Analytical Results

Sub-Matrix: LEACHATE (Matrix: WATER)				Client sample ID	LEACHATE	----	----	----	----
				Client sampling date / time	03-Oct-2017 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM1713546-005	--------	--------	--------	--------
					Result	----	----	----	----
EP074C: Sulfonated Compounds - Continued									
Carbon disulfide	75-15-0	5	µg/L		<5	----	----	----	----
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	5	µg/L		<5	----	----	----	----
1.2-Dichloropropane	78-87-5	5	µg/L		<5	----	----	----	----
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L		<5	----	----	----	----
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L		<5	----	----	----	----
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L		<5	----	----	----	----
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	50	µg/L		<50	----	----	----	----
Chloromethane	74-87-3	50	µg/L		<50	----	----	----	----
Vinyl chloride	75-01-4	50	µg/L		<50	----	----	----	----
Bromomethane	74-83-9	50	µg/L		<50	----	----	----	----
Chloroethane	75-00-3	50	µg/L		<50	----	----	----	----
Trichlorofluoromethane	75-69-4	50	µg/L		<50	----	----	----	----
1.1-Dichloroethene	75-35-4	5	µg/L		<5	----	----	----	----
Iodomethane	74-88-4	5	µg/L		<5	----	----	----	----
trans-1.2-Dichloroethene	156-60-5	5	µg/L		<5	----	----	----	----
1.1-Dichloroethane	75-34-3	5	µg/L		<5	----	----	----	----
cis-1.2-Dichloroethene	156-59-2	5	µg/L		<5	----	----	----	----
1.1.1-Trichloroethane	71-55-6	5	µg/L		<5	----	----	----	----
1.1-Dichloropropylene	563-58-6	5	µg/L		<5	----	----	----	----
Carbon Tetrachloride	56-23-5	5	µg/L		<5	----	----	----	----
1.2-Dichloroethane	107-06-2	5	µg/L		<5	----	----	----	----
Trichloroethene	79-01-6	5	µg/L		<5	----	----	----	----
Dibromomethane	74-95-3	5	µg/L		<5	----	----	----	----
1.1.2-Trichloroethane	79-00-5	5	µg/L		<5	----	----	----	----
1.3-Dichloropropane	142-28-9	5	µg/L		<5	----	----	----	----
Tetrachloroethene	127-18-4	5	µg/L		<5	----	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L		<5	----	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L		<5	----	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L		<5	----	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L		<5	----	----	----	----
1.2.3-Trichloropropane	96-18-4	5	µg/L		<5	----	----	----	----
Pentachloroethane	76-01-7	5	µg/L		<5	----	----	----	----

Analytical Results

Sub-Matrix: LEACHATE (Matrix: WATER)				Client sample ID	LEACHATE	----	----	----	----
				Client sampling date / time	03-Oct-2017 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM1713546-005	--------	--------	--------	--------
					Result	----	----	----	----
EP074E: Halogenated Aliphatic Compounds - Continued									
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L		<5	----	----	----	----
Hexachlorobutadiene	87-68-3	5	µg/L		<5	----	----	----	----
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	5	µg/L		**6**	----	----	----	----
Bromobenzene	108-86-1	5	µg/L		<5	----	----	----	----
2-Chlorotoluene	95-49-8	5	µg/L		<5	----	----	----	----
4-Chlorotoluene	106-43-4	5	µg/L		<5	----	----	----	----
1.3-Dichlorobenzene	541-73-1	5	µg/L		<5	----	----	----	----
1.4-Dichlorobenzene	106-46-7	5	µg/L		<5	----	----	----	----
1.2-Dichlorobenzene	95-50-1	5	µg/L		<5	----	----	----	----
1.2.4-Trichlorobenzene	120-82-1	5	µg/L		<5	----	----	----	----
1.2.3-Trichlorobenzene	87-61-6	5	µg/L		<5	----	----	----	----
EP074G: Trihalomethanes									
Chloroform	67-66-3	5	µg/L		<5	----	----	----	----
Bromodichloromethane	75-27-4	5	µg/L		<5	----	----	----	----
Dibromochloromethane	124-48-1	5	µg/L		<5	----	----	----	----
Bromoform	75-25-2	5	µg/L		<5	----	----	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	1.0	µg/L		<1.0	----	----	----	----
2-Chlorophenol	95-57-8	1.0	µg/L		<1.0	----	----	----	----
2-Methylphenol	95-48-7	1.0	µg/L		<1.0	----	----	----	----
3- & 4-Methylphenol	1319-77-3	2.0	µg/L		<2.0	----	----	----	----
2-Nitrophenol	88-75-5	1.0	µg/L		<1.0	----	----	----	----
2.4-Dimethylphenol	105-67-9	1.0	µg/L		<1.0	----	----	----	----
2.4-Dichlorophenol	120-83-2	1.0	µg/L		<1.0	----	----	----	----
2.6-Dichlorophenol	87-65-0	1.0	µg/L		<1.0	----	----	----	----
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L		<1.0	----	----	----	----
2.4.6-Trichlorophenol	88-06-2	1.0	µg/L		<1.0	----	----	----	----
2.4.5-Trichlorophenol	95-95-4	1.0	µg/L		<1.0	----	----	----	----
Pentachlorophenol	87-86-5	2.0	µg/L		<2.0	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		**3.6**	----	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L		<1.0	----	----	----	----
Acenaphthene	83-32-9	1.0	µg/L		**3.3**	----	----	----	----

Analytical Results

Sub-Matrix: LEACHATE (Matrix: WATER)				Client sample ID	LEACHATE	----	----	----	----
				Client sampling date / time	03-Oct-2017 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM1713546-005	--------	--------	--------	--------
					Result	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Fluorene	86-73-7	1.0	µg/L		**1.7**	----	----	----	----
Phenanthrene	85-01-8	1.0	µg/L		**3.3**	----	----	----	----
Anthracene	120-12-7	1.0	µg/L		<1.0	----	----	----	----
Fluoranthene	206-44-0	1.0	µg/L		<1.0	----	----	----	----
Pyrene	129-00-0	1.0	µg/L		<1.0	----	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L		<1.0	----	----	----	----
Chrysene	218-01-9	1.0	µg/L		<1.0	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L		<1.0	----	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		<1.0	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		<1.0	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L		<1.0	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L		<1.0	----	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	µg/L		**11.9**	----	----	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	µg/L		<0.5	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		**160**	----	----	----	----
C10 - C14 Fraction	----	50	µg/L		**740**	----	----	----	----
C15 - C28 Fraction	----	100	µg/L		**2440**	----	----	----	----
C29 - C36 Fraction	----	50	µg/L		**140**	----	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	µg/L		**3320**	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		**180**	----	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L		**110**	----	----	----	----
>C10 - C16 Fraction	----	100	µg/L		**940**	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L		**2260**	----	----	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	----	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L		**3200**	----	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L		**940**	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		**39**	----	----	----	----
Toluene	108-88-3	2	µg/L		**4**	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L		**4**	----	----	----	----

Analytical Results

Sub-Matrix: LEACHATE (Matrix: WATER)				Client sample ID	LEACHATE	----	----	----	----
				Client sampling date / time	03-Oct-2017 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM1713546-005	--------	--------	--------	--------
					Result	----	----	----	----
EP080: BTEXN - Continued									
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		18	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L		3	----	----	----	----
^ Total Xylenes	1330-20-7	2	µg/L		21	----	----	----	----
^ Sum of BTEX	----	1	µg/L		68	----	----	----	----
Naphthalene	91-20-3	5	µg/L		5	----	----	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	5	%		109	----	----	----	----
Toluene-D8	2037-26-5	5	%		100	----	----	----	----
4-Bromofluorobenzene	460-00-4	5	%		91.5	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		14.0	----	----	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%		77.5	----	----	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%		93.8	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		68.6	----	----	----	----
Anthracene-d10	1719-06-8	1.0	%		74.9	----	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%		75.8	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		109	----	----	----	----
Toluene-D8	2037-26-5	2	%		112	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		110	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	RINSATE BLANK	TRIP BLANK	----	----	----
				Client sampling date / time	03-Oct-2017 00:00	03-Oct-2017 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EM1713546-004	EM1713546-006	--------	--------	--------
					Result	Result	----	----	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	----	----	----	----
Boron	7440-42-8	0.05	mg/L		<0.05	----	----	----	----
Barium	7440-39-3	0.001	mg/L		<0.001	----	----	----	----
Beryllium	7440-41-7	0.001	mg/L		<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	----	----	----	----
Cobalt	7440-48-4	0.001	mg/L		<0.001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L		<0.001	----	----	----	----
Manganese	7439-96-5	0.001	mg/L		<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		<0.001	----	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	----	----	----	----
Selenium	7782-49-2	0.01	mg/L		<0.01	----	----	----	----
Vanadium	7440-62-2	0.01	mg/L		<0.01	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		<0.005	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		----	<20	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		----	<20	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		----	<20	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		----	<1	----	----	----
Toluene	108-88-3	2	µg/L		----	<2	----	----	----
Ethylbenzene	100-41-4	2	µg/L		----	<2	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		----	<2	----	----	----
ortho-Xylene	95-47-6	2	µg/L		----	<2	----	----	----
^ Total Xylenes	1330-20-7	2	µg/L		----	<2	----	----	----
^ Sum of BTEX	----	1	µg/L		----	<1	----	----	----
Naphthalene	91-20-3	5	µg/L		----	<5	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		----	**91.2**	----	----	----
Toluene-D8	2037-26-5	2	%		----	**88.3**	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	RINSATE BLANK	TRIP BLANK	-----	-----	-----
				Client sampling date / time	03-Oct-2017 00:00	03-Oct-2017 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EM1713546-004	EM1713546-006	--------	--------	--------
					Result	Result	----	----	----
EP080S: TPH(V)/BTEX Surrogates - Continued									
4-Bromofluorobenzene	460-00-4	2	%		----	**94.9**	----	----	----

Surrogate Control Limits

Sub-Matrix: GROUNDWATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72	132
Toluene-D8	2037-26-5	77	132
4-Bromofluorobenzene	460-00-4	67	131
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	46
2-Chlorophenol-D4	93951-73-6	23	104
2.4.6-Tribromophenol	118-79-6	28	130
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	36	114
Anthracene-d10	1719-06-8	51	119
4-Terphenyl-d14	1718-51-0	49	127
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	129
Toluene-D8	2037-26-5	70	125
4-Bromofluorobenzene	460-00-4	71	129

Sub-Matrix: LEACHATE		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72	132
Toluene-D8	2037-26-5	77	132
4-Bromofluorobenzene	460-00-4	67	131
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	46
2-Chlorophenol-D4	93951-73-6	23	104
2.4.6-Tribromophenol	118-79-6	28	130
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	36	114
Anthracene-d10	1719-06-8	51	119
4-Terphenyl-d14	1718-51-0	49	127
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	129
Toluene-D8	2037-26-5	70	125
4-Bromofluorobenzene	460-00-4	71	129

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	129

Sub-Matrix: **WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP080S: TPH(V)/BTEX Surrogates - Continued			
Toluene-D8	2037-26-5	70	125
4-Bromofluorobenzene	460-00-4	71	129

QUALITY CONTROL REPORT

Work Order	: **EM1713546**	Page	: 1 of 26
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: OLFA NAZARIO	Contact	: Graeme Jablonskas
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9609
Project	: 2271345A	Date Samples Received	: 03-Oct-2017
Order number	: ----	Date Analysis Commenced	: 03-Oct-2017
C-O-C number	: 85167	Issue Date	: 09-Oct-2017
Sampler	: ----		
Site	: Mordialloc		
Quote number	: EN/008/15		
No. of samples received	: 6		
No. of samples analysed	: 6		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Nancy Wang	Senior Semivolatile Instrument Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA005P: pH by PC Titrator (QC Lot: 1151487)									
EM1713508-002	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	7.67	7.71	0.520	0% - 20%
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QC Lot: 1151435)									
EM1713480-001	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	1390	1390	0.00	0% - 20%
EM1713508-003	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	696	680	2.32	0% - 20%
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QC Lot: 1151439)									
EM1713546-003	GW17-26-02	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	1150	1180	2.74	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 1151490)									
EM1713546-002	GW172602-D	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.00	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.00	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	<1	0.00	No Limit
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	<1	<1	0.00	No Limit
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 1152455)									
EM1713529-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	16	16	0.00	0% - 50%
EM1713566-006	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	316	299	5.56	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 1152456)									
EM1713546-001	GW17-26-01	ED045G: Chloride	16887-00-6	1	mg/L	173	173	0.00	0% - 20%
EM1713566-006	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	9	9	0.00	No Limit
ED093F: Dissolved Major Cations (QC Lot: 1151663)									
EM1713523-002	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	15	15	0.00	No Limit
		ED093F: Magnesium	7439-95-4	1	mg/L	187	190	1.56	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	2650	2650	0.137	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	609	608	0.00	0% - 20%
EG020F: Dissolved Metals by ICP-MS (QC Lot: 1151661)									

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG020F: Dissolved Metals by ICP-MS (QC Lot: 1151661) - continued									
EM1713502-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.004	0.004	0.00	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	0.074	0.073	0.00	0% - 20%
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.019	0.020	0.00	0% - 50%
		EG020A-F: Lead	7439-92-1	0.001	mg/L	0.001	0.001	0.00	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.030	0.029	0.00	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.003	0.004	0.00	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.010	0.010	0.00	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	0.80	0.78	1.53	0% - 20%
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-F: Boron	7440-42-8	0.05	mg/L	2.93	2.69	8.50	0% - 20%
EM1713508-002	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.012	0.012	0.00	0% - 50%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	0.003	0.003	0.00	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.007	0.007	0.00	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.325	0.331	1.74	0% - 20%
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.006	0.006	0.00	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.00	No Limit
EG020F: Dissolved Metals by ICP-MS (QC Lot: 1151666)									
EM1713546-002	GW172602-D	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	0.0002	0.0001	0.00	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.002	0.002	0.00	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.010	0.010	0.00	0% - 50%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	0.001	0.001	0.00	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	0.022	0.023	0.00	0% - 20%
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.001	0.001	0.00	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	0.002	0.002	0.00	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.039	0.040	4.14	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.032	0.032	0.00	0% - 20%
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.168	0.172	2.66	0% - 20%

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG020F: Dissolved Metals by ICP-MS (QC Lot: 1151666) - continued									
EM1713546-002	GW172602-D	EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	0.01	0.02	0.00	No Limit
		EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.00	No Limit
EG020F: Dissolved Metals by ICP-MS (QC Lot: 1152298)									
EM1713577-002	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	0.0008	0.0010	19.2	0% - 50%
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.002	0.002	0.00	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.020	0.019	0.00	0% - 50%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	0.006	0.006	0.00	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.001	0.001	0.00	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.672	0.671	0.00	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.016	0.016	0.00	0% - 50%
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.115	0.114	0.00	0% - 20%
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-F: Boron	7440-42-8	0.05	mg/L	0.05	<0.05	0.00	No Limit
EM1713546-005	LEACHATE	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.003	0.003	0.00	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.886	0.898	1.30	0% - 20%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	0.023	0.023	0.00	0% - 20%
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	0.020	0.020	0.00	0% - 20%
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.081	0.082	1.81	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.134	0.133	0.00	0% - 20%
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.037	0.038	0.00	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-F: Boron	7440-42-8	0.05	mg/L	38.0	41.6	9.07	0% - 20%
EG020T: Total Metals by ICP-MS (QC Lot: 1151672)									
EM1713480-005	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG020T: Total Metals by ICP-MS (QC Lot: 1151672) - continued									
EM1713480-005	Anonymous	EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.00	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.00	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 1151662)									
EM1713502-001	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EM1713508-002	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 1151665)									
EM1713546-002	GW172602-D	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 1152299)									
EM1713546-005	LEACHATE	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1154903)									
EM1713487-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EM1713589-002	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EK026SF: Total CN by Segmented Flow Analyser (QC Lot: 1151987)									
EM1713556-003	Anonymous	EK026SF: Total Cyanide	57-12-5	0.004	mg/L	<0.004	<0.004	0.00	No Limit
EM1713556-001	Anonymous	EK026SF: Total Cyanide	57-12-5	0.004	mg/L	<0.004	<0.004	0.00	No Limit
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 1151729)									
EM1713526-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	2.16	2.17	0.00	0% - 20%
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 1152454)									
EM1713526-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	0.49	0.48	0.00	0% - 20%
EM1713577-003	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 1151728)									
EM1713526-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	7.81	7.57	3.12	0% - 20%
EP005: Total Organic Carbon (TOC) (QC Lot: 1155633)									
EM1713465-001	Anonymous	EP005: Total Organic Carbon	----	1	mg/L	3	<1	95.5	No Limit
EM1713546-003	GW17-26-02	EP005: Total Organic Carbon	----	1	mg/L	10	10	0.00	0% - 50%
EP033: C1 - C4 Hydrocarbon Gases (QC Lot: 1154738)									
EM1713546-001	GW17-26-01	EP033: Methane	74-82-8	10	µg/L	124	116	5.96	0% - 50%
ES1724423-017	Anonymous	EP033: Methane	74-82-8	10	µg/L	10	10	0.00	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 1151264)									
EM1713502-007	Anonymous	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 1151264) - continued									
EM1713502-007	Anonymous	EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.00	No Limit
EM1713546-002	GW172602-D	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.00	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 1151265)									
EM1713546-005	LEACHATE	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	35	34	3.35	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	9	9	0.00	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.00	No Limit
EP074B: Oxygenated Compounds (QC Lot: 1151264)									
EM1713502-007	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.00	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.00	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.00	No Limit
EM1713546-002	GW172602-D	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.00	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.00	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.00	No Limit
EP074B: Oxygenated Compounds (QC Lot: 1151265)									
EM1713546-005	LEACHATE	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.00	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.00	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.00	No Limit
EP074C: Sulfonated Compounds (QC Lot: 1151264)									

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074C: Sulfonated Compounds (QC Lot: 1151264) - continued									
EM1713502-007	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.00	No Limit
EM1713546-002	GW172602-D	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.00	No Limit
EP074C: Sulfonated Compounds (QC Lot: 1151265)									
EM1713546-005	LEACHATE	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.00	No Limit
EP074D: Fumigants (QC Lot: 1151264)									
EM1713502-007	Anonymous	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.00	No Limit
EM1713546-002	GW172602-D	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.00	No Limit
EP074D: Fumigants (QC Lot: 1151265)									
EM1713546-005	LEACHATE	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.00	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 1151264)									
EM1713502-007	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.00	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.00	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074E: Halogenated Aliphatic Compounds (QC Lot: 1151264) - continued									
EM1713502-007	Anonymous	EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.00	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.00	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.00	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.00	No Limit
EM1713546-002	GW172602-D	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.00	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.00	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.00	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.00	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.00	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.00	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 1151265)									

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074E: Halogenated Aliphatic Compounds (QC Lot: 1151265) - continued									
EM1713546-005	LEACHATE	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.00	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.00	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.00	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.00	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.00	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.00	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 1151264)									
EM1713502-007	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.00	No Limit
EM1713546-002	GW172602-D	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074F: Halogenated Aromatic Compounds (QC Lot: 1151264) - continued									
EM1713546-002	GW172602-D	EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.00	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 1151265)									
EM1713546-005	LEACHATE	EP074: Chlorobenzene	108-90-7	5	µg/L	6	6	0.00	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.00	No Limit
EP074G: Trihalomethanes (QC Lot: 1151264)									
EM1713502-007	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.00	No Limit
EM1713546-002	GW172602-D	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.00	No Limit
EP074G: Trihalomethanes (QC Lot: 1151265)									
EM1713546-005	LEACHATE	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.00	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 1151575)									
EM1713535-001	Anonymous	EP075(SIM): Phenol	108-95-2	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	1	µg/L	<1.0	<1.0	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075(SIM)A: Phenolic Compounds (QC Lot: 1151575) - continued									
EM1713535-001	Anonymous	EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2.0	<2.0	0.00	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	µg/L	<2.0	<2.0	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1151575)									
EM1713535-001	Anonymous	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	<1.0	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1151263)									
EM1713502-007	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EM1713546-002	GW172602-D	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1151266)									
EM1713546-005	LEACHATE	EP080: C6 - C9 Fraction	----	20	µg/L	160	160	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1151267)									
EM1713480-003	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EM1713522-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1151570)									
EM1713535-001	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.00	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1151263)									
EM1713502-007	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EM1713546-002	GW172602-D	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1151266)									

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1151266) - continued									
EM1713546-005	LEACHATE	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	180	170	6.19	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1151267)									
EM1713480-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	20	20	0.00	No Limit
EM1713522-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1151570)									
EM1713535-001	Anonymous	EP071: >C10 - C16 Fraction	----	100	µg/L	<100	<100	0.00	No Limit
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.00	No Limit
EP080: BTEXN (QC Lot: 1151263)									
EM1713502-007	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
EM1713546-002	GW172602-D	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
EP080: BTEXN (QC Lot: 1151266)									
EM1713546-005	LEACHATE	EP080: Benzene	71-43-2	1	µg/L	39	37	5.29	0% - 20%
		EP080: Toluene	108-88-3	2	µg/L	4	4	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	4	4	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	18	17	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	3	3	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	5	6	0.00	No Limit
EP080: BTEXN (QC Lot: 1151267)									
EM1713480-003	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	2	2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	5	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080: BTEXN (QC Lot: 1151267) - continued									
EM1713522-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QCLot: 1151435)								
EA015H: Total Dissolved Solids @180°C	----	10	mg/L	<10	2000 mg/L	100	95	105
				<10	293 mg/L	103	95	105
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QCLot: 1151439)								
EA015H: Total Dissolved Solids @180°C	----	10	mg/L	<10	2000 mg/L	99.2	95	105
				<10	293 mg/L	99.7	95	105
ED037P: Alkalinity by PC Titrator (QCLot: 1151490)								
ED037-P: Total Alkalinity as CaCO3	----	----	mg/L	----	200 mg/L	103	88	109
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 1152455)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	107	92	115
				<1	100 mg/L	105	92	115
ED045G: Chloride by Discrete Analyser (QCLot: 1152456)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	10 mg/L	89.8	88	118
				<1	1000 mg/L	109	88	118
ED093F: Dissolved Major Cations (QCLot: 1151663)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	5 mg/L	108	93	110
ED093F: Magnesium	7439-95-4	1	mg/L	<1	5 mg/L	102	91	110
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	100	90	109
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	101	89	109
EG020F: Dissolved Metals by ICP-MS (QCLot: 1151661)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	101	91	107
EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	94.6	82	113
EG020A-F: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	95.8	84	106
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	96.7	84	104
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	95.7	83	103
EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	98.7	83	106
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	96.9	82	103
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	94.7	83	105
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	97.2	83	105
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	97.8	82	106
EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	96.0	82	109
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	97.8	83	106
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	101	85	109
EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	0.5 mg/L	103	84	116
EG020F: Dissolved Metals by ICP-MS (QCLot: 1151666)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 1151666) - continued								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	101	91	107
EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	94.4	82	113
EG020A-F: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	92.8	84	106
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	94.3	84	104
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	95.1	83	103
EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	98.1	83	106
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	96.6	82	103
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	93.3	83	105
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	96.9	83	105
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	94.5	82	106
EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	95.4	82	109
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	98.4	83	106
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	99.5	85	109
EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	0.5 mg/L	98.8	84	116
EG020F: Dissolved Metals by ICP-MS (QCLot: 1152298)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	94.7	91	107
EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	109	82	113
EG020A-F: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	96.1	84	106
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	89.7	84	104
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	91.9	83	103
EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	91.1	83	106
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	90.2	82	103
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	93.2	83	105
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	93.6	83	105
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	92.9	82	106
EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	93.9	82	109
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	90.7	83	106
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	93.4	85	109
EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	0.5 mg/L	104	84	116
EG020T: Total Metals by ICP-MS (QCLot: 1151672)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	102	90	110
EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	105	88	113
EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	97.0	88	112
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	96.6	86	111
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	96.1	87	109
EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	102	88	113
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	97.7	87	108
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	94.6	88	109
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	97.7	88	111

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 1151672) - continued								
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	97.2	87	111
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	98.4	85	113
EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	98.7	88	112
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	99.0	87	113
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	0.5 mg/L	103	88	118
EG035F: Dissolved Mercury by FIMS (QCLot: 1151662)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	82.7	81	114
EG035F: Dissolved Mercury by FIMS (QCLot: 1151665)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	101	81	114
EG035F: Dissolved Mercury by FIMS (QCLot: 1152299)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	88.0	81	114
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1154903)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	89.6	81	114
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 1151987)								
EK026SF: Total Cyanide	57-12-5	0.004	mg/L	<0.004	0.2 mg/L	103	80	110
EK055G: Ammonia as N by Discrete Analyser (QCLot: 1151729)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	102	80	115
EK057G: Nitrite as N by Discrete Analyser (QCLot: 1152454)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	107	94	107
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 1151728)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	113	89	114
EP005: Total Organic Carbon (TOC) (QCLot: 1155633)								
EP005: Total Organic Carbon	----	1	mg/L	<1	100 mg/L	102	81	109
EP033: C1 - C4 Hydrocarbon Gases (QCLot: 1154738)								
EP033: Methane	74-82-8	10	µg/L	<10	28.48 µg/L	94.8	86	114
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 1151264)								
EP074: Styrene	100-42-5	5	µg/L	<5	20 µg/L	87.0	81	119
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	20 µg/L	83.0	79	123
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	20 µg/L	82.9	71	115
EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	20 µg/L	84.1	72	114
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	20 µg/L	82.5	72	114
EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	20 µg/L	86.4	74	112
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	20 µg/L	85.6	73	114
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	20 µg/L	82.2	70	115
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	20 µg/L	78.4	62	116
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 1151265)								
EP074: Styrene	100-42-5	5	µg/L	<5	20 µg/L	100	81	119

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 1151265) - continued								
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	20 µg/L	98.4	79	123
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	20 µg/L	94.9	71	115
EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	20 µg/L	99.6	72	114
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	20 µg/L	97.5	72	114
EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	20 µg/L	97.5	74	112
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	20 µg/L	97.3	73	114
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	20 µg/L	94.3	70	115
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	20 µg/L	93.6	62	116
EP074B: Oxygenated Compounds (QCLot: 1151264)								
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	200 µg/L	85.2	73	126
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	200 µg/L	90.4	62	136
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	200 µg/L	91.4	73	132
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	200 µg/L	95.1	68	136
EP074B: Oxygenated Compounds (QCLot: 1151265)								
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	200 µg/L	95.3	73	126
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	200 µg/L	98.5	62	136
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	200 µg/L	105	73	132
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	200 µg/L	97.1	68	136
EP074C: Sulfonated Compounds (QCLot: 1151264)								
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	20 µg/L	71.3	55	123
EP074C: Sulfonated Compounds (QCLot: 1151265)								
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	20 µg/L	108	55	123
EP074D: Fumigants (QCLot: 1151264)								
EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	20 µg/L	80.7	67	122
EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	20 µg/L	88.6	78	120
EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	20 µg/L	85.5	70	118
EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	20 µg/L	86.4	68	115
EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	20 µg/L	90.1	78	120
EP074D: Fumigants (QCLot: 1151265)								
EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	20 µg/L	100	67	122
EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	20 µg/L	106	78	120
EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	20 µg/L	101	70	118
EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	20 µg/L	95.5	68	115
EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	20 µg/L	98.3	78	120
EP074E: Halogenated Aliphatic Compounds (QCLot: 1151264)								
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	200 µg/L	76.0	62	140
EP074: Chloromethane	74-87-3	50	µg/L	<50	200 µg/L	79.2	68	138
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	200 µg/L	77.4	64	139

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP074E: Halogenated Aliphatic Compounds (QCLot: 1151264) - continued								
EP074: Bromomethane	74-83-9	50	µg/L	<50	200 µg/L	70.8	48	130
EP074: Chloroethane	75-00-3	50	µg/L	<50	200 µg/L	82.5	71	130
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	200 µg/L	77.9	71	126
EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	20 µg/L	78.7	68	125
EP074: Iodomethane	74-88-4	5	µg/L	<5	20 µg/L	69.0	27	120
EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	20 µg/L	80.8	73	121
EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	20 µg/L	84.8	77	120
EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	20 µg/L	85.8	79	120
EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	20 µg/L	79.8	70	120
EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	20 µg/L	78.9	70	122
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	20 µg/L	75.7	66	119
EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	20 µg/L	91.0	79	120
EP074: Trichloroethene	79-01-6	5	µg/L	<5	20 µg/L	77.9	75	120
EP074: Dibromomethane	74-95-3	5	µg/L	<5	20 µg/L	89.2	77	118
EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	20 µg/L	91.6	86	121
EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	20 µg/L	92.0	84	119
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	20 µg/L	80.6	75	119
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	20 µg/L	85.8	75	112
EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	20 µg/L	91.8	63	119
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	20 µg/L	84.1	54	119
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	20 µg/L	92.3	81	125
EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	20 µg/L	93.6	81	125
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	20 µg/L	83.7	63	109
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	20 µg/L	88.4	59	116
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	20 µg/L	84.7	60	122
EP074E: Halogenated Aliphatic Compounds (QCLot: 1151265)								
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	200 µg/L	95.8	62	140
EP074: Chloromethane	74-87-3	50	µg/L	<50	200 µg/L	89.0	68	138
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	200 µg/L	96.6	64	139
EP074: Bromomethane	74-83-9	50	µg/L	<50	200 µg/L	87.0	48	130
EP074: Chloroethane	75-00-3	50	µg/L	<50	200 µg/L	95.9	71	130
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	200 µg/L	98.0	71	126
EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	20 µg/L	103	68	125
EP074: Iodomethane	74-88-4	5	µg/L	<5	20 µg/L	100	27	120
EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	20 µg/L	104	73	121
EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	20 µg/L	105	77	120
EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	20 µg/L	105	79	120
EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	20 µg/L	103	70	120
EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	20 µg/L	102	70	122

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP074E: Halogenated Aliphatic Compounds (QCLot: 1151265) - continued								
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	20 µg/L	98.6	66	119
EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	20 µg/L	104	79	120
EP074: Trichloroethene	79-01-6	5	µg/L	<5	20 µg/L	106	75	120
EP074: Dibromomethane	74-95-3	5	µg/L	<5	20 µg/L	102	77	118
EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	20 µg/L	102	86	121
EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	20 µg/L	98.9	84	119
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	20 µg/L	96.9	75	119
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	20 µg/L	93.9	75	112
EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	20 µg/L	92.1	63	119
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	20 µg/L	85.7	54	119
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	20 µg/L	101	81	125
EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	20 µg/L	99.0	81	125
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	20 µg/L	94.1	63	109
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	20 µg/L	90.6	59	116
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	20 µg/L	103	60	122
EP074F: Halogenated Aromatic Compounds (QCLot: 1151264)								
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	20 µg/L	86.1	84	118
EP074: Bromobenzene	108-86-1	5	µg/L	<5	20 µg/L	89.6	74	119
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	20 µg/L	87.1	76	114
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	20 µg/L	86.2	73	113
EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	20 µg/L	88.0	76	114
EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	20 µg/L	86.9	76	118
EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	20 µg/L	92.9	81	113
EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	20 µg/L	86.6	64	118
EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	20 µg/L	89.2	72	120
EP074F: Halogenated Aromatic Compounds (QCLot: 1151265)								
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	20 µg/L	101	84	118
EP074: Bromobenzene	108-86-1	5	µg/L	<5	20 µg/L	98.1	74	119
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	20 µg/L	96.7	76	114
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	20 µg/L	97.6	73	113
EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	20 µg/L	101	76	114
EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	20 µg/L	102	76	118
EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	20 µg/L	101	81	113
EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	20 µg/L	102	64	118
EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	20 µg/L	104	72	120
EP074G: Trihalomethanes (QCLot: 1151264)								
EP074: Chloroform	67-66-3	5	µg/L	<5	20 µg/L	86.6	78	118
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	20 µg/L	85.3	69	115

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP074G: Trihalomethanes (QCLot: 1151264) - continued								
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	20 µg/L	84.8	69	109
EP074: Bromoform	75-25-2	5	µg/L	<5	20 µg/L	82.7	62	111
EP074G: Trihalomethanes (QCLot: 1151265)								
EP074: Chloroform	67-66-3	5	µg/L	<5	20 µg/L	106	78	118
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	20 µg/L	102	69	115
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	20 µg/L	91.1	69	109
EP074: Bromoform	75-25-2	5	µg/L	<5	20 µg/L	86.1	62	111
EP075(SIM)A: Phenolic Compounds (QCLot: 1151562)								
EP075(SIM): Phenol	108-95-2	1	µg/L	<1.0	5 µg/L	47.2	17	49
EP075(SIM): 2-Chlorophenol	95-57-8	1	µg/L	<1.0	5 µg/L	98.7	42	103
EP075(SIM): 2-Methylphenol	95-48-7	1	µg/L	<1.0	5 µg/L	62.2	42	98
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2.0	10 µg/L	59.0	38	92
EP075(SIM): 2-Nitrophenol	88-75-5	1	µg/L	<1.0	5 µg/L	72.3	45	114
EP075(SIM): 2.4-Dimethylphenol	105-67-9	1	µg/L	<1.0	5 µg/L	47.2	43	104
EP075(SIM): 2.4-Dichlorophenol	120-83-2	1	µg/L	<1.0	5 µg/L	79.3	40	111
EP075(SIM): 2.6-Dichlorophenol	87-65-0	1	µg/L	<1.0	5 µg/L	75.0	46	116
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1	µg/L	<1.0	5 µg/L	72.8	44	110
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	1	µg/L	<1.0	5 µg/L	73.7	43	113
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	1	µg/L	<1.0	5 µg/L	74.6	47	115
EP075(SIM): Pentachlorophenol	87-86-5	2	µg/L	<2.0	10 µg/L	48.5	48	130
EP075(SIM)A: Phenolic Compounds (QCLot: 1151575)								
EP075(SIM): Phenol	108-95-2	1	µg/L	<1.0	5 µg/L	42.0	17	49
EP075(SIM): 2-Chlorophenol	95-57-8	1	µg/L	<1.0	5 µg/L	86.0	42	103
EP075(SIM): 2-Methylphenol	95-48-7	1	µg/L	<1.0	5 µg/L	68.3	42	98
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2.0	10 µg/L	58.1	38	92
EP075(SIM): 2-Nitrophenol	88-75-5	1	µg/L	<1.0	5 µg/L	78.8	45	114
EP075(SIM): 2.4-Dimethylphenol	105-67-9	1	µg/L	<1.0	5 µg/L	59.0	43	104
EP075(SIM): 2.4-Dichlorophenol	120-83-2	1	µg/L	<1.0	5 µg/L	94.6	40	111
EP075(SIM): 2.6-Dichlorophenol	87-65-0	1	µg/L	<1.0	5 µg/L	78.3	46	116
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1	µg/L	<1.0	5 µg/L	87.3	44	110
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	1	µg/L	<1.0	5 µg/L	79.0	43	113
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	1	µg/L	<1.0	5 µg/L	77.5	47	115
EP075(SIM): Pentachlorophenol	87-86-5	2	µg/L	<2.0	10 µg/L	49.8	48	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1151562)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	76.2	39	110
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	82.3	40	124
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	79.5	47	117
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	91.5	51	118

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1151562) - continued								
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	90.3	53	119
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	2.5 µg/L	62.7	51	113
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	81.8	59	123
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	69.2	58	123
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	65.1	52	126
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	78.1	55	123
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	75.1	52	131
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	82.0	57	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	77.0	56	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	80.7	53	123
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	81.0	53	125
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	83.6	53	125
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1151575)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	89.5	39	110
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	91.2	40	124
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	87.8	47	117
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	83.4	51	118
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	96.1	53	119
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	2.5 µg/L	67.4	51	113
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	75.5	59	123
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	68.3	58	123
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	63.4	52	126
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	77.4	55	123
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	83.6	52	131
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	87.5	57	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	79.9	56	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	84.0	53	123
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	84.4	53	125
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	85.4	53	125
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1151263)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	360 µg/L	92.0	67	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1151266)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	360 µg/L	107	67	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1151267)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	360 µg/L	97.1	67	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1151561)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1151561) - continued								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	3368 µg/L	80.0	53	123
EP071: C15 - C28 Fraction	----	100	µg/L	<100	14735 µg/L	86.0	57	133
EP071: C29 - C36 Fraction	----	50	µg/L	<50	7856 µg/L	81.0	55	141
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1151570)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	3368 µg/L	102	53	123
EP071: C15 - C28 Fraction	----	100	µg/L	<100	14735 µg/L	105	57	133
EP071: C29 - C36 Fraction	----	50	µg/L	<50	7856 µg/L	97.6	55	141
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1151263)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	92.0	65	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1151266)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	104	65	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1151267)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	95.6	65	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1151561)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	5225 µg/L	80.3	54	122
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	19994 µg/L	83.8	56	132
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	1449 µg/L	85.4	51	137
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1151570)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	5225 µg/L	100	54	122
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	19994 µg/L	102	56	132
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	1449 µg/L	99.9	51	137
EP080: BTEXN (QCLot: 1151263)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	98.6	76	120
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	96.1	76	124
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	94.0	72	124
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	92.9	72	130
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	97.2	78	128
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	98.2	71	129
EP080: BTEXN (QCLot: 1151266)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	108	76	120
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	109	76	124
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	109	72	124
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	106	72	130
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	109	78	128
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	100	71	129

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080: BTEXN (QCLot: 1151267)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	99.0	76	120
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	103	76	124
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	98.5	72	124
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	101	72	130
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	103	78	128
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	96.5	71	129

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 1152455)							
EM1713546-001	GW17-26-01	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	81.6	70	130
ED045G: Chloride by Discrete Analyser (QCLot: 1152456)							
EM1713546-002	GW172602-D	ED045G: Chloride	16887-00-6	400 mg/L	89.0	70	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 1151661)							
EM1713502-001	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	108	85	131
		EG020A-F: Beryllium	7440-41-7	0.2 mg/L	91.2	73	141
		EG020A-F: Barium	7440-39-3	0.2 mg/L	96.5	75	127
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	91.7	81	133
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	95.1	71	135
		EG020A-F: Cobalt	7440-48-4	0.2 mg/L	105	78	132
		EG020A-F: Copper	7440-50-8	0.2 mg/L	96.9	76	130
		EG020A-F: Lead	7439-92-1	0.2 mg/L	92.1	75	133
		EG020A-F: Manganese	7439-96-5	0.2 mg/L	92.4	64	134
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	99.4	73	131
		EG020A-F: Vanadium	7440-62-2	0.2 mg/L	100	73	131
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	93.0	75	131
EG020F: Dissolved Metals by ICP-MS (QCLot: 1151666)							
EM1713546-002	GW172602-D	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	106	85	131
		EG020A-F: Beryllium	7440-41-7	0.2 mg/L	102	73	141
		EG020A-F: Barium	7440-39-3	0.2 mg/L	95.8	75	127
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	104	81	133
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	99.2	71	135

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 1151666) - continued							
EM1713546-002	GW172602-D	EG020A-F: Cobalt	7440-48-4	0.2 mg/L	104	78	132
		EG020A-F: Copper	7440-50-8	0.2 mg/L	101	76	130
		EG020A-F: Lead	7439-92-1	0.2 mg/L	98.0	75	133
		EG020A-F: Manganese	7439-96-5	0.2 mg/L	98.9	64	134
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	100	73	131
		EG020A-F: Vanadium	7440-62-2	0.2 mg/L	102	73	131
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	105	75	131
EG020F: Dissolved Metals by ICP-MS (QCLot: 1152298)							
EM1713546-005	LEACHATE	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	107	85	131
		EG020A-F: Beryllium	7440-41-7	0.2 mg/L	99.6	73	141
		EG020A-F: Barium	7440-39-3	0.2 mg/L	# Not Determined	75	127
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	83.1	81	133
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	107	71	135
		EG020A-F: Cobalt	7440-48-4	0.2 mg/L	99.2	78	132
		EG020A-F: Copper	7440-50-8	0.2 mg/L	100	76	130
		EG020A-F: Lead	7439-92-1	0.2 mg/L	90.7	75	133
		EG020A-F: Manganese	7439-96-5	0.2 mg/L	104	64	134
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	113	73	131
		EG020A-F: Vanadium	7440-62-2	0.2 mg/L	96.0	73	131
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	80.8	75	131
EG020T: Total Metals by ICP-MS (QCLot: 1151672)							
EM1713480-005	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	102	82	118
		EG020A-T: Beryllium	7440-41-7	1 mg/L	96.4	79	121
		EG020A-T: Barium	7440-39-3	1 mg/L	95.9	80	114
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	99.1	75	129
		EG020A-T: Chromium	7440-47-3	1 mg/L	90.4	80	118
		EG020A-T: Cobalt	7440-48-4	1 mg/L	94.7	82	120
		EG020A-T: Copper	7440-50-8	1 mg/L	91.4	81	115
		EG020A-T: Lead	7439-92-1	1 mg/L	90.5	83	121
		EG020A-T: Manganese	7439-96-5	1 mg/L	95.6	73	123
		EG020A-T: Nickel	7440-02-0	1 mg/L	99.2	80	118
		EG020A-T: Vanadium	7440-62-2	1 mg/L	90.3	81	119
		EG020A-T: Zinc	7440-66-6	1 mg/L	98.4	74	116
EG035F: Dissolved Mercury by FIMS (QCLot: 1151662)							
EM1713502-002	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	# 33.2	70	120
EG035F: Dissolved Mercury by FIMS (QCLot: 1151665)							
EM1713546-003	GW17-26-02	EG035F: Mercury	7439-97-6	0.01 mg/L	72.6	70	120

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EG035F: Dissolved Mercury by FIMS (QCLot: 1152299)							
EM1713563-001	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	86.0	70	120
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1154903)							
EM1713502-008	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	93.1	70	130
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 1151987)							
EM1713523-002	Anonymous	EK026SF: Total Cyanide	57-12-5	0.4 mg/L	# 50.1	70	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 1151729)							
EM1713529-001	Anonymous	EK055G: Ammonia as N	7664-41-7	1 mg/L	79.2	70	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 1152454)							
EM1713529-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	95.8	80	114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 1151728)							
EM1713523-002	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	90.0	70	130
EP005: Total Organic Carbon (TOC) (QCLot: 1155633)							
EM1713480-001	Anonymous	EP005: Total Organic Carbon	----	100 mg/L	104	80	114
EP033: C1 - C4 Hydrocarbon Gases (QCLot: 1154738)							
ES1724423-001	Anonymous	EP033: Methane	74-82-8	28.48 µg/L	# Not Determined	70	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 1151264)							
EM1713502-002	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	20 µg/L	75.0	40	124
		EP074: Trichloroethene	79-01-6	20 µg/L	68.9	54	126
EP074F: Halogenated Aromatic Compounds (QCLot: 1151264)							
EM1713502-002	Anonymous	EP074: Chlorobenzene	108-90-7	20 µg/L	84.5	68	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1151263)							
EM1713502-002	Anonymous	EP080: C6 - C9 Fraction	----	280 µg/L	63.2	43	125
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1151267)							
EM1713480-001	Anonymous	EP080: C6 - C9 Fraction	----	280 µg/L	65.3	43	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1151263)							
EM1713502-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	330 µg/L	63.5	44	122
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1151267)							
EM1713480-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	330 µg/L	63.2	44	122
EP080: BTEXN (QCLot: 1151263)							
EM1713502-002	Anonymous	EP080: Benzene	71-43-2	20 µg/L	84.4	68	130
		EP080: Toluene	108-88-3	20 µg/L	83.6	72	132
EP080: BTEXN (QCLot: 1151267)							
EM1713480-001	Anonymous						

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP080: BTEXN (QCLot: 1151267) - continued							
EM1713480-001	Anonymous	EP080: Benzene	71-43-2	20 µg/L	94.0	68	130
		EP080: Toluene	108-88-3	20 µg/L	93.6	72	132

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM1713546**	Page	: 1 of 10
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: OLFA NAZARIO	Telephone	: +61-3-8549 9609
Project	: 2271345A	Date Samples Received	: 03-Oct-2017
Site	: Mordialloc	Issue Date	: 09-Oct-2017
Sampler	: ----	No. of samples received	: 6
Order number	: ----	No. of samples analysed	: 6

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EG020F: Dissolved Metals by ICP-MS	EM1713546--005	LEACHATE	**Barium**	7440-39-3	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EG035F: Dissolved Mercury by FIMS	EM1713502--002	Anonymous	**Mercury**	7439-97-6	33.2 %	70-120%	**Recovery less than lower data quality objective**
EK026SF: Total CN by Segmented Flow Analyser	EM1713523--002	Anonymous	**Total Cyanide**	57-12-5	50.1 %	70-130%	**Recovery less than lower data quality objective**
EP033: C1 - C4 Hydrocarbon Gases	ES1724423--001	Anonymous	**Methane**	74-82-8	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
pH by PC Titrator	1	11	9.09	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	1	16	6.25	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
PAH/Phenols (GC/MS - SIM)	0	9	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	16	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / *Container / Client Sample ID(s)*		***Sample Date***	*Extraction / Preparation*			*Analysis*		
			Date extracted	*Due for extraction*	*Evaluation*	***Date analysed***	*Due for analysis*	*Evaluation*
EA005P: pH by PC Titrator								
Clear Plastic Bottle - Natural (EA005-P)								
GW17-26-01, GW17-26-02,	GW172602-D, LEACHATE	**03-Oct-2017**	**----**	----	----	**03-Oct-2017**	03-Oct-2017	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Clear Plastic Bottle - Natural (EA015H)								
GW17-26-01,	GW172602-D,	**03-Oct-2017**	**----**	----	----	**04-Oct-2017**	10-Oct-2017	✓
GW17-26-02,	LEACHATE							
ED037P: Alkalinity by PC Titrator								
Clear Plastic Bottle - Natural (ED037-P)								
GW17-26-01,	GW172602-D,	**03-Oct-2017**	**----**	----	----	**04-Oct-2017**	17-Oct-2017	✓
GW17-26-02,	LEACHATE							
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Clear Plastic Bottle - Natural (ED041G)								
GW17-26-01,	GW172602-D,	**03-Oct-2017**	**----**	----	----	**06-Oct-2017**	31-Oct-2017	✓
GW17-26-02,	LEACHATE							
ED045G: Chloride by Discrete Analyser								
Clear Plastic Bottle - Natural (ED045G)								
GW17-26-01,	GW172602-D,	**03-Oct-2017**	**----**	----	----	**06-Oct-2017**	31-Oct-2017	✓
GW17-26-02,	LEACHATE							
ED093F: Dissolved Major Cations								
Clear Plastic Bottle - Natural (ED093F)								
LEACHATE		**03-Oct-2017**	**----**	----	----	**04-Oct-2017**	10-Oct-2017	✓
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F)								
GW17-26-01,	GW172602-D,	**03-Oct-2017**	**----**	----	----	**04-Oct-2017**	31-Oct-2017	✓
GW17-26-02								
EG020F: Dissolved Metals by ICP-MS								
Clear Plastic Bottle - Natural (EG020A-F)								
LEACHATE		**03-Oct-2017**	**----**	----	----	**05-Oct-2017**	01-Apr-2018	✓
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)								
GW17-26-01,	GW172602-D,	**03-Oct-2017**	**----**	----	----	**04-Oct-2017**	01-Apr-2018	✓
GW17-26-02								
EG020T: Total Metals by ICP-MS								
Clear Plastic Bottle - Nitric Acid; Unspecified (EG020A-T)								
RINSATE BLANK		**03-Oct-2017**	**04-Oct-2017**	01-Apr-2018	✓	**04-Oct-2017**	01-Apr-2018	✓
EG035F: Dissolved Mercury by FIMS								
Clear Plastic Bottle - Natural (EG035F)								
LEACHATE		**03-Oct-2017**	**----**	----	----	**05-Oct-2017**	31-Oct-2017	✓
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F)								
GW17-26-01,	GW172602-D,	**03-Oct-2017**	**----**	----	----	**04-Oct-2017**	31-Oct-2017	✓
GW17-26-02								
EG035T: Total Recoverable Mercury by FIMS								
Clear Plastic Bottle - Nitric Acid; Unspecified (EG035T)								
RINSATE BLANK		**03-Oct-2017**	**----**	----	----	**05-Oct-2017**	31-Oct-2017	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EK026SF: Total CN by Segmented Flow Analyser								
Opaque plastic bottle - NaOH (EK026SF)								
GW17-26-01,	GW172602-D,	**03-Oct-2017**	**----**	----	----	**04-Oct-2017**	17-Oct-2017	✓
GW17-26-02,	LEACHATE							
EK055G: Ammonia as N by Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK055G)								
GW17-26-01,	GW172602-D,	**03-Oct-2017**	**----**	----	----	**04-Oct-2017**	31-Oct-2017	✓
GW17-26-02,	LEACHATE							
EK057G: Nitrite as N by Discrete Analyser								
Clear Plastic Bottle - Natural (EK057G)								
GW17-26-01,	GW172602-D,	**03-Oct-2017**	**----**	----	----	**04-Oct-2017**	05-Oct-2017	✓
GW17-26-02,	LEACHATE							
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK059G)								
GW17-26-01,	GW172602-D,	**03-Oct-2017**	**----**	----	----	**04-Oct-2017**	31-Oct-2017	✓
GW17-26-02,	LEACHATE							
EP005: Total Organic Carbon (TOC)								
Amber TOC Vial - Sulfuric Acid (EP005)								
GW17-26-01,	GW172602-D,	**03-Oct-2017**	**----**	----	----	**05-Oct-2017**	31-Oct-2017	✓
GW17-26-02,	LEACHATE							
EP033: C1 - C4 Hydrocarbon Gases								
Amber VOC Vial - Sulfuric Acid (EP033)								
GW17-26-01,	GW172602-D,	**03-Oct-2017**	**----**	----	----	**05-Oct-2017**	17-Oct-2017	✓
GW17-26-02,	LEACHATE							
EP074A: Monocyclic Aromatic Hydrocarbons								
Amber VOC Vial - Sulfuric Acid (EP074)								
GW17-26-01,	GW172602-D,	**03-Oct-2017**	**04-Oct-2017**	17-Oct-2017	✓	**04-Oct-2017**	17-Oct-2017	✓
GW17-26-02,	LEACHATE							
EP074B: Oxygenated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074)								
GW17-26-01,	GW172602-D,	**03-Oct-2017**	**04-Oct-2017**	17-Oct-2017	✓	**04-Oct-2017**	17-Oct-2017	✓
GW17-26-02,	LEACHATE							
EP074C: Sulfonated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074)								
GW17-26-01,	GW172602-D,	**03-Oct-2017**	**04-Oct-2017**	17-Oct-2017	✓	**04-Oct-2017**	17-Oct-2017	✓
GW17-26-02,	LEACHATE							
EP074D: Fumigants								
Amber VOC Vial - Sulfuric Acid (EP074)								
GW17-26-01,	GW172602-D,	**03-Oct-2017**	**04-Oct-2017**	17-Oct-2017	✓	**04-Oct-2017**	17-Oct-2017	✓
GW17-26-02,	LEACHATE							

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074E: Halogenated Aliphatic Compounds								
Amber VOC Vial - Sulfuric Acid (EP074)								
GW17-26-01,	GW172602-D,	**03-Oct-2017**	**04-Oct-2017**	17-Oct-2017	✓	**04-Oct-2017**	17-Oct-2017	✓
GW17-26-02,	LEACHATE							
EP074F: Halogenated Aromatic Compounds								
Amber VOC Vial - Sulfuric Acid (EP074)								
GW17-26-01,	GW172602-D,	**03-Oct-2017**	**04-Oct-2017**	17-Oct-2017	✓	**04-Oct-2017**	17-Oct-2017	✓
GW17-26-02,	LEACHATE							
EP074G: Trihalomethanes								
Amber VOC Vial - Sulfuric Acid (EP074)								
GW17-26-01,	GW172602-D,	**03-Oct-2017**	**04-Oct-2017**	17-Oct-2017	✓	**04-Oct-2017**	17-Oct-2017	✓
GW17-26-02,	LEACHATE							
EP075(SIM)A: Phenolic Compounds								
Amber Glass Bottle - Unpreserved (EP075(SIM))								
GW17-26-01,	GW172602-D,	**03-Oct-2017**	**05-Oct-2017**	10-Oct-2017	✓	**05-Oct-2017**	14-Nov-2017	✓
GW17-26-02,	LEACHATE							
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP075(SIM))								
GW17-26-01,	GW172602-D,	**03-Oct-2017**	**05-Oct-2017**	10-Oct-2017	✓	**05-Oct-2017**	14-Nov-2017	✓
GW17-26-02,	LEACHATE							
EP080/071: Total Petroleum Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP071)								
GW17-26-01,	GW172602-D,	**03-Oct-2017**	**05-Oct-2017**	10-Oct-2017	✓	**05-Oct-2017**	14-Nov-2017	✓
GW17-26-02,	LEACHATE							
Amber VOC Vial - Sulfuric Acid (EP080)								
GW17-26-01,	GW172602-D,	**03-Oct-2017**	**04-Oct-2017**	17-Oct-2017	✓	**04-Oct-2017**	17-Oct-2017	✓
GW17-26-02,	LEACHATE,							
TRIP BLANK								
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Amber Glass Bottle - Unpreserved (EP071)								
GW17-26-01,	GW172602-D,	**03-Oct-2017**	**05-Oct-2017**	10-Oct-2017	✓	**05-Oct-2017**	14-Nov-2017	✓
GW17-26-02,	LEACHATE							
Amber VOC Vial - Sulfuric Acid (EP080)								
GW17-26-01,	GW172602-D,	**03-Oct-2017**	**04-Oct-2017**	17-Oct-2017	✓	**04-Oct-2017**	17-Oct-2017	✓
GW17-26-02,	LEACHATE,							
TRIP BLANK								
EP080: BTEXN								
Amber VOC Vial - Sulfuric Acid (EP080)								
GW17-26-01,	GW172602-D,	**03-Oct-2017**	**04-Oct-2017**	17-Oct-2017	✓	**04-Oct-2017**	17-Oct-2017	✓
GW17-26-02,	LEACHATE,							
TRIP BLANK								

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Alkalinity by PC Titrator	ED037-P	1	4	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
C1 - C4 Gases	EP033	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	4	30	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	5	38	**13.16**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH by PC Titrator	EA005-P	1	11	**9.09**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	2	10	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	3	22	**13.64**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	4	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	16	**6.25**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	5	36	**13.89**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	3	13	**23.08**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Alkalinity by PC Titrator	ED037-P	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
C1 - C4 Gases	EP033	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	3	30	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	3	38	**7.89**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	2	9	**22.22**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	4	22	**18.18**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Control Samples (LCS) - Continued							
Total Organic Carbon	EP005	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	16	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	3	36	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	2	13	**15.38**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Ammonia as N by Discrete analyser	EK055G	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
C1 - C4 Gases	EP033	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	3	30	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	3	38	**7.89**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	2	9	**22.22**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	2	22	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	16	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	3	36	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	2	13	**15.38**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
C1 - C4 Gases	EP033	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	3	30	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	3	38	**7.89**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	9	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	16	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	36	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH by PC Titrator	EA005-P	WATER	In house: Referenced to APHA 4500 H+ B. This procedure determines pH of water samples by automated ISE. This method is compliant with NEPM (2013) Schedule B(3)
Total Dissolved Solids (High Level)	EA015H	WATER	In house: Referenced to APHA 2540C. A gravimetric procedure that determines the amount of `filterable` residue in an aqueous sample. A well-mixed sample is filtered through a glass fibre filter (1.2um). The filtrate is evaporated to dryness and dried to constant weight at 180+/-5C. This method is compliant with NEPM (2013) Schedule B(3)
Alkalinity by PC Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM (2013) Schedule B(3)
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM (2013) Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G.The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride.in the presence of ferric ions the librated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm APHA 21st edition seal method 2 017-1-L april 2003
Major Cations - Dissolved	ED093F	WATER	In house: Referenced to APHA 3120 and 3125; USEPA SW 846 - 6010 and 6020; Cations are determined by either ICP-AES or ICP-MS techniques. This method is compliant with NEPM (2013) Schedule B(3) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM (2013) Schedule B(3) Hardness parameters are calculated based on APHA 2340 B. This method is compliant with NEPM (2013) Schedule B(3)
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.

Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) Samples are 0.45µm filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Cyanide by Segmented Flow Analyser	EK026SF	WATER	In house: Referenced to APHA 4500-CN C / ASTM D7511. Sodium hydroxide preserved samples are introduced into an automated segmented flow analyser. Complex bound cyanide is decomposed in a continuously flowing stream, at a pH of 3.8, by the effect of UV light. A UV-B lamp (312 nm) and a decomposition spiral of borosilicate glass are used to filter out UV light with a wavelength of less than 290 nm thus preventing the conversion of thiocyanate into cyanide. The hydrogen cyanide present at a pH of 3.8 is separated by gas dialysis. The hydrogen cyanide is then determined photometrically, based on the reaction of cyanide with chloramine-T to form cyanogen chloride. This then reacts with 4-pyridine carboxylic acid and 1,3-dimethylbarbituric acid to give a red colour which is measured at 600 nm. This method is compliant with NEPM (2013) Schedule B(3)
Ammonia as N by Discrete analyser	EK055G	WATER	In house: Referenced to APHA 4500-NH3 G Ammonia is determined by direct colorimetry by Discrete Analyser. This method is compliant with NEPM (2013) Schedule B(3)
Nitrite as N by Discrete Analyser	EK057G	WATER	In house: Referenced to APHA 4500-NO2- B. Nitrite is determined by direct colourimetry by Discrete Analyser. This method is compliant with NEPM (2013) Schedule B(3)
Nitrate as N by Discrete Analyser	EK058G	WATER	In house: Referenced to APHA 4500-NO3- F. Nitrate is reduced to nitrite by way of a chemical reduction followed by quantification by Discrete Analyser. Nitrite is determined seperately by direct colourimetry and result for Nitrate calculated as the difference between the two results. This method is compliant with NEPM (2013) Schedule B(3)
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	WATER	In house: Referenced to APHA 4500-NO3- F. Combined oxidised Nitrogen (NO2+NO3) is determined by Chemical Reduction and direct colourimetry by Discrete Analyser. This method is compliant with NEPM (2013) Schedule B(3)
Ionic Balance by PCT DA and Turbi SO4 DA	EN055 - PG	WATER	In house: Referenced to APHA 1030F. This method is compliant with NEPM (2013) Schedule B(3)
Total Organic Carbon	EP005	WATER	In house: Referenced to APHA 5310 B, The automated TOC analyzer determines Total and Inorganic Carbon by IR cell. TOC is calculated as the difference. This method is compliant with NEPM (2013) Schedule B(3)
C1 - C4 Gases	EP033	WATER	Technical Guidance for the Natural Attenuation Indicators: Methane, Ethane, and Ethene, US EPA - Region 1, EPA New England, July 2001. Automated static headspace, dual column GC/FID. A 12 mL sample is pipetted into a 20 mL headspace vial containing 3g of sodium chloride and sealed. Each sample is equilibrated with shaking at 40 degrees C for 10 minutes prior to analysis by GC/FID using a pair of PLOT columns of different polarity.
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)

Analytical Methods	Method	Matrix	Method Descriptions
Volatile Organic Compounds	EP074	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

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Chain of Custody

Order No: 85167

| | | |

Shirley LeCornu

From: Nazario, Olfa <Olfa.Nazario@wsp.com>
Sent: Monday, 2 October 2017 10:36 AM
To: Peter Ravlic
Cc: Shirley LeCornu
Subject: request for bottles

Hi Peter/Shirley,

Sorry for the rush. Brittany is one her way to the lab to pick up some sampling bottles for **groundwater** and **leachate** sampling (no soil sampling) as per analytical suite below. Kindly please prepare.
Can you advise which one's aside from metals need to be field filtered?

Thanks

						5x volatile organic compounds (VOCs).
Groundwater Soil	2 6	1 1	1 1	2 2	6 10	6x pH, TOC(1), TDS(2), major cations (sodium, calcium, magnesium, potassium), major anions (alkalinity as CaCO3, sulphate, chloride), nitrogen (ammonia, nitrate, nitrite), cyanide, TRH(3), PAH(4), phenols, methane, metals(5) and VOCs. 8x IWRG621 waste classification suite 2 x IWRG621 metals (rinsate blanks) 2 x BTEX/TPH (trip blanks)
Leachate	1	-	-	-	1	pH, TOC(1), TDS(2), major cations (sodium, calcium, magnesium, potassium), major anions (alkalinity as CaCO3, sulphate, chloride), nitrogen (ammonia, nitrate, nitrite), cyanide, TRH(3), PAH(4), phenols, methane, metals(5) and VOCs.

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Chain of Custody

Order No: 85167

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Shirley LeCornu

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Subject: request for bottles

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Can you advise which one's aside from metals need to be field filtered?

Thanks

						5x volatile organic compounds (VOCs).
Groundwater	2	1	1	2	6	6x pH, TOC(1), TDS(2), major cations (sodium, calcium, magnesium, potassium), major anions (alkalinity as CaCO3, sulphate, chloride), nitrogen (ammonia, nitrate, nitrite), cyanide, TRH(3), PAH(4), phenols, methane, metals(5) and VOCs. 8x IWRG621 waste classification suite 2 x IWRG621 metals (rinsate blanks) 2 x BTEX/TPH (trip blanks)
Soil	6	1	1	2	10	
Leachate	1	-	-	-	1	pH, TOC(1), TDS(2), major cations (sodium, calcium, magnesium, potassium), major anions (alkalinity as CaCO3, sulphate, chloride), nitrogen (ammonia, nitrate, nitrite), cyanide, TRH(3), PAH(4), phenols, methane, metals(5) and VOCs.

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Scott Huett

From: Peter Ravlic
Sent: Wednesday, 4 October 2017 12:19 PM
To: Scott Huett
Subject: FW: EM1713546 - PARBRIVIC - 2271345A

Follow Up Flag: Follow up
Flag Status: Flagged

Thanks

Regards

Peter Ravlic

Client Services Officer – Springvale

Environmental

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F +61 3 8549 9626
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2-4 Westall Rd
Springvale Vic 3171
Australia

We are keen for your feedback! Please click here for your 1 question survey

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From: Nazario, Olfa [mailto:Olfa.Nazario@wsp.com]
Sent: Wednesday, 4 October 2017 12:12 PM
To: Peter Ravlic <peter.ravlic@alsglobal.com>
Subject: RE: EM1713546 - PARBRIVIC - 2271345A

Would be good to report filtered metals if possible so we can compare against groundwater.

Also metals to be reported are the following instead of IWRG metals: arsenic, boron, barium, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, mercury, nickel, selenium, vanadium and zinc.

Regards

From: Nazario, Olfa [mailto:Olfa.Nazario@wsp.com]
Sent: Wednesday, 4 October 2017 12:01 PM
To: Peter Ravlic <peter.ravlic@alsglobal.com>
Subject: RE: EM1713546 - PARBRIVIC - 2271345A

Hi Peter,

Re ID discrepancies, please use bottle IDs. I will communicate changes to MGT. Please forward sample as soon as possible.

With metals, IWRG metals is ok.

For leachate, sampler was unable to field filter as it was grab samples. She collected extra amber bottle if laboratory requires this to filter.

Any other questions, please let me know.

Olfa Nazario
Environmental Scientist, Contaminated Land Management

T: +61 3 98612375

Olfa.Nazario@wsp.com

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Southbank, VIC
3006 Australia

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From: Peter Ravlic [mailto:peter.ravlic@alsglobal.com]
Sent: Wednesday, 4 October 2017 11:56 AM
To: Nazario, Olfa <Olfa.Nazario@wsp.com>
Subject: EM1713546 - PARBRIVIC - 2271345A

Hi Olfa

In relation to the attached:

ID Discrepancies:

ALS ID	COC ID	Container ID
002	GW172601-D	GW172602-D
-> (MGT)	GW17260-D1	GW172602-D1

We will report as per COC ID.

Where metals analysis has been requested, we will report the IWRG Metals suite with Cr which includes (As, Cd, Cr, Cu, Pb, Mo, Ni, Se, Ag, Sn, Zn, Hg). Please confirm if this is OK

For the LEACHATE (sample 005), we also rec'd an extra amber marked 'Spare for filtering'. Do we need to do anything with this bottle?

Thanks

560096.

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Chain of Custody (14)

Order No: 85167

| | | |

(14)

Shirley LeCornu

From: Nazario, Olfa <Olfa.Nazario@wsp.com>
Sent: Monday, 2 October 2017 10:36 AM
To: Peter Ravlic
Cc: Shirley LeCornu
Subject: request for bottles

Hi Peter/Shirley,

Sorry for the rush. Brittany is one her way to the lab to pick up some sampling bottles for **groundwater** and **leachate** sampling (no soil sampling) as per analytical suite below. Kindly please prepare.
Can you advise which one's aside from metals need to be field filtered?

Thanks

						5x volatile organic compounds (VOCs).
Groundwater	2	1	1	2	6	6x pH, TOC(1), TDS(2), major cations (sodium, calcium, magnesium, potassium), major anions (alkalinity as CaCO3, sulphate, chloride), nitrogen (ammonia, nitrate, nitrite), cyanide, TRH(3), PAH(4), phenols, methane, metals(5) and VOCs. 8x IWRG621 waste classification suite 2 x IWRG621 metals (rinsate blanks) 2 x BTEX/TPH (trip blanks)
Soil	6	1	1	2	10	
Leachate	1	-	-	-	1	pH, TOC(1), TDS(2), major cations (sodium, calcium, magnesium, potassium), major anions (alkalinity as CaCO3, sulphate, chloride), nitrogen (ammonia, nitrate, nitrite), cyanide, TRH(3), PAH(4), phenols, methane, metals(5) and VOCs.

(14)

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Enviro Sample Vic

From: Cindi Guo
Sent: Wednesday, 4 October 2017 12:22 PM
To: Olfa.Nazario@wsp.com
Cc: Enviro Sample Vic
Subject: FW: water samples dispatched from ALS

Thanks Olfa.

Cindi Guo

Phone : +61 3 8564 5000
Email : CindiGuo@eurofins.com

From: Nazario, Olfa [mailto:]
Sent: Wednesday, 4 October 2017 12:03 PM
To: Mary Makarios
Subject: water samples dispatched from ALS

Hi Mary,

There are some water samples currently being dispatched from ALS.

Please correct sample ID to GW172602-D1.

Also analysis required as per below.

6x pH, TOC(1), TDS(2), major cations (sodium, calcium, magnesium, potassium), major anions (alkalinity as CaCO3, sulphate, chloride), nitrogen (ammonia, nitrate, nitrite), cyanide, TRH(3), PAH(4), phenols, methane, metals(5) and VOCs.

Regards

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Environmental Scientist, Contaminated Land Management

T: +61 3 98612375

Olfa.Nazario@wsp.com

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Phone : +61 8 9251 9600
NATA # 1261 Site # 23736

ABN – 50 005 085 521 e.mail : EnviroSales@eurofins.com web : www.eurofins.com.au

Sample Receipt Advice

Company name:	**WSP Australia P/L MELB**
Contact name:	Olfa Nazario
Project name:	MORDIALLOC
Project ID:	2271345A
COC number:	Not provided
Turn around time:	5 Day
Date/Time received:	Oct 3, 2017 5:41 PM
Eurofins | mgt reference:	**566096**

Sample information

☑ A detailed list of analytes logged into our LIMS, is included in the attached summary table.

☑ All samples have been received as described on the above COC.

☑ COC has been completed correctly.

☑ Attempt to chill was evident.

☑ Appropriately preserved sample containers have been used.

☑ All samples were received in good condition.

☑ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.

☑ Appropriate sample containers have been used.

☑ Sample containers for volatile analysis received with zero headspace.

☒ Some samples have been subcontracted.

N/A Custody Seals intact (if used).

Contact notes

If you have any questions with respect to these samples please contact:

Mary Makarios on Phone : +61 3 8564 5000 or by e.mail: MaryMakarios@eurofins.com

Results will be delivered electronically via e.mail to Olfa Nazario - Olfa.Nazario@wsp.com.

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e.mail : EnviroSales@eurofins.com
web : www.eurofins.com.au

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NATA # 1261
Site # 1254 & 14271

Sydney
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Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
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NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name: WSP Australia P/L MELB
Address: Lvl 15, 28 FreshwaterPlace
Southbank
VIC 3006

Project Name: MORDIALLOC
Project ID: 2271345A

Order No.:
Report #: 566096
Phone: 9861 1111
Fax: 9861 1144

Received: Oct 3, 2017 5:41 PM
Due: Oct 11, 2017
Priority: 5 Day
Contact Name: Olfa Nazario

Eurofins | mgt Analytical Services Manager : Mary Makarios

Sample Detail						Chloride	Cyanide (total)	Methane	pH	Sulphate (as SO4)	Total Alkalinity (as CaCO3)	Total Dissolved Solids	Total Organic Carbon	Polycyclic Aromatic Hydrocarbons	Alkali Metals	IWRG 621 Metals : Metals M12 filtered	Phenols (IWRG 621)	Total Nitrogen Set (as N)	Volatile Organics	Total Recoverable Hydrocarbons
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217																				
Brisbane Laboratory - NATA Site # 20794																				
Perth Laboratory - NATA Site # 23736																				
External Laboratory																				
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**															
1	GW17260-D1	Oct 03, 2017		Water	M17-Oc03408	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Test Counts						1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

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Certificate of Analysis

WSP Australia P/L MELB
Lvl 15, 28 FreshwaterPlace
Southbank
VIC 3006

NATA Accredited
Accreditation Number 1261
Site Number 1254

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Attention: **Olfa Nazario**

Report **566096-W**
Project name MORDIALLOC OSAR BYPASS
Project ID 2271345A
Received Date Oct 03, 2017

Client Sample ID			**GW172602-D1**
Sample Matrix			**Water**
Eurofins | mgt Sample No.			**M17-Oc03408**
Date Sampled			**Oct 03, 2017**
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons - 1999 NEPM Fractions			
TRH C6-C9	0.02	mg/L	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1
TRH C10-36 (Total)	0.1	mg/L	< 0.1
Dissolved Gases			
Methane	0.05	mg/L	< 0.05
Volatile Organics			
1.1-Dichloroethane	0.001	mg/L	< 0.001
1.1-Dichloroethene	0.001	mg/L	< 0.001
1.1.1-Trichloroethane	0.001	mg/L	< 0.001
1.1.1.2-Tetrachloroethane	0.001	mg/L	< 0.001
1.1.2-Trichloroethane	0.001	mg/L	< 0.001
1.1.2.2-Tetrachloroethane	0.001	mg/L	< 0.001
1.2-Dibromoethane	0.001	mg/L	< 0.001
1.2-Dichlorobenzene	0.001	mg/L	< 0.001
1.2-Dichloroethane	0.001	mg/L	< 0.001
1.2-Dichloropropane	0.001	mg/L	< 0.001
1.2.3-Trichloropropane	0.001	mg/L	< 0.001
1.2.4-Trimethylbenzene	0.001	mg/L	< 0.001
1.3-Dichlorobenzene	0.001	mg/L	< 0.001
1.3-Dichloropropane	0.001	mg/L	< 0.001
1.3.5-Trimethylbenzene	0.001	mg/L	< 0.001
1.4-Dichlorobenzene	0.001	mg/L	< 0.001
2-Butanone (MEK)	0.001	mg/L	< 0.001
2-Propanone (Acetone)	0.001	mg/L	< 0.001
4-Chlorotoluene	0.001	mg/L	< 0.001
4-Methyl-2-pentanone (MIBK)	0.001	mg/L	< 0.001
Allyl chloride	0.001	mg/L	< 0.001
Benzene	0.001	mg/L	< 0.001
Bromobenzene	0.001	mg/L	< 0.001
Bromochloromethane	0.001	mg/L	< 0.001
Bromodichloromethane	0.001	mg/L	< 0.001
Bromoform	0.001	mg/L	< 0.001
Bromomethane	0.001	mg/L	0.003

Client Sample ID			GW172602-D1
Sample Matrix			Water
Eurofins | mgt Sample No.			M17-Oc03408
Date Sampled			Oct 03, 2017
Test/Reference	LOR	Unit	
Volatile Organics			
Carbon disulfide	0.001	mg/L	< 0.001
Carbon Tetrachloride	0.001	mg/L	< 0.001
Chlorobenzene	0.001	mg/L	< 0.001
Chloroethane	0.001	mg/L	< 0.001
Chloroform	0.005	mg/L	< 0.005
Chloromethane	0.001	mg/L	< 0.001
cis-1.2-Dichloroethene	0.001	mg/L	< 0.001
cis-1.3-Dichloropropene	0.001	mg/L	< 0.001
Dibromochloromethane	0.001	mg/L	< 0.001
Dibromomethane	0.001	mg/L	< 0.001
Dichlorodifluoromethane	0.001	mg/L	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001
Iodomethane	0.001	mg/L	< 0.001
Isopropyl benzene (Cumene)	0.001	mg/L	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002
Methylene Chloride	0.001	mg/L	< 0.001
o-Xylene	0.001	mg/L	< 0.001
Styrene	0.001	mg/L	< 0.001
Tetrachloroethene	0.001	mg/L	< 0.001
Toluene	0.001	mg/L	< 0.001
trans-1.2-Dichloroethene	0.001	mg/L	< 0.001
trans-1.3-Dichloropropene	0.001	mg/L	< 0.001
Trichloroethene	0.001	mg/L	< 0.001
Trichlorofluoromethane	0.001	mg/L	< 0.001
Vinyl chloride	0.001	mg/L	< 0.001
Xylenes - Total	0.003	mg/L	< 0.003
Total MAH*	0.003	mg/L	< 0.003
Vic EPA IWRG 621 CHC (Total)*	0.005	mg/L	< 0.005
Vic EPA IWRG 621 Other CHC (Total)*	0.005	mg/L	< 0.005
4-Bromofluorobenzene (surr.)	1	%	73
Toluene-d8 (surr.)	1	%	79
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene[N02]	0.01	mg/L	< 0.01
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02
TRH C6-C10	0.02	mg/L	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1
Polycyclic Aromatic Hydrocarbons			
Acenaphthene	0.001	mg/L	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001
Anthracene	0.001	mg/L	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001
Chrysene	0.001	mg/L	< 0.001

Client Sample ID			GW172602-D1
Sample Matrix			Water
Eurofins | mgt Sample No.			M17-Oc03408
Date Sampled			Oct 03, 2017
Test/Reference	LOR	Unit	
Polycyclic Aromatic Hydrocarbons			
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001
Fluoranthene	0.001	mg/L	< 0.001
Fluorene	0.001	mg/L	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001
Naphthalene	0.001	mg/L	< 0.001
Phenanthrene	0.001	mg/L	< 0.001
Pyrene	0.001	mg/L	< 0.001
Total PAH*	0.001	mg/L	< 0.001
2-Fluorobiphenyl (surr.)	1	%	59
p-Terphenyl-d14 (surr.)	1	%	71
Phenols (Halogenated)			
2-Chlorophenol	0.003	mg/L	< 0.003
2.4-Dichlorophenol	0.003	mg/L	< 0.003
2.4.5-Trichlorophenol	0.01	mg/L	< 0.01
2.4.6-Trichlorophenol	0.01	mg/L	< 0.01
2.6-Dichlorophenol	0.003	mg/L	< 0.003
4-Chloro-3-methylphenol	0.01	mg/L	< 0.01
Pentachlorophenol	0.01	mg/L	< 0.01
Tetrachlorophenols - Total	0.03	mg/L	< 0.03
Total Halogenated Phenol*	0.01	mg/L	< 0.01
Phenols (non-Halogenated)			
2-Cyclohexyl-4.6-dinitrophenol	0.1	mg/L	< 0.1
2-Methyl-4.6-dinitrophenol	0.03	mg/L	< 0.03
2-Methylphenol (o-Cresol)	0.003	mg/L	< 0.003
2-Nitrophenol	0.01	mg/L	< 0.01
2.4-Dimethylphenol	0.003	mg/L	< 0.003
2.4-Dinitrophenol	0.03	mg/L	< 0.03
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	< 0.006
4-Nitrophenol	0.03	mg/L	< 0.03
Dinoseb	0.1	mg/L	< 0.1
Phenol	0.003	mg/L	< 0.003
Total Non-Halogenated Phenol*	0.1	mg/L	< 0.1
Phenol-d6 (surr.)	1	%	43
Chloride	1	mg/L	400
Cyanide (total)	0.005	mg/L	< 0.005
Nitrate & Nitrite (as N)	0.05	mg/L	4.7
pH	0.1	pH Units	4.5
Sulphate (as SO4)	5	mg/L	160
Total Dissolved Solids	10	mg/L	860
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	1.7
Total Nitrogen (as N)	0.2	mg/L	6.4
Total Organic Carbon	5	mg/L	13
Alkalinity (speciated)			
Total Alkalinity (as CaCO3)	20	mg/L	< 20
Alkali Metals			
Calcium	0.5	mg/L	5.0
Magnesium	0.5	mg/L	25
Potassium	0.5	mg/L	< 0.5
Sodium	0.5	mg/L	250

Client Sample ID			GW172602-D1
Sample Matrix			**Water**
Eurofins | mgt Sample No.			**M17-Oc03408**
Date Sampled			**Oct 03, 2017**
Test/Reference	LOR	Unit	
Heavy Metals			
Arsenic (filtered)	0.001	mg/L	0.002
Cadmium (filtered)	0.0002	mg/L	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001
Copper (filtered)	0.001	mg/L	< 0.001
Lead (filtered)	0.001	mg/L	0.001
Mercury (filtered)	0.0001	mg/L	< 0.0001
Molybdenum (filtered)	0.005	mg/L	< 0.005
Nickel (filtered)	0.001	mg/L	0.048
Selenium (filtered)	0.001	mg/L	0.001
Silver (filtered)	0.005	mg/L	< 0.005
Tin (filtered)	0.005	mg/L	< 0.005
Zinc (filtered)	0.005	mg/L	0.15

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Oct 09, 2017	7 Day
- Method: LTM-ORG-2010 TRH C6-C36			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Oct 06, 2017	7 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Oct 09, 2017	7 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Dissolved Gases	Melbourne	Oct 06, 2017	7 Day
- Method: LTM-ORG-2070 by Headspace GC-FID			
Volatile Organics	Melbourne	Oct 06, 2017	7 Days
- Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices			
Polycyclic Aromatic Hydrocarbons	Melbourne	Oct 09, 2017	7 Day
- Method: LTM-ORG-2130 PAH and Phenols in Water by GCMS			
Chloride	Melbourne	Oct 06, 2017	28 Day
- Method: LTM-INO-4090 Chloride by Discrete Analyser			
Cyanide (total)	Melbourne	Oct 06, 2017	14 Day
- Method: LTM-INO-4020 Total Free WAD Cyanide by CFA			
pH	Melbourne	Oct 06, 2017	0 Hours
- Method: LTM-GEN-7090 pH in water by ISE			
Sulphate (as SO4)	Melbourne	Oct 06, 2017	28 Day
- Method: LTM-INO-4110 Sulfate by Discrete Analyser			
Total Dissolved Solids	Melbourne	Oct 06, 2017	7 Day
- Method: LTM-INO-4170 Total Dissolved Solids in Water			
Total Organic Carbon	Melbourne	Oct 06, 2017	28 Day
- Method: APHA 5310B Total Organic Carbon			
Alkalinity (speciated)	Melbourne	Oct 06, 2017	14 Day
- Method: APHA 2320 Alkalinity by Titration			
Alkali Metals	Melbourne	Oct 06, 2017	180 Day
- Method: USEPA 6010 Alkali Metals			
IWRG 621 Metals : Metals M12 filtered	Melbourne	Oct 06, 2017	28 Day
- Method: LTM-MET-3040 Metals in Waters by ICP-MS			
Phenols (IWRG 621)			
Phenols (Halogenated)	Melbourne	Oct 09, 2017	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Water by GCMS			
Phenols (non-Halogenated)	Melbourne	Oct 09, 2017	7 Day
- Method: LTM-ORG-2130 PAH and Phenols in Water by GCMS			
Total Nitrogen Set (as N)			
Nitrate & Nitrite (as N)	Melbourne	Oct 06, 2017	28 Day
- Method: APHA 4500-NO3/NO2 Nitrate-Nitrite Nitrogen by FIA			
Total Kjeldahl Nitrogen (as N)	Melbourne	Oct 06, 2017	7 Day
- Method: APHA 4500 TKN			

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Project Name: MORDIALLOC
Project ID: 2271345A

Order No.:
Report #: 566096
Phone: 9861 1111
Fax: 9861 1144

Received: Oct 3, 2017 5:41 PM
Due: Oct 11, 2017
Priority: 5 Day
Contact Name: Olfa Nazario

Eurofins | mgt Analytical Services Manager : Mary Makarios

Sample Detail						Chloride	Cyanide (total)	Methane	pH	Sulphate (as SO4)	Total Alkalinity (as CaCO3)	Total Dissolved Solids	Total Organic Carbon	Polycyclic Aromatic Hydrocarbons	Alkali Metals	IWRG 621 Metals : Metals M12 filtered	Phenols (IWRG 621)	Total Nitrogen Set (as N)	Volatile Organics	Total Recoverable Hydrocarbons
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217																				
Brisbane Laboratory - NATA Site # 20794																				
Perth Laboratory - NATA Site # 23736																				
External Laboratory																				
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**															
1	GW17260-D1	Oct 03, 2017		Water	M17-Oc03408	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Test Counts						1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. All biota results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	Quality Systems Manual ver 5.1 US Department of Defense
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.1 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
Method Blank							
Dissolved Gases							
Methane	mg/L	< 0.05			0.05	Pass	
Method Blank							
Volatile Organics							
1.1-Dichloroethane	mg/L	< 0.001			0.001	Pass	
1.1-Dichloroethene	mg/L	< 0.001			0.001	Pass	
1.1.1-Trichloroethane	mg/L	< 0.001			0.001	Pass	
1.1.1.2-Tetrachloroethane	mg/L	< 0.001			0.001	Pass	
1.1.2-Trichloroethane	mg/L	< 0.001			0.001	Pass	
1.1.2.2-Tetrachloroethane	mg/L	< 0.001			0.001	Pass	
1.2-Dibromoethane	mg/L	< 0.001			0.001	Pass	
1.2-Dichlorobenzene	mg/L	< 0.001			0.001	Pass	
1.2-Dichloroethane	mg/L	< 0.001			0.001	Pass	
1.2-Dichloropropane	mg/L	< 0.001			0.001	Pass	
1.2.3-Trichloropropane	mg/L	< 0.001			0.001	Pass	
1.2.4-Trimethylbenzene	mg/L	< 0.001			0.001	Pass	
1.3-Dichlorobenzene	mg/L	< 0.001			0.001	Pass	
1.3-Dichloropropane	mg/L	< 0.001			0.001	Pass	
1.3.5-Trimethylbenzene	mg/L	< 0.001			0.001	Pass	
1.4-Dichlorobenzene	mg/L	< 0.001			0.001	Pass	
2-Butanone (MEK)	mg/L	< 0.001			0.001	Pass	
2-Propanone (Acetone)	mg/L	< 0.001			0.001	Pass	
4-Chlorotoluene	mg/L	< 0.001			0.001	Pass	
4-Methyl-2-pentanone (MIBK)	mg/L	< 0.001			0.001	Pass	
Allyl chloride	mg/L	< 0.001			0.001	Pass	
Benzene	mg/L	< 0.001			0.001	Pass	
Bromobenzene	mg/L	< 0.001			0.001	Pass	
Bromochloromethane	mg/L	< 0.001			0.001	Pass	
Bromodichloromethane	mg/L	< 0.001			0.001	Pass	
Bromoform	mg/L	< 0.001			0.001	Pass	
Bromomethane	mg/L	< 0.001			0.001	Pass	
Carbon disulfide	mg/L	< 0.001			0.001	Pass	
Carbon Tetrachloride	mg/L	< 0.001			0.001	Pass	
Chlorobenzene	mg/L	< 0.001			0.001	Pass	
Chloroethane	mg/L	< 0.001			0.001	Pass	
Chloroform	mg/L	< 0.005			0.005	Pass	
Chloromethane	mg/L	< 0.001			0.001	Pass	
cis-1.2-Dichloroethene	mg/L	< 0.001			0.001	Pass	
cis-1.3-Dichloropropene	mg/L	< 0.001			0.001	Pass	
Dibromochloromethane	mg/L	< 0.001			0.001	Pass	
Dibromomethane	mg/L	< 0.001			0.001	Pass	
Dichlorodifluoromethane	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
Iodomethane	mg/L	< 0.001			0.001	Pass	
Isopropyl benzene (Cumene)	mg/L	< 0.001			0.001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
Methylene Chloride	mg/L	< 0.001			0.001	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Styrene	mg/L	< 0.001			0.001	Pass	
Tetrachloroethene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
trans-1.2-Dichloroethene	mg/L	< 0.001			0.001	Pass	
trans-1.3-Dichloropropene	mg/L	< 0.001			0.001	Pass	
Trichloroethene	mg/L	< 0.001			0.001	Pass	
Trichlorofluoromethane	mg/L	< 0.001			0.001	Pass	
Vinyl chloride	mg/L	< 0.001			0.001	Pass	
Xylenes - Total	mg/L	< 0.003			0.003	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L	< 0.01			0.01	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/L	< 0.001			0.001	Pass	
Acenaphthylene	mg/L	< 0.001			0.001	Pass	
Anthracene	mg/L	< 0.001			0.001	Pass	
Benz(a)anthracene	mg/L	< 0.001			0.001	Pass	
Benzo(a)pyrene	mg/L	< 0.001			0.001	Pass	
Benzo(b&j)fluoranthene	mg/L	< 0.001			0.001	Pass	
Benzo(g.h.i)perylene	mg/L	< 0.001			0.001	Pass	
Benzo(k)fluoranthene	mg/L	< 0.001			0.001	Pass	
Chrysene	mg/L	< 0.001			0.001	Pass	
Dibenz(a.h)anthracene	mg/L	< 0.001			0.001	Pass	
Fluoranthene	mg/L	< 0.001			0.001	Pass	
Fluorene	mg/L	< 0.001			0.001	Pass	
Indeno(1.2.3-cd)pyrene	mg/L	< 0.001			0.001	Pass	
Naphthalene	mg/L	< 0.001			0.001	Pass	
Phenanthrene	mg/L	< 0.001			0.001	Pass	
Pyrene	mg/L	< 0.001			0.001	Pass	
Method Blank							
Phenols (Halogenated)							
2-Chlorophenol	mg/L	< 0.003			0.003	Pass	
2.4-Dichlorophenol	mg/L	< 0.003			0.003	Pass	
2.4.5-Trichlorophenol	mg/L	< 0.01			0.01	Pass	
2.4.6-Trichlorophenol	mg/L	< 0.01			0.01	Pass	
2.6-Dichlorophenol	mg/L	< 0.003			0.003	Pass	
4-Chloro-3-methylphenol	mg/L	< 0.01			0.01	Pass	
Pentachlorophenol	mg/L	< 0.01			0.01	Pass	
Tetrachlorophenols - Total	mg/L	< 0.03			0.03	Pass	
Method Blank							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	mg/L	< 0.1			0.1	Pass	
2-Methyl-4.6-dinitrophenol	mg/L	< 0.03			0.03	Pass	
2-Methylphenol (o-Cresol)	mg/L	< 0.003			0.003	Pass	
2-Nitrophenol	mg/L	< 0.01			0.01	Pass	
2.4-Dimethylphenol	mg/L	< 0.003			0.003	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
2.4-Dinitrophenol	mg/L	< 0.03			0.03	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/L	< 0.006			0.006	Pass	
4-Nitrophenol	mg/L	< 0.03			0.03	Pass	
Dinoseb	mg/L	< 0.1			0.1	Pass	
Phenol	mg/L	< 0.003			0.003	Pass	
Method Blank							
Chloride	mg/L	< 1			1	Pass	
Cyanide (total)	mg/L	< 0.005			0.005	Pass	
Nitrate & Nitrite (as N)	mg/L	< 0.05			0.05	Pass	
Sulphate (as SO4)	mg/L	< 5			5	Pass	
Total Dissolved Solids	mg/L	< 10			10	Pass	
Total Kjeldahl Nitrogen (as N)	mg/L	< 0.2			0.2	Pass	
Total Organic Carbon	mg/L	< 5			5	Pass	
Method Blank							
Alkalinity (speciated)							
Total Alkalinity (as CaCO3)	mg/L	< 20			20	Pass	
Method Blank							
Alkali Metals							
Calcium	mg/L	< 0.5			0.5	Pass	
Magnesium	mg/L	< 0.5			0.5	Pass	
Potassium	mg/L	< 0.5			0.5	Pass	
Sodium	mg/L	< 0.5			0.5	Pass	
Method Blank							
Heavy Metals							
Arsenic (filtered)	mg/L	< 0.001			0.001	Pass	
Cadmium (filtered)	mg/L	< 0.0002			0.0002	Pass	
Chromium (filtered)	mg/L	< 0.001			0.001	Pass	
Copper (filtered)	mg/L	< 0.001			0.001	Pass	
Lead (filtered)	mg/L	< 0.001			0.001	Pass	
Mercury (filtered)	mg/L	< 0.0001			0.0001	Pass	
Molybdenum (filtered)	mg/L	< 0.005			0.005	Pass	
Nickel (filtered)	mg/L	< 0.001			0.001	Pass	
Selenium (filtered)	mg/L	< 0.001			0.001	Pass	
Silver (filtered)	mg/L	< 0.005			0.005	Pass	
Tin (filtered)	mg/L	< 0.005			0.005	Pass	
Zinc (filtered)	mg/L	< 0.005			0.005	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	96			70-130	Pass	
TRH C10-C14	%	103			70-130	Pass	
LCS - % Recovery							
Dissolved Gases							
Methane	%	81			70-130	Pass	
LCS - % Recovery							
Volatile Organics							
1.1-Dichloroethene	%	94			70-130	Pass	
1.1.1-Trichloroethane	%	83			70-130	Pass	
1.2-Dichlorobenzene	%	121			70-130	Pass	
1.2-Dichloroethane	%	91			70-130	Pass	
Benzene	%	82			70-130	Pass	
Ethylbenzene	%	83			70-130	Pass	
m&p-Xylenes	%	92			70-130	Pass	
Toluene	%	78			70-130	Pass	
Trichloroethene	%	89			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Xylenes - Total	%	91			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	94			70-130	Pass	
TRH C6-C10	%	85			70-130	Pass	
TRH >C10-C16	%	99			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	88			70-130	Pass	
Acenaphthylene	%	97			70-130	Pass	
Anthracene	%	85			70-130	Pass	
Benz(a)anthracene	%	114			70-130	Pass	
Benzo(a)pyrene	%	104			70-130	Pass	
Benzo(b&j)fluoranthene	%	128			70-130	Pass	
Benzo(g.h.i)perylene	%	122			70-130	Pass	
Benzo(k)fluoranthene	%	98			70-130	Pass	
Chrysene	%	104			70-130	Pass	
Dibenz(a.h)anthracene	%	113			70-130	Pass	
Fluoranthene	%	101			70-130	Pass	
Fluorene	%	117			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	112			70-130	Pass	
Naphthalene	%	91			70-130	Pass	
Phenanthrene	%	124			70-130	Pass	
Pyrene	%	104			70-130	Pass	
LCS - % Recovery							
Phenols (Halogenated)							
2-Chlorophenol	%	75			30-130	Pass	
2.4-Dichlorophenol	%	82			30-130	Pass	
2.4.5-Trichlorophenol	%	75			30-130	Pass	
2.4.6-Trichlorophenol	%	63			30-130	Pass	
2.6-Dichlorophenol	%	58			30-130	Pass	
4-Chloro-3-methylphenol	%	76			30-130	Pass	
Pentachlorophenol	%	89			30-130	Pass	
Tetrachlorophenols - Total	%	85			30-130	Pass	
LCS - % Recovery							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	%	94			30-130	Pass	
2-Methyl-4.6-dinitrophenol	%	93			30-130	Pass	
2-Methylphenol (o-Cresol)	%	66			30-130	Pass	
2-Nitrophenol	%	83			30-130	Pass	
2.4-Dimethylphenol	%	33			30-130	Pass	
2.4-Dinitrophenol	%	50			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	%	57			30-130	Pass	
4-Nitrophenol	%	51			30-130	Pass	
Dinoseb	%	105			30-130	Pass	
Phenol	%	44			30-130	Pass	
LCS - % Recovery							
Chloride	%	114			70-130	Pass	
Cyanide (total)	%	102			70-130	Pass	
Nitrate & Nitrite (as N)	%	93			70-130	Pass	
Sulphate (as SO4)	%	124			70-130	Pass	
Total Dissolved Solids	%	99			70-130	Pass	
Total Kjeldahl Nitrogen (as N)	%	118			70-130	Pass	
Total Organic Carbon	%	102			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
LCS - % Recovery							
Alkalinity (speciated)							
Total Alkalinity (as CaCO3)	%	91			70-130	Pass	
LCS - % Recovery							
Alkali Metals							
Calcium	%	106			70-130	Pass	
Magnesium	%	110			70-130	Pass	
Potassium	%	101			70-130	Pass	
Sodium	%	115			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic (filtered)	%	109			80-120	Pass	
Cadmium (filtered)	%	104			80-120	Pass	
Chromium (filtered)	%	101			80-120	Pass	
Copper (filtered)	%	109			80-120	Pass	
Lead (filtered)	%	109			80-120	Pass	
Mercury (filtered)	%	105			70-130	Pass	
Molybdenum (filtered)	%	106			80-120	Pass	
Nickel (filtered)	%	110			80-120	Pass	
Selenium (filtered)	%	97			80-120	Pass	
Silver (filtered)	%	101			80-120	Pass	
Tin (filtered)	%	105			80-120	Pass	
Zinc (filtered)	%	108			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C10-C14	M17-Oc04429	NCP	%	103			70-130	Pass	
Spike - % Recovery									
Dissolved Gases				Result 1					
Methane	M17-Oc02501	NCP	%	70			70-130	Pass	
Spike - % Recovery									
Volatile Organics				Result 1					
1.1-Dichloroethene	M17-Oc11421	NCP	%	109			70-130	Pass	
1.1.1-Trichloroethane	M17-Oc11421	NCP	%	79			70-130	Pass	
1.2-Dichlorobenzene	M17-Oc11421	NCP	%	124			70-130	Pass	
1.2-Dichloroethane	M17-Oc11421	NCP	%	105			70-130	Pass	
Benzene	M17-Oc11421	NCP	%	95			70-130	Pass	
Ethylbenzene	M17-Oc11421	NCP	%	99			70-130	Pass	
m&p-Xylenes	M17-Oc11421	NCP	%	118			70-130	Pass	
o-Xylene	M17-Oc11421	NCP	%	111			70-130	Pass	
Toluene	M17-Oc11421	NCP	%	89			70-130	Pass	
Trichloroethene	M17-Oc11421	NCP	%	105			70-130	Pass	
Xylenes - Total	M17-Oc11421	NCP	%	115			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	M17-Oc11421	NCP	%	109			70-130	Pass	
TRH >C10-C16	M17-Oc04429	NCP	%	101			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	P17-Oc03910	NCP	%	71			70-130	Pass	
Acenaphthylene	P17-Oc03910	NCP	%	80			70-130	Pass	
Anthracene	P17-Oc03910	NCP	%	82			70-130	Pass	
Benz(a)anthracene	P17-Oc03910	NCP	%	98			70-130	Pass	
Benzo(a)pyrene	P17-Oc03910	NCP	%	93			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Benzo(b&j)fluoranthene	P17-Oc03910	NCP	%	104			70-130	Pass	
Benzo(g.h.i)perylene	P17-Oc03910	NCP	%	106			70-130	Pass	
Benzo(k)fluoranthene	P17-Oc03910	NCP	%	88			70-130	Pass	
Chrysene	P17-Oc03910	NCP	%	86			70-130	Pass	
Dibenz(a.h)anthracene	P17-Oc03910	NCP	%	93			70-130	Pass	
Fluoranthene	P17-Oc03910	NCP	%	90			70-130	Pass	
Fluorene	P17-Oc03910	NCP	%	92			70-130	Pass	
Indeno(1.2.3-cd)pyrene	P17-Oc03910	NCP	%	94			70-130	Pass	
Naphthalene	P17-Oc03910	NCP	%	85			70-130	Pass	
Phenanthrene	P17-Oc03910	NCP	%	99			70-130	Pass	
Pyrene	P17-Oc03910	NCP	%	89			70-130	Pass	
Spike - % Recovery									
Phenols (Halogenated)				Result 1					
2-Chlorophenol	P17-Oc03910	NCP	%	83			30-130	Pass	
2.4-Dichlorophenol	P17-Oc03910	NCP	%	76			30-130	Pass	
2.4.5-Trichlorophenol	P17-Oc03910	NCP	%	73			30-130	Pass	
2.4.6-Trichlorophenol	P17-Oc03910	NCP	%	93			30-130	Pass	
2.6-Dichlorophenol	P17-Oc03910	NCP	%	84			30-130	Pass	
4-Chloro-3-methylphenol	P17-Oc03910	NCP	%	83			30-130	Pass	
Pentachlorophenol	P17-Oc03910	NCP	%	79			30-130	Pass	
Tetrachlorophenols - Total	P17-Oc03910	NCP	%	80			30-130	Pass	
Spike - % Recovery									
Phenols (non-Halogenated)				Result 1					
2-Cyclohexyl-4.6-dinitrophenol	P17-Oc03910	NCP	%	75			30-130	Pass	
2-Methyl-4.6-dinitrophenol	P17-Oc03910	NCP	%	83			30-130	Pass	
2-Methylphenol (o-Cresol)	P17-Oc03910	NCP	%	82			30-130	Pass	
2-Nitrophenol	P17-Oc03910	NCP	%	80			30-130	Pass	
2.4-Dimethylphenol	P17-Oc03910	NCP	%	79			30-130	Pass	
2.4-Dinitrophenol	P17-Oc03910	NCP	%	45			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	P17-Oc03910	NCP	%	67			30-130	Pass	
4-Nitrophenol	P17-Oc03910	NCP	%	56			30-130	Pass	
Dinoseb	P17-Oc03910	NCP	%	86			30-130	Pass	
Phenol	P17-Oc03910	NCP	%	52			30-130	Pass	
Spike - % Recovery									
				Result 1					
Chloride	M17-Oc07407	NCP	%	113			70-130	Pass	
Cyanide (total)	M17-Oc02504	NCP	%	71			70-130	Pass	
Nitrate & Nitrite (as N)	M17-Oc01935	NCP	%	93			70-130	Pass	
Sulphate (as SO4)	P17-Oc02333	NCP	%	115			70-130	Pass	
Spike - % Recovery									
Alkali Metals				Result 1					
Calcium	M17-Oc06120	NCP	%	103			70-130	Pass	
Magnesium	M17-Oc06120	NCP	%	98			70-130	Pass	
Potassium	M17-Oc06120	NCP	%	102			70-130	Pass	
Sodium	M17-Oc06120	NCP	%	101			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic (filtered)	B17-Se35379	NCP	%	110			70-130	Pass	
Cadmium (filtered)	B17-Se35379	NCP	%	102			70-130	Pass	
Chromium (filtered)	B17-Se35379	NCP	%	99			70-130	Pass	
Copper (filtered)	B17-Se35379	NCP	%	106			70-130	Pass	
Lead (filtered)	B17-Se35379	NCP	%	105			70-130	Pass	
Mercury (filtered)	B17-Se35379	NCP	%	97			70-130	Pass	
Molybdenum (filtered)	B17-Oc03761	NCP	%	92			75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Nickel (filtered)	B17-Se35379	NCP	%	106			70-130	Pass	
Selenium (filtered)	B17-Se35379	NCP	%	99			70-130	Pass	
Silver (filtered)	B17-Oc03747	NCP	%	84			75-125	Pass	
Tin (filtered)	B17-Oc03747	NCP	%	98			75-125	Pass	
Zinc (filtered)	B17-Se35379	NCP	%	105			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	M17-Oc04484	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH C10-C14	P17-Oc03909	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH C15-C28	P17-Oc03909	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36	P17-Oc03909	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
Dissolved Gases				Result 1	Result 2	RPD			
Methane	M17-Oc08061	NCP	mg/L	0.06	0.08	26	30%	Pass	
Duplicate									
Volatile Organics				Result 1	Result 2	RPD			
1.1-Dichloroethane	M17-Oc04484	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.1-Dichloroethene	M17-Oc04484	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.1.1-Trichloroethane	M17-Oc04484	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.1.1.2-Tetrachloroethane	M17-Oc04484	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.1.2-Trichloroethane	M17-Oc04484	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.1.2.2-Tetrachloroethane	M17-Oc04484	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.2-Dibromoethane	M17-Oc04484	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.2-Dichlorobenzene	M17-Oc04484	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.2-Dichloroethane	M17-Oc04484	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.2-Dichloropropane	M17-Oc04484	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.2.3-Trichloropropane	M17-Oc04484	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.2.4-Trimethylbenzene	M17-Oc04484	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.3-Dichlorobenzene	M17-Oc04484	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.3-Dichloropropane	M17-Oc04484	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.3.5-Trimethylbenzene	M17-Oc04484	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
1.4-Dichlorobenzene	M17-Oc04484	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
2-Butanone (MEK)	M17-Oc04484	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
2-Propanone (Acetone)	M17-Oc04484	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
4-Chlorotoluene	M17-Oc04484	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
4-Methyl-2-pentanone (MIBK)	M17-Oc04484	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Allyl chloride	M17-Oc04484	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzene	M17-Oc04484	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Bromobenzene	M17-Oc04484	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Bromochloromethane	M17-Oc04484	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Bromodichloromethane	M17-Oc04484	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Bromoform	M17-Oc04484	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Bromomethane	M17-Oc04484	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Carbon disulfide	M17-Oc04484	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Carbon Tetrachloride	M17-Oc04484	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Chlorobenzene	M17-Oc04484	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Chloroethane	M17-Oc04484	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Chloroform	M17-Oc04484	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Chloromethane	M17-Oc04484	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
cis-1.2-Dichloroethene	M17-Oc04484	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
cis-1.3-Dichloropropene	M17-Oc04484	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Dibromochloromethane	M17-Oc04484	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Dibromomethane	M17-Oc04484	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	

Duplicate									
Volatile Organics				Result 1	Result 2	RPD			
Dichlorodifluoromethane	M17-Oc04484	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	M17-Oc04484	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Iodomethane	M17-Oc04484	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Isopropyl benzene (Cumene)	M17-Oc04484	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	M17-Oc04484	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Methylene Chloride	M17-Oc04484	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
o-Xylene	M17-Oc04484	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Styrene	M17-Oc04484	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Tetrachloroethene	M17-Oc04484	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	M17-Oc04484	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
trans-1.2-Dichloroethene	M17-Oc04484	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
trans-1.3-Dichloropropene	M17-Oc04484	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Trichloroethene	M17-Oc04484	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Trichlorofluoromethane	M17-Oc04484	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Vinyl chloride	M17-Oc04484	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total	M17-Oc04484	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	M17-Oc04484	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
TRH C6-C10	M17-Oc04484	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH >C10-C16	P17-Oc03909	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH >C16-C34	P17-Oc03909	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH >C34-C40	P17-Oc03909	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	M17-Oc00955	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Acenaphthylene	M17-Oc00955	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Anthracene	M17-Oc00955	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benz(a)anthracene	M17-Oc00955	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(a)pyrene	M17-Oc00955	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(b&j)fluoranthene	M17-Oc00955	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(g.h.i)perylene	M17-Oc00955	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(k)fluoranthene	M17-Oc00955	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Chrysene	M17-Oc00955	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Dibenz(a.h)anthracene	M17-Oc00955	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluoranthene	M17-Oc00955	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluorene	M17-Oc00955	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	M17-Oc00955	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Naphthalene	M17-Oc00955	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Phenanthrene	M17-Oc00955	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Pyrene	M17-Oc00955	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Duplicate									
Phenols (Halogenated)				Result 1	Result 2	RPD			
2-Chlorophenol	M17-Oc00955	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2.4-Dichlorophenol	M17-Oc00955	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2.4.5-Trichlorophenol	M17-Oc00955	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
2.4.6-Trichlorophenol	M17-Oc00955	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
2.6-Dichlorophenol	M17-Oc00955	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
4-Chloro-3-methylphenol	M17-Oc00955	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Pentachlorophenol	M17-Oc00955	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Tetrachlorophenols - Total	M17-Oc00955	NCP	mg/L	< 0.03	< 0.03	<1	30%	Pass	

Duplicate									
Phenols (non-Halogenated)				Result 1	Result 2	RPD			
2-Cyclohexyl-4.6-dinitrophenol	M17-Oc00955	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
2-Methyl-4.6-dinitrophenol	M17-Oc00955	NCP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
2-Methylphenol (o-Cresol)	M17-Oc00955	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2-Nitrophenol	M17-Oc00955	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
2.4-Dimethylphenol	M17-Oc00955	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2.4-Dinitrophenol	M17-Oc00955	NCP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
3&4-Methylphenol (m&p-Cresol)	M17-Oc00955	NCP	mg/L	< 0.006	< 0.006	<1	30%	Pass	
4-Nitrophenol	M17-Oc00955	NCP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
Dinoseb	M17-Oc00955	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Phenol	M17-Oc00955	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Chloride	M17-Oc07406	NCP	mg/L	1000	1000	<1	30%	Pass	
Cyanide (total)	M17-Oc02504	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Nitrate & Nitrite (as N)	M17-Oc01640	NCP	mg/L	6.2	6.3	2.0	30%	Pass	
pH	M17-Oc03408	CP	pH Units	4.5	4.4	pass	30%	Pass	
Sulphate (as SO4)	M17-Oc07406	NCP	mg/L	250	250	<1	30%	Pass	
Total Dissolved Solids	M17-Oc03948	NCP	mg/L	6100	3100	6.0	30%	Pass	
Total Kjeldahl Nitrogen (as N)	M17-Oc03996	NCP	mg/L	390	430	9.8	30%	Pass	
Total Organic Carbon	M17-Oc03118	NCP	mg/L	< 5	< 5	<1	30%	Pass	
Duplicate									
Alkalinity (speciated)				Result 1	Result 2	RPD			
Total Alkalinity (as CaCO3)	M17-Oc03408	CP	mg/L	< 20	< 20	<1	30%	Pass	
Duplicate									
Alkali Metals				Result 1	Result 2	RPD			
Calcium	M17-Oc07499	NCP	mg/L	500	510	1.0	30%	Pass	
Magnesium	M17-Oc04693	NCP	mg/L	4.6	4.6	<1	30%	Pass	
Potassium	M17-Oc04884	NCP	mg/L	10	11	5.0	30%	Pass	
Sodium	M17-Oc04884	NCP	mg/L	38	39	3.0	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic (filtered)	B17-Se35379	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cadmium (filtered)	B17-Se35379	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium (filtered)	B17-Se35379	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper (filtered)	B17-Se35379	NCP	mg/L	0.002	0.002	10	30%	Pass	
Lead (filtered)	B17-Se35379	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Mercury (filtered)	B17-Se35379	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Molybdenum (filtered)	B17-Oc03761	NCP	mg/L	0.008	0.008	4.0	30%	Pass	
Nickel (filtered)	B17-Se35379	NCP	mg/L	0.004	0.004	5.0	30%	Pass	
Selenium (filtered)	B17-Se35379	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Silver (filtered)	B17-Oc03761	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Tin (filtered)	B17-Oc03747	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Zinc (filtered)	B17-Se35379	NCP	mg/L	0.020	0.021	7.0	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs

Authorised By

Mary Makarios	Analytical Services Manager
Alex Petridis	Senior Analyst-Metal (VIC)
Alex Petridis	Senior Analyst-Organic (VIC)
Harry Bacalis	Senior Analyst-Volatile (VIC)
Huong Le	Senior Analyst-Inorganic (VIC)
Joseph Edouard	Senior Analyst-Organic (VIC)



Glenn Jackson
National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1703393**	Page	: 1 of 8
Client	: **PARSONS BRINCKERHOFF AUST P/L**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLFA NAZARIO	Contact	: Steven McGrath
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9600
Project	: 2135645A	Date Samples Received	: 22-Mar-2017 17:10
Order number	: ----	Date Analysis Commenced	: 23-Mar-2017
C-O-C number	: 72853	Issue Date	: 28-Mar-2017 12:18
Sampler	: ----		
Site	: Site 26		
Quote number	: ME-525-16		
No. of samples received	: 4		
No. of samples analysed	: 2		

ilac-MRA NATA
Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EG048G: EM1703308 #2 Poor matrix spike recovery for hexavalent chromium due to matrix effects.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	B17-68167_0.5-0.6	B17-68170_0.6-0.7	----	----	----
			Client sampling date / time	22-Mar-2017 00:00	22-Mar-2017 00:00	----	----	----
Compound	CAS Number	LOR	Unit	EM1703393-003	EM1703393-004	--------	--------	--------
				Result	Result	----	----	----
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	**5.5**	**5.9**	----	----	----
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1	%	**21.1**	**32.4**	----	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	----	----	----
Copper	7440-50-8	5	mg/kg	**7**	**12**	----	----	----
Lead	7439-92-1	5	mg/kg	**10**	**13**	----	----	----
Molybdenum	7439-98-7	2	mg/kg	<2	<2	----	----	----
Nickel	7440-02-0	2	mg/kg	**10**	**11**	----	----	----
Selenium	7782-49-2	5	mg/kg	<5	<5	----	----	----
Silver	7440-22-4	2	mg/kg	<2	<2	----	----	----
Tin	7440-31-5	5	mg/kg	**18**	**9**	----	----	----
Zinc	7440-66-6	5	mg/kg	**5**	**5**	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	----	----	----
EK026SF: Total CN by Segmented Flow Analyser								
Total Cyanide	57-12-5	1	mg/kg	<1	<1	----	----	----
EK040T: Fluoride Total								
Fluoride	16984-48-8	40	mg/kg	**200**	**150**	----	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	----	----	----
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	----	----	----
^ Sum of monocyclic aromatic hydrocarbons	----	0.2	mg/kg	<0.2	<0.2	----	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	B17-68167_0.5-0.6	B17-68170_0.6-0.7	----	----	----
			Client sampling date / time	22-Mar-2017 00:00	22-Mar-2017 00:00	----	----	----
Compound	CAS Number	LOR	Unit	EM1703393-003	EM1703393-004	--------	--------	--------
				Result	Result	----	----	----
EP074H: Naphthalene								
Naphthalene	91-20-3	1	mg/kg	<1	<1	----	----	----
EP074I: Volatile Halogenated Compounds								
Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	<0.02	----	----	----
1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	<0.01	----	----	----
Methylene chloride	75-09-2	0.4	mg/kg	<0.4	<0.4	----	----	----
trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	<0.02	----	----	----
cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	<0.01	----	----	----
Chloroform	67-66-3	0.02	mg/kg	<0.02	<0.02	----	----	----
1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	<0.01	----	----	----
Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	<0.01	----	----	----
1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	<0.02	----	----	----
Trichloroethene	79-01-6	0.02	mg/kg	<0.02	<0.02	----	----	----
1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	<0.04	----	----	----
Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	<0.02	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	<0.01	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	<0.02	----	----	----
Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	<0.02	----	----	----
Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	<0.02	----	----	----
1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	<0.02	----	----	----
1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	<0.02	----	----	----
1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	<0.01	----	----	----
^ Sum of volatile chlorinated hydrocarbons	----	0.01	mg/kg	<0.01	<0.01	----	----	----
^ Sum of other chlorinated hydrocarbons	----	0.01	mg/kg	<0.01	<0.01	----	----	----
EP075A: Phenolic Compounds (Halogenated)								
2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	----	----	----
2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	----	----	----
2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	<0.03	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	<0.03	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	----	----	----
2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	<0.03	----	----	----
2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg	<0.05	<0.05	----	----	----
Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	<0.2	----	----	----
^ Sum of Phenols (halogenated)	----	0.03	mg/kg	<0.03	<0.03	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B17-68167_0.5-0.6	B17-68170_0.6-0.7	----	----	----
				Client sampling date / time	22-Mar-2017 00:00	22-Mar-2017 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EM1703393-003	EM1703393-004	--------	--------	--------
					Result	Result	----	----	----
EP075A: Phenolic Compounds (Halogenated) - Continued									
EP075A: Phenolic Compounds (Non-halogenated)									
Phenol	108-95-2	1	mg/kg		<1	<1	----	----	----
2-Methylphenol	95-48-7	1	mg/kg		<1	<1	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	----	----	----
2-Nitrophenol	88-75-5	1	mg/kg		<1	<1	----	----	----
2.4-Dimethylphenol	105-67-9	1	mg/kg		<1	<1	----	----	----
2.4-Dinitrophenol	51-28-5	5	mg/kg		<5	<5	----	----	----
4-Nitrophenol	100-02-7	5	mg/kg		<5	<5	----	----	----
2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg		<5	<5	----	----	----
Dinoseb	88-85-7	5	mg/kg		<5	<5	----	----	----
2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg		<5	<5	----	----	----
^ Sum of Phenols (non-halogenated)	----	1	mg/kg		<1	<1	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	----	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	----	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	----	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	----	----	----
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg		<0.5	<0.5	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		0.6	0.6	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		1.2	1.2	----	----	----
EP075I: Organochlorine Pesticides									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	B17-68167_0.5-0.6	B17-68170_0.6-0.7	----	----	----
			Client sampling date / time	22-Mar-2017 00:00	22-Mar-2017 00:00	----	----	----
Compound	CAS Number	LOR	Unit	EM1703393-003	EM1703393-004	--------	--------	--------
				Result	Result	----	----	----
EP075l: Organochlorine Pesticides - Continued								
alpha-BHC	319-84-6	0.03	mg/kg	<0.03	<0.03	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	<0.03	----	----	----
beta-BHC	319-85-7	0.03	mg/kg	<0.03	<0.03	----	----	----
gamma-BHC	58-89-9	0.03	mg/kg	<0.03	<0.03	----	----	----
delta-BHC	319-86-8	0.03	mg/kg	<0.03	<0.03	----	----	----
Heptachlor	76-44-8	0.03	mg/kg	<0.03	<0.03	----	----	----
Aldrin	309-00-2	0.03	mg/kg	<0.03	<0.03	----	----	----
Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	<0.03	----	----	----
cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	<0.03	----	----	----
trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	<0.03	----	----	----
Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	<0.03	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	----	----	----
Dieldrin	60-57-1	0.03	mg/kg	<0.03	<0.03	----	----	----
Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	<0.03	----	----	----
Endrin	72-20-8	0.03	mg/kg	<0.03	<0.03	----	----	----
Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	<0.03	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	----	----	----
Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	<0.03	----	----	----
4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	<0.05	----	----	----
Methoxychlor	72-43-5	0.03	mg/kg	<0.03	<0.03	----	----	----
^ Sum of organochlorine pesticides	----	0.03	mg/kg	<0.03	<0.03	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.03	mg/kg	<0.03	<0.03	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	<0.05	<0.05	----	----	----
^ Chlordane	57-74-9	0.03	mg/kg	<0.03	<0.03	----	----	----
^ Sum of other organochlorine pesticides	----	0.03	mg/kg	<0.03	<0.03	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	----	----	----
C10 - C14 Fraction	----	50	mg/kg	<50	<50	----	----	----
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	----	----	----
C15 - C28 Fraction	----	100	mg/kg	<100	<100	----	----	----
C29 - C36 Fraction	----	100	mg/kg	<100	<100	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B17-68167_0.5-0.6	B17-68170_0.6-0.7	----	----	----
				Client sampling date / time	22-Mar-2017 00:00	22-Mar-2017 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EM1703393-003	EM1703393-004	--------	--------	--------
					Result	Result	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	----	----	----
>C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	----	----	----
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	----	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		101	89.5	----	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		72.5	84.1	----	----	----
Toluene-D8	2037-26-5	0.1	%		65.3	77.2	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%		69.8	78.7	----	----	----
EP075S: Acid Extractable Surrogates									
Phenol-d6	13127-88-3	0.025	%		105	91.4	----	----	----
2-Chlorophenol-D4	93951-73-6	0.025	%		96.6	84.4	----	----	----
2.4.6-Tribromophenol	118-79-6	0.025	%		91.1	76.9	----	----	----
EP075T: Base/Neutral Extractable Surrogates									
Nitrobenzene-D5	4165-60-0	0.025	%		68.6	60.6	----	----	----
1.2-Dichlorobenzene-D4	2199-69-1	0.025	%		83.8	74.3	----	----	----
2-Fluorobiphenyl	321-60-8	0.025	%		86.8	75.7	----	----	----
Anthracene-d10	1719-06-8	0.025	%		90.8	81.7	----	----	----
4-Terphenyl-d14	1718-51-0	0.025	%		98.3	87.9	----	----	----

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	CAS Number	Recovery Limits (%) Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	41	122
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	59	119
Toluene-D8	2037-26-5	55	117
4-Bromofluorobenzene	460-00-4	59	123
EP075S: Acid Extractable Surrogates			
Phenol-d6	13127-88-3	28	134
2-Chlorophenol-D4	93951-73-6	27	123
2.4.6-Tribromophenol	118-79-6	25	149
EP075T: Base/Neutral Extractable Surrogates			
Nitrobenzene-D5	4165-60-0	29	125
1.2-Dichlorobenzene-D4	2199-69-1	31	117
2-Fluorobiphenyl	321-60-8	44	136
Anthracene-d10	1719-06-8	53	133
4-Terphenyl-d14	1718-51-0	59	141

ALS Environmental

Automated Guideline Comparison Report

EPA Victoria Publication IWRG 621 (2009) - Table 2: Soil Hazard Categorisation

Work Order	: **EM1703393**	Page	: 1 of 8
Client	: **PARSONS BRINCKERHOFF AUST P/L**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLFA NAZARIO		
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: onazario@pb.com.au	E-mail	: steven.mcgrath@alsglobal.com
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9600
Facsimile	: +61 03 9861 1144	Facsimile	: +61-3-8549 9601
Project	: 2135645A	Date Received	: 22-Mar-2017 17:10
Order number	: ----	Date Analysed	: 23-Mar-2017
C-O-C number	: 72853	Date Issued	: 28-Mar-2017 12:18
No. of samples received	: 4		
No. of samples analysed	: 2	Quote number	: ME-525-16

General Comments

This guideline comparison report **only** provides evaluation of total concentration data against upper limit thresholds for the 'Fill Material', 'C', 'B' Categories in Table 2 of EPA Publication IWRG621.

This guideline comparison report is **NOT** a soil classification report. Classification of soils as Fill Material, Category C, Category B or Category A requires consideration of a number of other factors including preliminary site investigation, sampling density and statistical calculations, as set out in EPA Publication IWRG 702.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

This guideline comparison report only provides evaluation data where chemical parameters specifically listed within the IWRG621 (2009) guideline are analysed by ALS using the **P-16 package in full**.

Red shading is applied where the result is equal to or greater than the guideline upper limit. Red shading is not applied to the 'Summary of Thresholds Reached or Exceeded'.

For the 'Summary of Thresholds Reached or Exceeded' to accurately function, all samples must be analysed and included in the 'Analytical Results' section of the following report. Please verify that all required IDs are listed and analysed.

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Summary of Thresholds Reached or Exceeded

Results for all samples detailed in this report are below the upper threshold limits for Fill Material.

Analytical Results

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Client sample ID: B17-68167_0.5-0.6	Client sample ID: B17-68170_0.6-0.7	Client sample ID: ----	Client sample ID: ----	Client sample ID: ----
			Sampling date/time			22-Mar-2017	22-Mar-2017	----	----	----
						EM1703393-003	EM1703393-004	--------	--------	--------
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	2	12.5	**5.5**	**5.9**	----	----	----
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	2000	<5	<5	----	----	----
Cadmium	EG005T	1	mg/kg	----	400	<1	<1	----	----	----
Copper	EG005T	5	mg/kg	----	20000	**7**	**12**	----	----	----
Lead	EG005T	5	mg/kg	----	6000	**10**	**13**	----	----	----
Molybdenum	EG005T	2	mg/kg	----	4000	<2	<2	----	----	----
Nickel	EG005T	2	mg/kg	----	12000	**10**	**11**	----	----	----
Selenium	EG005T	5	mg/kg	----	200	<5	<5	----	----	----
Silver	EG005T	2	mg/kg	----	720	<2	<2	----	----	----
Zinc	EG005T	5	mg/kg	----	140000	**5**	**5**	----	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	300	<0.1	<0.1	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	2000	<0.5	<0.5	----	----	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	10000	<1	<1	----	----	----
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	40000	**200**	**150**	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	16	<0.2	<0.2	----	----	----
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	240	<0.2	<0.2	----	----	----
EP074I: Volatile Halogenated Compounds										
Vinyl chloride	EP074-UT	0.02	mg/kg	----	4.8	<0.02	<0.02	----	----	----
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	11	<0.02	<0.02	----	----	----
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	50	<0.01	<0.01	----	----	----
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	320	<0.03	<0.03	----	----	----
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	2200	<1	<1	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	20	<0.5	<0.5	----	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Client sample ID: B17-68167_0.5-0.6	Client sample ID: B17-68170_0.6-0.7	Client sample ID: ----	Client sample ID: ----	Client sample ID: ----
						Sampling date/time: 22-Mar-2017	Sampling date/time: 22-Mar-2017	Sampling date/time: ----	Sampling date/time: ----	Sampling date/time: ----
						EM1703393-003	EM1703393-004	--------	--------	--------
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	400	<0.5	<0.5	----	----	----
EP075I: Organochlorine Pesticides										
Heptachlor	EP075-EM	0.03	mg/kg	----	4.8	<0.03	<0.03	----	----	----
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	4.8	<0.03	<0.03	----	----	----
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50	<0.05	<0.05	----	----	----
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	16	<0.03	<0.03	----	----	----
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	50	<0.03	<0.03	----	----	----
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	2600	<10	<10	----	----	----
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	40000	<50	<50	----	----	----

Soil Hazard Categorisation and Management
Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	*Client sample ID* **B17-68167_0.5-0.6**	**B17-68170_0.6-0.7**	----	----	----
			Sampling date/time			22-Mar-2017	22-Mar-2017	----	----	----
						EM1703393-003	**EM1703393-004**	--------	--------	--------
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	4	9	**5.5**	**5.9**	----	----	----
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	500	<5	<5	----	----	----
Cadmium	EG005T	1	mg/kg	----	100	<1	<1	----	----	----
Copper	EG005T	5	mg/kg	----	5000	**7**	**12**	----	----	----
Lead	EG005T	5	mg/kg	----	1500	**10**	**13**	----	----	----
Molybdenum	EG005T	2	mg/kg	----	1000	<2	<2	----	----	----
Nickel	EG005T	2	mg/kg	----	3000	**10**	**11**	----	----	----
Selenium	EG005T	5	mg/kg	----	50	<5	<5	----	----	----
Silver	EG005T	2	mg/kg	----	180	<2	<2	----	----	----
Tin	EG005T	5	mg/kg	----	500	**18**	**9**	----	----	----
Zinc	EG005T	5	mg/kg	----	35000	**5**	**5**	----	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	75	<0.1	<0.1	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	500	<0.5	<0.5	----	----	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	2500	<1	<1	----	----	----
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	10000	**200**	**150**	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	4	<0.2	<0.2	----	----	----
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	70	<0.2	<0.2	----	----	----
EP074I: Volatile Halogenated Compounds										
Vinyl chloride	EP074-UT	0.02	mg/kg	----	1.2	<0.02	<0.02	----	----	----
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	2.8	<0.02	<0.02	----	----	----
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	10	<0.01	<0.01	----	----	----
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	10	<0.03	<0.03	----	----	----
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	560	<1	<1	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	5	<0.5	<0.5	----	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Client sample ID: B17-68167_0.5-0.6	Client sample ID: B17-68170_0.6-0.7	Client sample ID: ----	Client sample ID: ----	Client sample ID: ----
						Sampling date/time: 22-Mar-2017	Sampling date/time: 22-Mar-2017	----	----	----
						EM1703393-003	EM1703393-004	--------	--------	--------
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	100	<0.5	<0.5	----	----	----
EP075I: Organochlorine Pesticides										
Heptachlor	EP075-EM	0.03	mg/kg	----	1.2	<0.03	<0.03	----	----	----
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	1.2	<0.03	<0.03	----	----	----
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50	<0.05	<0.05	----	----	----
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	4	<0.03	<0.03	----	----	----
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	10	<0.03	<0.03	----	----	----
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	650	<10	<10	----	----	----
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	10000	<50	<50	----	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Client sample ID: B17-68167_0.5-0.6	Client sample ID: B17-68170_0.6-0.7	Client sample ID: ----	Client sample ID: ----	Client sample ID: ----
			Sampling date/time			22-Mar-2017	22-Mar-2017	----	----	----
						EM1703393-003	EM1703393-004	--------	--------	--------
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	4	9	**5.5**	**5.9**	----	----	----
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	20	<5	<5	----	----	----
Cadmium	EG005T	1	mg/kg	----	3	<1	<1	----	----	----
Copper	EG005T	5	mg/kg	----	100	**7**	**12**	----	----	----
Lead	EG005T	5	mg/kg	----	300	**10**	**13**	----	----	----
Molybdenum	EG005T	2	mg/kg	----	40	<2	<2	----	----	----
Nickel	EG005T	2	mg/kg	----	60	**10**	**11**	----	----	----
Selenium	EG005T	5	mg/kg	----	10	<5	<5	----	----	----
Silver	EG005T	2	mg/kg	----	10	<2	<2	----	----	----
Tin	EG005T	5	mg/kg	----	50	**18**	**9**	----	----	----
Zinc	EG005T	5	mg/kg	----	200	**5**	**5**	----	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	1	<0.1	<0.1	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	1	<0.5	<0.5	----	----	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	50	<1	<1	----	----	----
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	450	**200**	**150**	----	----	----
EP066: Polychlorinated Biphenyls (PCB)										
Total Polychlorinated biphenyls	EP066-EM	0.1	mg/kg	----	2	<0.1	<0.1	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	1	<0.2	<0.2	----	----	----
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	7	<0.2	<0.2	----	----	----
EP074I: Volatile Halogenated Compounds										
Sum of volatile chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	1	<0.01	<0.01	----	----	----
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	1	<0.03	<0.03	----	----	----
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	60	<1	<1	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	1	<0.5	<0.5	----	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Client sample ID: B17-68167_0.5-0.6	Client sample ID: B17-68170_0.6-0.7	Client sample ID: ----	Client sample ID: ----	Client sample ID: ----
						Sampling date/time: 22-Mar-2017	Sampling date/time: 22-Mar-2017	Sampling date/time: ----	Sampling date/time: ----	Sampling date/time: ----
						EM1703393-003	EM1703393-004	--------	--------	--------
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	20	<0.5	<0.5	----	----	----
EP075I: Organochlorine Pesticides										
Sum of organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	1	<0.03	<0.03	----	----	----
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	100	<10	<10	----	----	----
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	1000	<50	<50	----	----	----

Note: Red shading is applied where the result is equal to or greater than the Guideline Limit.

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EM1703393**	Page	: 1 of 11
Client	: **PARSONS BRINCKERHOFF AUST P/L**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLFA NAZARIO	Contact	: Steven McGrath
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9600
Project	: 2135645A	Date Samples Received	: 22-Mar-2017
Order number	: ----	Date Analysis Commenced	: 23-Mar-2017
C-O-C number	: 72853	Issue Date	: 28-Mar-2017
Sampler	: ----		
Site	: Site 26		
Quote number	: ME-525-16		
No. of samples received	: 4		
No. of samples analysed	: 2		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA001: pH in soil using 0.01M CaCl extract (QC Lot: 807216)									
EM1703308-002	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	7.6	7.7	1.31	0% - 20%
EM1703414-003	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	8.0	8.0	0.00	0% - 20%
EA055: Moisture Content (QC Lot: 805170)									
EM1703339-001	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	19.7	19.0	3.75	0% - 50%
EM1703396-004	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	10.9	9.8	10.3	0% - 50%
EG005T: Total Metals by ICP-AES (QC Lot: 805342)									
EM1703254-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	49	46	6.67	0% - 20%
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	26	24	8.04	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	35	35	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	20	20	0.00	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Tin	7440-31-5	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	45	43	4.24	No Limit
EM1703339-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	16	17	0.00	No Limit
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	7	8	15.2	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG005T: Total Metals by ICP-AES (QC Lot: 805342) - continued									
EM1703339-001	Anonymous	EG005T: Tin	7440-31-5	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	9	11	18.2	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 805343)									
EM1703254-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EM1703339-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EG048: Hexavalent Chromium (Alkaline Digest) (QC Lot: 807366)									
EM1703254-001	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1703455-003	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EK026SF: Total CN by Segmented Flow Analyser (QC Lot: 808257)									
EM1703393-003	B17-68167_0.5-0.6	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.00	No Limit
EM1703462-001	Anonymous	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.00	No Limit
EK040T: Fluoride Total (QC Lot: 807176)									
EM1703390-005	Anonymous	EK040T: Fluoride	16984-48-8	40	mg/kg	60	50	17.2	No Limit
EM1703452-002	Anonymous	EK040T: Fluoride	16984-48-8	40	mg/kg	110	110	0.00	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 806195)									
EM1703393-003	B17-68167_0.5-0.6	EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 805074)									
EM1703339-001	Anonymous	EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074H: Naphthalene (QC Lot: 805074)									
EM1703339-001	Anonymous	EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EP074I: Volatile Halogenated Compounds (QC Lot: 805074)									
EM1703339-001	Anonymous	EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074I: Volatile Halogenated Compounds (QC Lot: 805074) - continued									
EM1703339-001	Anonymous	EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	<0.04	0.00	No Limit
		EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	<0.4	0.00	No Limit
EP075A: Phenolic Compounds (Halogenated) (QC Lot: 806194)									
EM1703393-003	B17-68167_0.5-0.6	EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP075A: Phenolic Compounds (Non-halogenated) (QC Lot: 806194)									
EM1703393-003	B17-68167_0.5-0.6	EP075-EM: Phenol	108-95-2	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	0.00	No Limit
EP075B: Polynuclear Aromatic Hydrocarbons (QC Lot: 806194)									
EM1703393-003	B17-68167_0.5-0.6	EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075B: Polynuclear Aromatic Hydrocarbons (QC Lot: 806194) - continued									
EM1703393-003	B17-68167_0.5-0.6	EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP075I: Organochlorine Pesticides (QC Lot: 806194)									
EM1703393-003	B17-68167_0.5-0.6	EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 805074)									
EM1703339-001	Anonymous	EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 806660)									
EM1703339-001	Anonymous	EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 805074)									
EM1703339-001	Anonymous	EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
		EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 806660)									
EM1703339-001	Anonymous	EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 806660) - continued									
EM1703339-001	Anonymous	EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 805342)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	90.9	79	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	89.3	85	109
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	99.8	84	116
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	94.3	85	107
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	7.9 mg/kg	106	86	112
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	94.2	89	111
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	97.8	93	109
EG005T: Silver	7440-22-4	2	mg/kg	<2	2.1 mg/kg	83.6	80	108
EG005T: Tin	7440-31-5	5	mg/kg	<5	5.2 mg/kg	110	92	114
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	102	89	111
EG035T: Total Recoverable Mercury by FIMS (QCLot: 805343)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	88.9	85	103
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 807366)								
EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	40 mg/kg	82.9	80	120
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 808257)								
EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	20 mg/kg	95.3	89	108
EK040T: Fluoride Total (QCLot: 807176)								
EK040T: Fluoride	16984-48-8	40	mg/kg	<40	950 mg/kg	102	76	108
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 806195)								
EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	0.5 mg/kg	97.6	63	133
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 805074)								
EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	2.1 mg/kg	77.1	74	118
EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	2.1 mg/kg	75.6	70	118
EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2.1 mg/kg	76.2	69	117
EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4.2 mg/kg	75.1	68	116
EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	2.1 mg/kg	80.6	71	117
EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2.1 mg/kg	77.9	70	116
EP074H: Naphthalene (QCLot: 805074)								
EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	0.6 mg/kg	87.5	74	116
EP074I: Volatile Halogenated Compounds (QCLot: 805074)								
EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	0.1 mg/kg	81.3	49	133
EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	0.1 mg/kg	66.8	62	127

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP074I: Volatile Halogenated Compounds (QCLot: 805074) - continued								
EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	2.1 mg/kg	76.7	65	131
EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	0.1 mg/kg	71.1	68	124
EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	0.1 mg/kg	76.9	74	118
EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	0.1 mg/kg	73.8	72	118
EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	0.1 mg/kg	73.7	67	119
EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	0.1 mg/kg	69.6	65	119
EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	0.1 mg/kg	85.8	70	122
EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	0.1 mg/kg	75.0	72	124
EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	0.1 mg/kg	90.5	74	122
EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	0.1 mg/kg	71.5	58	120
EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	0.1 mg/kg	82.1	70	119
EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	0.1 mg/kg	89.7	71	125
EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	0.1 mg/kg	62.3	61	125
EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	0.1 mg/kg	79.1	70	122
EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	0.1 mg/kg	75.0	61	118
EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	0.1 mg/kg	80.7	67	117
EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	0.1 mg/kg	67.8	53	127
EP075A: Phenolic Compounds (Halogenated) (QCLot: 806194)								
EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	0.5 mg/kg	93.5	43	119
EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	0.5 mg/kg	89.5	44	131
EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	0.5 mg/kg	92.0	43	122
EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	0.5 mg/kg	98.5	50	129
EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	0.5 mg/kg	98.2	44	128
EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	0.5 mg/kg	97.9	44	126
EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	0.5 mg/kg	83.0	46	126
EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/5 8-90-2	0.05	mg/kg	<0.05	1 mg/kg	83.8	44	124
EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	1 mg/kg	56.9	36	124
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 806194)								
EP075-EM: Phenol	108-95-2	1	mg/kg	<1	0.5 mg/kg	93.3	41	120
EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	0.5 mg/kg	86.4	41	131
EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	1 mg/kg	90.0	43	130
EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	0.5 mg/kg	91.0	49	130
EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	0.5 mg/kg	76.1	37	119
EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	3 mg/kg	101	23	125
EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	3 mg/kg	123	49	133
EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	3 mg/kg	94.4	47	125
EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	3 mg/kg	97.8	48	123
EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	2.5 mg/kg	92.1	12	132

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 806194)								
EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	0.5 mg/kg	96.3	44	122
EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	0.5 mg/kg	95.7	54	126
EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	0.5 mg/kg	105	46	126
EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	0.5 mg/kg	91.4	51	125
EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	0.5 mg/kg	93.0	57	127
EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	0.5 mg/kg	91.8	55	127
EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	0.5 mg/kg	90.6	57	131
EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	0.5 mg/kg	89.8	57	131
EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	0.5 mg/kg	89.1	56	132
EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	0.5 mg/kg	89.2	58	134
EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	1 mg/kg	94.1	55	133
EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	0.5 mg/kg	92.9	51	135
EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	0.5 mg/kg	104	55	137
EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	0.5 mg/kg	105	54	136
EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	0.5 mg/kg	104	55	137
EP075I: Organochlorine Pesticides (QCLot: 806194)								
EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	0.5 mg/kg	92.5	54	130
EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	0.5 mg/kg	93.0	54	130
EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	0.5 mg/kg	93.6	54	134
EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	0.5 mg/kg	92.7	54	132
EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	0.5 mg/kg	92.9	55	131
EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	0.5 mg/kg	90.7	54	128
EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	0.5 mg/kg	89.5	54	128
EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	0.5 mg/kg	88.9	56	130
EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	0.5 mg/kg	89.3	56	130
EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	0.5 mg/kg	88.6	55	131
EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	0.5 mg/kg	88.0	53	133
EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	89.7	54	130
EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	0.5 mg/kg	89.5	57	133
EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	0.5 mg/kg	62.9	28	174
EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	0.5 mg/kg	92.6	40	148
EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	0.5 mg/kg	90.4	56	138
EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	89.8	57	135
EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	0.5 mg/kg	98.1	51	133
EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	0.5 mg/kg	83.5	51	133
EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	0.5 mg/kg	88.5	48	136
EP080/071: Total Petroleum Hydrocarbons (QCLot: 805074)								
EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	39.6 mg/kg	72.0	69	114

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 806660)								
EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	734 mg/kg	114	72	130
EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	3091 mg/kg	115	77	126
EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	1507 mg/kg	119	75	119
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 805074)								
EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	48.9 mg/kg	71.8	69	112
EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 806660)								
EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	1101 mg/kg	120	75	123
EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	3914 mg/kg	113	77	127
EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	283 mg/kg	101	43	123

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG005T: Total Metals by ICP-AES (QCLot: 805342)							
EM1703308-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	95.9	78	124
		EG005T: Cadmium	7440-43-9	50 mg/kg	102	84	116
		EG005T: Copper	7440-50-8	50 mg/kg	102	82	124
		EG005T: Lead	7439-92-1	50 mg/kg	100	76	124
		EG005T: Molybdenum	7439-98-7	50 mg/kg	89.3	79	117
		EG005T: Nickel	7440-02-0	50 mg/kg	97.1	78	120
		EG005T: Selenium	7782-49-2	50 mg/kg	92.8	71	125
		EG005T: Zinc	7440-66-6	50 mg/kg	100.0	74	128
EG035T: Total Recoverable Mercury by FIMS (QCLot: 805343)							
EM1703308-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	102	76	116
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 807366)							
EM1703308-002	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	40 mg/kg	# 52.1	58	114
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 808257)							
EM1703393-004	B17-68170_0.6-0.7	EK026SF: Total Cyanide	57-12-5	20 mg/kg	103	77	113
EK040T: Fluoride Total (QCLot: 807176)							
EM1703390-010	Anonymous	EK040T: Fluoride	16984-48-8	400 mg/kg	95.5	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 806195)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 806195) - continued							
EM1703393-004	B17-68170_0.6-0.7	EP066-EM: Total Polychlorinated biphenyls	----	0.5 mg/kg	94.2	36	152
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 805074)							
EM1703393-003	B17-68167_0.5-0.6	EP074-UT: Benzene	71-43-2	2 mg/kg	85.6	50	138
		EP074-UT: Toluene	108-88-3	2 mg/kg	81.2	56	134
EP074I: Volatile Halogenated Compounds (QCLot: 805074)							
EM1703393-003	B17-68167_0.5-0.6	EP074-UT: 1.1-Dichloroethene	75-35-4	2 mg/kg	79.9	26	141
		EP074-UT: Trichloroethene	79-01-6	2 mg/kg	76.8	50	134
		EP074-UT: Chlorobenzene	108-90-7	2 mg/kg	81.9	28	134
EP075A: Phenolic Compounds (Halogenated) (QCLot: 806194)							
EM1703393-004	B17-68170_0.6-0.7	EP075-EM: 2-Chlorophenol	95-57-8	0.5 mg/kg	96.3	34	118
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.5 mg/kg	80.0	41	139
		EP075-EM: Pentachlorophenol	87-86-5	0.5 mg/kg	81.0	10	144
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 806194)							
EM1703393-004	B17-68170_0.6-0.7	EP075-EM: Phenol	108-95-2	0.5 mg/kg	101	32	134
		EP075-EM: 2-Nitrophenol	88-75-5	0.5 mg/kg	53.3	13	129
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 806194)							
EM1703393-004	B17-68170_0.6-0.7	EP075-EM: Acenaphthene	83-32-9	0.5 mg/kg	86.6	46	138
		EP075-EM: Pyrene	129-00-0	0.5 mg/kg	91.2	27	169
EP080/071: Total Petroleum Hydrocarbons (QCLot: 805074)							
EM1703393-003	B17-68167_0.5-0.6	EP074-UT: C6 - C9 Fraction	----	28 mg/kg	61.3	43	111
EP080/071: Total Petroleum Hydrocarbons (QCLot: 806660)							
EM1703393-003	B17-68167_0.5-0.6	EP071-EM: C10 - C14 Fraction	----	734 mg/kg	108	53	123
		EP071-EM: C15 - C28 Fraction	----	3091 mg/kg	108	70	124
		EP071-EM: C29 - C36 Fraction	----	1507 mg/kg	110	64	118
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 805074)							
EM1703393-003	B17-68167_0.5-0.6	EP074-UT: C6 - C10 Fraction	C6_C10	33 mg/kg	58.8	42	106
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 806660)							
EM1703393-003	B17-68167_0.5-0.6	EP071-EM: >C10 - C16 Fraction	----	1101 mg/kg	123	65	123
		EP071-EM: >C16 - C34 Fraction	----	3914 mg/kg	106	67	121
		EP071-EM: >C34 - C40 Fraction	----	283 mg/kg	92.6	44	126

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM1703393**	Page	: 1 of 7
Client	: **PARSONS BRINCKERHOFF AUST P/L**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLFA NAZARIO	Telephone	: +61-3-8549 9600
Project	: 2135645A	Date Samples Received	: 22-Mar-2017
Site	: Site 26	Issue Date	: 28-Mar-2017
Sampler	: ----	No. of samples received	: 4
Order number	: ----	No. of samples analysed	: 2

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EG048: Hexavalent Chromium (Alkaline Digest)	EM1703308--002	Anonymous	**Hexavalent Chromium**	18540-29-9	52.1 %	58-114%	**Recovery less than lower data quality objective**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA001: pH in soil using 0.01M CaCl extract							
Soil Glass Jar - Unpreserved (EA001)							
B17-68167_0.5-0.6, B17-68170_0.6-0.7	**22-Mar-2017**	**24-Mar-2017**	29-Mar-2017	✓	**24-Mar-2017**	24-Mar-2017	✓
EA055: Moisture Content							
Soil Glass Jar - Unpreserved (EA055-103)							
B17-68167_0.5-0.6, B17-68170_0.6-0.7	**22-Mar-2017**	**----**	----	----	**23-Mar-2017**	05-Apr-2017	✓
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
B17-68167_0.5-0.6, B17-68170_0.6-0.7	**22-Mar-2017**	**23-Mar-2017**	18-Sep-2017	✓	**24-Mar-2017**	18-Sep-2017	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
B17-68167_0.5-0.6, B17-68170_0.6-0.7	**22-Mar-2017**	**23-Mar-2017**	19-Apr-2017	✓	**24-Mar-2017**	19-Apr-2017	✓
EG048: Hexavalent Chromium (Alkaline Digest)							
Soil Glass Jar - Unpreserved (EG048G)							
B17-68167_0.5-0.6, B17-68170_0.6-0.7	**22-Mar-2017**	**24-Mar-2017**	19-Apr-2017	✓	**27-Mar-2017**	31-Mar-2017	✓
EK026SF: Total CN by Segmented Flow Analyser							
Soil Glass Jar - Unpreserved (EK026SF)							
B17-68167_0.5-0.6, B17-68170_0.6-0.7	**22-Mar-2017**	**24-Mar-2017**	05-Apr-2017	✓	**27-Mar-2017**	07-Apr-2017	✓
EK040T: Fluoride Total							
Soil Glass Jar - Unpreserved (EK040T)							
B17-68167_0.5-0.6, B17-68170_0.6-0.7	**22-Mar-2017**	**24-Mar-2017**	19-Apr-2017	✓	**27-Mar-2017**	19-Apr-2017	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066-EM)							
B17-68167_0.5-0.6, B17-68170_0.6-0.7	**22-Mar-2017**	**23-Mar-2017**	05-Apr-2017	✓	**24-Mar-2017**	02-May-2017	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074A: Monocyclic Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074-UT)							
B17-68167_0.5-0.6, B17-68170_0.6-0.7	**22-Mar-2017**	**23-Mar-2017**	29-Mar-2017	✓	**23-Mar-2017**	29-Mar-2017	✓
EP074H: Naphthalene							
Soil Glass Jar - Unpreserved (EP074-UT)							
B17-68167_0.5-0.6, B17-68170_0.6-0.7	**22-Mar-2017**	**23-Mar-2017**	29-Mar-2017	✓	**23-Mar-2017**	29-Mar-2017	✓
EP074I: Volatile Halogenated Compounds							
Soil Glass Jar - Unpreserved (EP074-UT)							
B17-68167_0.5-0.6, B17-68170_0.6-0.7	**22-Mar-2017**	**23-Mar-2017**	29-Mar-2017	✓	**23-Mar-2017**	29-Mar-2017	✓
EP075A: Phenolic Compounds (Halogenated)							
Soil Glass Jar - Unpreserved (EP075-EM)							
B17-68167_0.5-0.6, B17-68170_0.6-0.7	**22-Mar-2017**	**23-Mar-2017**	05-Apr-2017	✓	**24-Mar-2017**	02-May-2017	✓
EP075A: Phenolic Compounds (Non-halogenated)							
Soil Glass Jar - Unpreserved (EP075-EM)							
B17-68167_0.5-0.6, B17-68170_0.6-0.7	**22-Mar-2017**	**23-Mar-2017**	05-Apr-2017	✓	**24-Mar-2017**	02-May-2017	✓
EP075B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075-EM)							
B17-68167_0.5-0.6, B17-68170_0.6-0.7	**22-Mar-2017**	**23-Mar-2017**	05-Apr-2017	✓	**24-Mar-2017**	02-May-2017	✓
EP075I: Organochlorine Pesticides							
Soil Glass Jar - Unpreserved (EP075-EM)							
B17-68167_0.5-0.6, B17-68170_0.6-0.7	**22-Mar-2017**	**23-Mar-2017**	05-Apr-2017	✓	**24-Mar-2017**	02-May-2017	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074-UT)							
B17-68167_0.5-0.6, B17-68170_0.6-0.7	**22-Mar-2017**	**23-Mar-2017**	29-Mar-2017	✓	**23-Mar-2017**	29-Mar-2017	✓
Soil Glass Jar - Unpreserved (EP071-EM)							
B17-68167_0.5-0.6, B17-68170_0.6-0.7	**22-Mar-2017**	**23-Mar-2017**	05-Apr-2017	✓	**24-Mar-2017**	02-May-2017	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP074-UT)							
B17-68167_0.5-0.6, B17-68170_0.6-0.7	**22-Mar-2017**	**23-Mar-2017**	29-Mar-2017	✓	**23-Mar-2017**	29-Mar-2017	✓
Soil Glass Jar - Unpreserved (EP071-EM)							
B17-68167_0.5-0.6, B17-68170_0.6-0.7	**22-Mar-2017**	**23-Mar-2017**	05-Apr-2017	✓	**24-Mar-2017**	02-May-2017	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055-103	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	2	10	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	4	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	3	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Matrix Spikes (MS) - Continued							
Total Fluoride	EK040T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH in soil using a 0.01M CaCl2 extract	EA001	SOIL	In house: Referenced to Rayment and Higginson 4B1 (mod.) 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Moisture Content	EA055-103	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	SOIL	In house: Referenced to USEPA SW846, Method 3060A. Hexavalent chromium is extracted by alkaline digestion. The digest is determined by photometrically by automatic discrete analyser, following pH adjustment. The instrument uses colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Cyanide by Segmented Flow Analyser	EK026SF	SOIL	In house: Referenced to APHA 4500-CN C / ASTM D7511. Caustic leachates of soil samples are introduced into an automated segmented flow analyser. Complex bound cyanide is decomposed in a continuously flowing stream, at a pH of 3.8, by the effect of UV light. A UV-B lamp (312 nm) and a decomposition spiral of borosilicate glass are used to filter out UV light with a wavelength of less than 290 nm thus preventing the conversion of thiocyanate into cyanide. The hydrogen cyanide present at a pH of 3.8 is separated by gas dialysis. The hydrogen cyanide is then determined photometrically, based on the reaction of cyanide with chloramine-T to form cyanogen chloride. This then reacts with 4-pyridine carboxylic acid and 1,3-dimethylbarbituric acid to give a red colour which is measured at 600 nm. This method is compliant with NEPM (2013) Schedule B(3)
Total Fluoride	EK040T	SOIL	(In-house) Total fluoride is determined by ion specific electrode (ISE) in a solution obtained after a Sodium Carbonate / Potassium Carbonate fusion dissolution.
PCB - VIC EPA 448.3 Screen	EP066-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
TRH - Semivolatile Fraction	EP071-EM	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40.
Volatile Organic Compounds - Ultra-trace	EP074-UT	SOIL	In house: Referenced to USEPA SW 846 - 8260B Extracts are analysed by Purge and Trap, Capillary GC/MS in partial SIM/Scan mode. Quantification is by comparison against an established multi-point calibration curves. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)

Analytical Methods	Method	Matrix	Method Descriptions
Volatile Organic Compounds - Ultra-trace - Summations	EP074-UT-SUM	SOIL	Summation of MAHs and VHCs
Semivolatile Organic Compounds - Waste Classification	EP075-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (2013) Schedule B(3) (Method 502)
SVOC - Waste Classification (Sums)	EP075-EM-SUM	SOIL	Summations for EP075 (EM variation)

Preparation Methods	Method	Matrix	Method Descriptions
NaOH leach for CN in Soils	CN-PR	SOIL	In house: APHA 4500 CN. Samples are extracted by end-over-end tumbling with NaOH.
pH in soil using a 0.01M CaCl2 extract	EA001-PR	SOIL	In house: Referenced to Rayment and Higginson 4B1, 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Alkaline digestion for Hexavalent Chromium	EG048PR	SOIL	In house: Referenced to USEPA SW846, Method 3060A.
Total Fluoride	EK040T-PR	SOIL	In house: Samples are fused with Sodium Carbonate / Potassium Carbonate flux.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils - Ultra-trace.	ORG16-UT	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Tumbler Extraction of Solids - VIC EPA Screen	ORG17A-EM	SOIL	In house: Mechanical agitation (tumbler). 20g of sample, Na2SO4 and surrogate are extracted with 150mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

ALS Environmental

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EM1703393**

Client	: **PARSONS BRINCKERHOFF AUST P/L**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLFA NAZARIO	Contact	: Steven McGrath
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: onazario@pb.com.au	E-mail	: steven.mcgrath@alsglobal.com
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9600
Facsimile	: +61 03 9861 1144	Facsimile	: +61-3-8549 9601
Project	: 2135645A	Page	: 1 of 2
Order number	: ----	Quote number	: EM2016PARBRIVIC0006 (ME-525-16)
C-O-C number	: 72853	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Site 26		
Sampler	:		

Dates

Date Samples Received	: 22-Mar-2017 17:10	Issue Date	: 22-Mar-2017
Client Requested Due Date	: 29-Mar-2017	Scheduled Reporting Date	: **29-Mar-2017**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 5.4°C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 4 / 2

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.
- **Analytical work for this work order will be conducted at ALS Springvale.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA055-103 Moisture Content	SOIL - P-16 IWRG 621
EM1703393-003	22-Mar-2017 00:00	B17-68167_0.5-0.6	✓	✓
EM1703393-004	22-Mar-2017 00:00	B17-68170_0.6-0.7	✓	✓

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) WATER No analysis requested
EM1703393-001	22-Mar-2017 00:00	RB/220317	✓
EM1703393-002	22-Mar-2017 00:00	TB/220317	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ALL INVOICES

- A4 - AU Tax Invoice (INV)	Email	apinvoices@pb.com.au

OLFA NAZARIO

- *AU Certificate of Analysis - NATA (COA)	Email	onazario@pb.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	onazario@pb.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	onazario@pb.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	onazario@pb.com.au
- A4 - AU Tax Invoice (INV)	Email	onazario@pb.com.au
- AU IWRG 621 2009 Guideline Report (COA_GL_IWRG_621)	Email	onazario@pb.com.au
- Chain of Custody (CoC) (COC)	Email	onazario@pb.com.au
- EDI Format - ENMRG (ENMRG)	Email	onazario@pb.com.au
- EDI Format - ESDAT (ESDAT)	Email	onazario@pb.com.au

PARSONS BRINCKERHOFF

ABN 80 078 004 798

White Page - Laboratory Copy
Yellow Page - Project File Copy
Pink Page - Remains in Book

☐ **Adelaide** Level 16, 1 King William Street, GPO Box 398 Adelaide SA 5001 Tel: (08) 8405 4300 Fax: (08) 8405 4301

☐ **Perth** Level 5, 503 Murray Street, PO Box 7181 Cloisters Square WA 6850 Tel: (08) 9489 9700 Fax: (08) 9489 9777

☐ **Brisbane** Level 4, Northbank Plaza 69 Ann Street, GPO Box 2907 Brisbane QLD 4001 Tel: (07) 3854 6200 Fax: (07) 3854 6500

☐ **Singleton** 188 John Street, PO Box 115 Singleton NSW 2330 Tel: (02) 6572 3377 Fax: (02) 6572 4080

☑ **Melbourne** Level 15, 28 Freshwater Place, PO Box 19016 Southbank VIC 3006 Tel: (03) 9861 1111 Fax: (03) 9861 1144

☐ **Newcastle** Level 3, 51-55 Bolton Street, PO Box 1162 Newcastle NSW, 2300 Tel: (02) 4929 8300 Fax: (02) 4929 8382

☐ **Sydney** Level 27, Ernst & Young Centre 680 George Street, GPO Box 5394, Sydney NSW 2001 Tel: (02) 9272 5100 Fax: (02) 9272 5101

Chain of Custody

Order No: 72853

| | | |

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1706039**	Page	: 1 of 10
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLFA NAZARIO	Contact	: Steven McGrath
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9600
Project	: 2135645A	Date Samples Received	: 12-May-2017 16:20
Order number	: ----	Date Analysis Commenced	: 15-May-2017
C-O-C number	: 85403	Issue Date	: 19-May-2017 16:01
Sampler	: A.H, J.LY		
Site	: Site 26 and 27		
Quote number	: ME-525-16		
No. of samples received	: 5		
No. of samples analysed	: 5		

ilac-MRA NATA
Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Nancy Wang	Senior Semivolatile Instrument Chemist	Melbourne Organics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TP17-26-69/0.5	Trip Blank	B17-68301	----	----
			Client sampling date / time	12-May-2017 00:00	12-May-2017 00:00	11-May-2017 00:00	----	----
Compound	CAS Number	LOR	Unit	EM1706039-001	EM1706039-003	EM1706039-004	--------	--------
				Result	Result	Result	----	----
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	**7.2**	----	**4.7**	----	----
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1	%	**8.2**	<1.0	**9.2**	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	**6**	----	<5	----	----
Cadmium	7440-43-9	1	mg/kg	<1	----	<1	----	----
Copper	7440-50-8	5	mg/kg	**14**	----	**11**	----	----
Lead	7439-92-1	5	mg/kg	**20**	----	**9**	----	----
Molybdenum	7439-98-7	2	mg/kg	<2	----	<2	----	----
Nickel	7440-02-0	2	mg/kg	**7**	----	**4**	----	----
Selenium	7782-49-2	5	mg/kg	<5	----	<5	----	----
Silver	7440-22-4	2	mg/kg	<2	----	<2	----	----
Tin	7440-31-5	5	mg/kg	<5	----	<5	----	----
Zinc	7440-66-6	5	mg/kg	**55**	----	**9**	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	<0.1	----	----
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	----	<0.5	----	----
EK026SF: Total CN by Segmented Flow Analyser								
Total Cyanide	57-12-5	1	mg/kg	<1	----	<1	----	----
EK040T: Fluoride Total								
Fluoride	16984-48-8	40	mg/kg	**100**	----	**60**	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	----	<0.1	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	71-43-2	0.2	mg/kg	<0.2	----	<0.2	----	----
Toluene	108-88-3	0.5	mg/kg	<0.5	----	<0.5	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	----	<0.5	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	----	<0.5	----	----
Styrene	100-42-5	0.5	mg/kg	<0.5	----	<0.5	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	----	<0.5	----	----
^ Sum of monocyclic aromatic hydrocarbons	----	0.2	mg/kg	<0.2	----	<0.2	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	----	<0.5	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TP17-26-69/0.5	Trip Blank	B17-68301	----	----
			Client sampling date / time	12-May-2017 00:00	12-May-2017 00:00	11-May-2017 00:00	----	----
Compound	CAS Number	LOR	Unit	EM1706039-001	EM1706039-003	EM1706039-004	--------	--------
				Result	Result	Result	----	----
EP074H: Naphthalene								
Naphthalene	91-20-3	1	mg/kg	<1	----	<1	----	----
EP074I: Volatile Halogenated Compounds								
Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	----	<0.02	----	----
1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	----	<0.01	----	----
Methylene chloride	75-09-2	0.4	mg/kg	<0.4	----	<0.4	----	----
trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	----	<0.02	----	----
cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	----	<0.01	----	----
Chloroform	67-66-3	0.02	mg/kg	<0.02	----	<0.02	----	----
1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	----	<0.01	----	----
Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	----	<0.01	----	----
1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	----	<0.02	----	----
Trichloroethene	79-01-6	0.02	mg/kg	<0.02	----	<0.02	----	----
1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	----	<0.04	----	----
Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	----	<0.02	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	----	<0.01	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	----	<0.02	----	----
Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	----	<0.02	----	----
Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	----	<0.02	----	----
1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	----	<0.02	----	----
1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	----	<0.02	----	----
1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	----	<0.01	----	----
^ Sum of volatile chlorinated hydrocarbons	----	0.01	mg/kg	<0.01	----	<0.01	----	----
^ Sum of other chlorinated hydrocarbons	----	0.01	mg/kg	<0.01	----	<0.01	----	----
EP075A: Phenolic Compounds (Halogenated)								
2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	----	<0.03	----	----
2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	----	<0.03	----	----
2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	----	<0.03	----	----
4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	----	<0.03	----	----
2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	----	<0.05	----	----
2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	----	<0.05	----	----
2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	----	<0.03	----	----
2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg	<0.05	----	<0.05	----	----
Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	----	<0.2	----	----
^ Sum of Phenols (halogenated)	----	0.03	mg/kg	<0.03	----	<0.03	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP17-26-69/0.5	Trip Blank	B17-68301	----	----
				Client sampling date / time	12-May-2017 00:00	12-May-2017 00:00	11-May-2017 00:00	----	----
Compound	CAS Number	LOR	Unit		EM1706039-001	EM1706039-003	EM1706039-004	--------	--------
					Result	Result	Result	----	----
EP075A: Phenolic Compounds (Halogenated) - Continued									
EP075A: Phenolic Compounds (Non-halogenated)									
Phenol	108-95-2	1	mg/kg		<1	----	<1	----	----
2-Methylphenol	95-48-7	1	mg/kg		<1	----	<1	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	----	<1	----	----
2-Nitrophenol	88-75-5	1	mg/kg		<1	----	<1	----	----
2.4-Dimethylphenol	105-67-9	1	mg/kg		<1	----	<1	----	----
2.4-Dinitrophenol	51-28-5	5	mg/kg		<5	----	<5	----	----
4-Nitrophenol	100-02-7	5	mg/kg		<5	----	<5	----	----
2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg		<5	----	<5	----	----
Dinoseb	88-85-7	5	mg/kg		<5	----	<5	----	----
2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg		<5	----	<5	----	----
^ Sum of Phenols (non-halogenated)	----	1	mg/kg		<1	----	<1	----	----
EP075B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	----	<0.5	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	----	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	----	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	----	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	----	<0.5	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	----	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	----	<0.5	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	----	<0.5	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	----	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	----	<0.5	----	----
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg		<0.5	----	<0.5	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	----	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	----	<0.5	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	----	<0.5	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	----	<0.5	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	----	<0.5	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	----	<0.5	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	----	**0.6**	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	----	**1.2**	----	----
EP075I: Organochlorine Pesticides									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP17-26-69/0.5	Trip Blank	B17-68301	----	----
				Client sampling date / time	12-May-2017 00:00	12-May-2017 00:00	11-May-2017 00:00	----	----
Compound	CAS Number	LOR	Unit		EM1706039-001	EM1706039-003	EM1706039-004	--------	--------
					Result	Result	Result	----	----
EP075l: Organochlorine Pesticides - Continued									
alpha-BHC	319-84-6	0.03	mg/kg		<0.03	----	<0.03	----	----
Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg		<0.03	----	<0.03	----	----
beta-BHC	319-85-7	0.03	mg/kg		<0.03	----	<0.03	----	----
gamma-BHC	58-89-9	0.03	mg/kg		<0.03	----	<0.03	----	----
delta-BHC	319-86-8	0.03	mg/kg		<0.03	----	<0.03	----	----
Heptachlor	76-44-8	0.03	mg/kg		<0.03	----	<0.03	----	----
Aldrin	309-00-2	0.03	mg/kg		<0.03	----	<0.03	----	----
Heptachlor epoxide	1024-57-3	0.03	mg/kg		<0.03	----	<0.03	----	----
cis-Chlordane	5103-71-9	0.03	mg/kg		<0.03	----	<0.03	----	----
trans-Chlordane	5103-74-2	0.03	mg/kg		<0.03	----	<0.03	----	----
Endosulfan 1	959-98-8	0.03	mg/kg		<0.03	----	<0.03	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	----	<0.05	----	----
Dieldrin	60-57-1	0.03	mg/kg		<0.03	----	<0.03	----	----
Endrin aldehyde	7421-93-4	0.03	mg/kg		<0.03	----	<0.03	----	----
Endrin	72-20-8	0.03	mg/kg		<0.03	----	<0.03	----	----
Endosulfan 2	33213-65-9	0.03	mg/kg		<0.03	----	<0.03	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	----	<0.05	----	----
Endosulfan sulfate	1031-07-8	0.03	mg/kg		<0.03	----	<0.03	----	----
4.4`-DDT	50-29-3	0.05	mg/kg		<0.05	----	<0.05	----	----
Methoxychlor	72-43-5	0.03	mg/kg		<0.03	----	<0.03	----	----
^ Sum of organochlorine pesticides	----	0.03	mg/kg		<0.03	----	<0.03	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.03	mg/kg		<0.03	----	<0.03	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	----	<0.05	----	----
^ Chlordane	57-74-9	0.03	mg/kg		<0.03	----	<0.03	----	----
^ Sum of other organochlorine pesticides	----	0.03	mg/kg		<0.03	----	<0.03	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		----	<10	----	----	----
C6 - C9 Fraction	----	10	mg/kg		<10	----	<10	----	----
C10 - C14 Fraction	----	50	mg/kg		----	<50	----	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	----	<50	----	----
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	----	<10	----	----
C15 - C28 Fraction	----	100	mg/kg		----	<100	----	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	----	<100	----	----
C29 - C36 Fraction	----	100	mg/kg		----	<100	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP17-26-69/0.5	Trip Blank	B17-68301	----	----
				Client sampling date / time	12-May-2017 00:00	12-May-2017 00:00	11-May-2017 00:00	----	----
Compound	CAS Number	LOR	Unit		EM1706039-001	EM1706039-003	EM1706039-004	--------	--------
					Result	Result	Result	----	----
EP080/071: Total Petroleum Hydrocarbons - Continued									
C29 - C36 Fraction	----	100	mg/kg		<100	----	<100	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		----	<50	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	----	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		----	<10	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		----	<10	----	----	----
>C10 - C16 Fraction	----	50	mg/kg		----	<50	----	----	----
>C10 - C16 Fraction	----	50	mg/kg		<50	----	<50	----	----
>C16 - C34 Fraction	----	100	mg/kg		----	<100	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	----	<100	----	----
>C34 - C40 Fraction	----	100	mg/kg		----	<100	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	----	<100	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		----	<50	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	----	<50	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		----	<50	----	----	----
>C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	----	----	----	----
>C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		----	----	<50	----	----
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	----	<10	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		----	<0.2	----	----	----
Toluene	108-88-3	0.5	mg/kg		----	<0.5	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		----	<0.5	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		----	<0.5	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		----	<0.5	----	----	----
^ Sum of BTEX	----	0.2	mg/kg		----	<0.2	----	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg		----	<0.5	----	----	----
Naphthalene	91-20-3	1	mg/kg		----	<1	----	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**96.8**	----	**97.9**	----	----
EP074S: VOC Surrogates									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP17-26-69/0.5	Trip Blank	B17-68301	----	----
				Client sampling date / time	12-May-2017 00:00	12-May-2017 00:00	11-May-2017 00:00	----	----
Compound	CAS Number	LOR	Unit		EM1706039-001	EM1706039-003	EM1706039-004	--------	--------
					Result	Result	Result	----	----
EP074S: VOC Surrogates - Continued									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		83.4	----	85.2	----	----
Toluene-D8	2037-26-5	0.1	%		82.8	----	83.8	----	----
4-Bromofluorobenzene	460-00-4	0.1	%		93.4	----	91.1	----	----
EP075S: Acid Extractable Surrogates									
Phenol-d6	13127-88-3	0.025	%		77.6	----	87.9	----	----
2-Chlorophenol-D4	93951-73-6	0.025	%		79.0	----	89.1	----	----
2.4.6-Tribromophenol	118-79-6	0.025	%		66.0	----	68.7	----	----
EP075T: Base/Neutral Extractable Surrogates									
Nitrobenzene-D5	4165-60-0	0.025	%		85.3	----	87.8	----	----
1.2-Dichlorobenzene-D4	2199-69-1	0.025	%		78.8	----	83.7	----	----
2-Fluorobiphenyl	321-60-8	0.025	%		88.7	----	90.4	----	----
Anthracene-d10	1719-06-8	0.025	%		89.4	----	91.3	----	----
4-Terphenyl-d14	1718-51-0	0.025	%		80.5	----	79.4	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		----	84.6	----	----	----
Toluene-D8	2037-26-5	0.2	%		----	86.3	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		----	95.4	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	Rinsate Blank	RB/110517	----	----	----
				Client sampling date / time	12-May-2017 00:00	11-May-2017 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EM1706039-002	EM1706039-005	--------	--------	--------
					Result	Result	----	----	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	<0.001	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	<0.0001	----	----	----
Copper	7440-50-8	0.001	mg/L		<0.001	<0.001	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	<0.001	----	----	----
Molybdenum	7439-98-7	0.001	mg/L		<0.001	<0.001	----	----	----
Nickel	7440-02-0	0.001	mg/L		<0.001	<0.001	----	----	----
Selenium	7782-49-2	0.01	mg/L		<0.01	<0.01	----	----	----
Silver	7440-22-4	0.001	mg/L		<0.001	<0.001	----	----	----
Tin	7440-31-5	0.001	mg/L		<0.001	<0.001	----	----	----
Zinc	7440-66-6	0.005	mg/L		<0.005	<0.005	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	----	----	----

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	CAS Number	Recovery Limits (%) Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	41	122
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	59	119
Toluene-D8	2037-26-5	55	117
4-Bromofluorobenzene	460-00-4	59	123
EP075S: Acid Extractable Surrogates			
Phenol-d6	13127-88-3	28	134
2-Chlorophenol-D4	93951-73-6	27	123
2.4.6-Tribromophenol	118-79-6	25	149
EP075T: Base/Neutral Extractable Surrogates			
Nitrobenzene-D5	4165-60-0	29	125
1.2-Dichlorobenzene-D4	2199-69-1	31	117
2-Fluorobiphenyl	321-60-8	44	136
Anthracene-d10	1719-06-8	53	133
4-Terphenyl-d14	1718-51-0	59	141
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	51	125
Toluene-D8	2037-26-5	55	125
4-Bromofluorobenzene	460-00-4	56	124

ALS Environmental

Automated Guideline Comparison Report

EPA Victoria Publication IWRG 621 (2009) - Table 2: Soil Hazard Categorisation

Work Order	: **EM1706039**	Page	: 1 of 8
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLFA NAZARIO		
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: onazario@pb.com.au	E-mail	: steven.mcgrath@alsglobal.com
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9600
Facsimile	: +61 03 9861 1144	Facsimile	: +61-3-8549 9601
Project	: 2135645A	Date Received	: 12-May-2017 16:20
Order number	: ----	Date Analysed	: 15-May-2017
C-O-C number	: 85403	Date Issued	: 19-May-2017 16:03
No. of samples received	: 5		
No. of samples analysed	: 5	Quote number	: ME-525-16

General Comments

This guideline comparison report **only** provides evaluation of total concentration data against upper limit thresholds for the 'Fill Material', 'C', 'B' Categories in Table 2 of EPA Publication IWRG621.

This guideline comparison report is **NOT** a soil classification report. Classification of soils as Fill Material, Category C, Category B or Category A requires consideration of a number of other factors including preliminary site investigation, sampling density and statistical calculations, as set out in EPA Publication IWRG 702.
Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

This guideline comparison report only provides evaluation data where chemical parameters specifically listed within the IWRG621 (2009) guideline are analysed by ALS using the **P-16 package in full**.

Red shading is applied where the result is equal to or greater than the guideline upper limit and/or equal to or lower than the guideline lower limit. Red shading is not applied to the 'Summary of Thresholds Reached or Exceeded'.

For the 'Summary of Thresholds Reached or Exceeded' to accurately function, all samples must be analysed and included in the 'Analytical Results' section of the following report. Please verify that all required IDs are listed and analysed.

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Summary of Thresholds Reached or Exceeded

Results for all samples detailed in this report are below the upper threshold limits for Fill Material.

Analytical Results

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Client sample ID: TP17-26-69/0.5	Client sample ID: B17-68301	Client sample ID: ----	Client sample ID: ----	Client sample ID: ----
						Sampling date/time: 12-May-2017	Sampling date/time: 11-May-2017	Sampling date/time: ----	Sampling date/time: ----	Sampling date/time: ----
						EM1706039-001	EM1706039-004	--------	--------	--------
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	2	12.5	**7.2**	**4.7**	----	----	----
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	2000	**6**	<5	----	----	----
Cadmium	EG005T	1	mg/kg	----	400	<1	<1	----	----	----
Copper	EG005T	5	mg/kg	----	20000	**14**	**11**	----	----	----
Lead	EG005T	5	mg/kg	----	6000	**20**	**9**	----	----	----
Molybdenum	EG005T	2	mg/kg	----	4000	<2	<2	----	----	----
Nickel	EG005T	2	mg/kg	----	12000	**7**	**4**	----	----	----
Selenium	EG005T	5	mg/kg	----	200	<5	<5	----	----	----
Silver	EG005T	2	mg/kg	----	720	<2	<2	----	----	----
Zinc	EG005T	5	mg/kg	----	140000	**55**	**9**	----	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	300	<0.1	<0.1	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	2000	<0.5	<0.5	----	----	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	10000	<1	<1	----	----	----
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	40000	**100**	**60**	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	16	<0.2	<0.2	----	----	----
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	240	<0.2	<0.2	----	----	----
EP074I: Volatile Halogenated Compounds										
Vinyl chloride	EP074-UT	0.02	mg/kg	----	4.8	<0.02	<0.02	----	----	----
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	11	<0.02	<0.02	----	----	----
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	50	<0.01	<0.01	----	----	----
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	320	<0.03	<0.03	----	----	----
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	2200	<1	<1	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	20	<0.5	<0.5	----	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Client sample ID: TP17-26-69/0.5	B17-68301	----	----	----
						Sampling date/time: 12-May-2017	11-May-2017	----	----	----
						EM1706039-001	EM1706039-004	--------	--------	--------
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	400	<0.5	<0.5	----	----	----
EP075I: Organochlorine Pesticides										
Heptachlor	EP075-EM	0.03	mg/kg	----	4.8	<0.03	<0.03	----	----	----
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	4.8	<0.03	<0.03	----	----	----
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50	<0.05	<0.05	----	----	----
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	16	<0.03	<0.03	----	----	----
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	50	<0.03	<0.03	----	----	----
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	2600	<10	<10	----	----	----
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	40000	<50	<50	----	----	----

Soil Hazard Categorisation and Management
Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Client sample ID: TP17-26-69/0.5	B17-68301	----	----	----
						Sampling date/time: 12-May-2017	11-May-2017	----	----	----
						EM1706039-001	EM1706039-004	--------	--------	--------
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	4	9	**7.2**	**4.7**	----	----	----
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	500	**6**	<5	----	----	----
Cadmium	EG005T	1	mg/kg	----	100	<1	<1	----	----	----
Copper	EG005T	5	mg/kg	----	5000	**14**	**11**	----	----	----
Lead	EG005T	5	mg/kg	----	1500	**20**	**9**	----	----	----
Molybdenum	EG005T	2	mg/kg	----	1000	<2	<2	----	----	----
Nickel	EG005T	2	mg/kg	----	3000	**7**	**4**	----	----	----
Selenium	EG005T	5	mg/kg	----	50	<5	<5	----	----	----
Silver	EG005T	2	mg/kg	----	180	<2	<2	----	----	----
Tin	EG005T	5	mg/kg	----	500	<5	<5	----	----	----
Zinc	EG005T	5	mg/kg	----	35000	**55**	**9**	----	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	75	<0.1	<0.1	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	500	<0.5	<0.5	----	----	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	2500	<1	<1	----	----	----
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	10000	**100**	**60**	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	4	<0.2	<0.2	----	----	----
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	70	<0.2	<0.2	----	----	----
EP074I: Volatile Halogenated Compounds										
Vinyl chloride	EP074-UT	0.02	mg/kg	----	1.2	<0.02	<0.02	----	----	----
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	2.8	<0.02	<0.02	----	----	----
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	10	<0.01	<0.01	----	----	----
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	10	<0.03	<0.03	----	----	----
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	560	<1	<1	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	5	<0.5	<0.5	----	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

				Client sample ID	Guideline Lower Limit	Guideline Upper Limit	TP17-26-69/0.5	B17-68301	----	----	----
				Sampling date/time			12-May-2017	11-May-2017	----	----	----
Compound	*Method*	*LOR*	*Unit*				EM1706039-001	EM1706039-004	--------	--------	--------
EP075B: Polynuclear Aromatic Hydrocarbons - Continued											
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	100	<0.5	<0.5	----	----	----
EP075I: Organochlorine Pesticides											
Heptachlor	EP075-EM	0.03	mg/kg	----	1.2	<0.03	<0.03	----	----	----
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	1.2	<0.03	<0.03	----	----	----
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50	<0.05	<0.05	----	----	----
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	4	<0.03	<0.03	----	----	----
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	10	<0.03	<0.03	----	----	----
EP080/071: Total Petroleum Hydrocarbons											
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	650	<10	<10	----	----	----
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	10000	<50	<50	----	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

				Client sample ID		TP17-26-69/0.5	B17-68301	----	----	----
				Sampling date/time		12-May-2017	11-May-2017	----	----	----
Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	EM1706039-001	EM1706039-004	--------	--------	--------
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	4	9	**7.2**	**4.7**	----	----	----
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	20	**6**	<5	----	----	----
Cadmium	EG005T	1	mg/kg	----	3	<1	<1	----	----	----
Copper	EG005T	5	mg/kg	----	100	**14**	**11**	----	----	----
Lead	EG005T	5	mg/kg	----	300	**20**	**9**	----	----	----
Molybdenum	EG005T	2	mg/kg	----	40	<2	<2	----	----	----
Nickel	EG005T	2	mg/kg	----	60	**7**	**4**	----	----	----
Selenium	EG005T	5	mg/kg	----	10	<5	<5	----	----	----
Silver	EG005T	2	mg/kg	----	10	<2	<2	----	----	----
Tin	EG005T	5	mg/kg	----	50	<5	<5	----	----	----
Zinc	EG005T	5	mg/kg	----	200	**55**	**9**	----	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	1	<0.1	<0.1	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	1	<0.5	<0.5	----	----	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	50	<1	<1	----	----	----
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	450	**100**	**60**	----	----	----
EP066: Polychlorinated Biphenyls (PCB)										
Total Polychlorinated biphenyls	EP066-EM	0.1	mg/kg	----	2	<0.1	<0.1	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	1	<0.2	<0.2	----	----	----
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	7	<0.2	<0.2	----	----	----
EP074I: Volatile Halogenated Compounds										
Sum of volatile chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	1	<0.01	<0.01	----	----	----
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	1	<0.03	<0.03	----	----	----
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	60	<1	<1	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	1	<0.5	<0.5	----	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

			Client sample ID	Guideline Lower Limit	Guideline Upper Limit	**TP17-26-69/0.5**	**B17-68301**	**----**	**----**	**----**
			Sampling date/time			12-May-2017	11-May-2017	----	----	----
Compound	*Method*	*LOR*	*Unit*			**EM1706039-001**	**EM1706039-004**	--------	--------	--------
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	20	<0.5	<0.5	**----**	**----**	**----**
EP075I: Organochlorine Pesticides										
Sum of organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	1	<0.03	<0.03	**----**	**----**	**----**
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	100	<10	<10	**----**	**----**	**----**
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	1000	<50	<50	**----**	**----**	**----**

Note: Red shading is applied where the result is equal to or greater than the guideline upper limit and/or equal to or lower than the guideline lower limit.

QUALITY CONTROL REPORT

Work Order	: **EM1706039**	Page	: 1 of 16
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLFA NAZARIO	Contact	: Steven McGrath
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9600
Project	: 2135645A	Date Samples Received	: 12-May-2017
Order number	: ----	Date Analysis Commenced	: 15-May-2017
C-O-C number	: 85403	Issue Date	: 19-May-2017
Sampler	: A.H, J.LY		
Site	: Site 26 and 27		
Quote number	: ME-525-16		
No. of samples received	: 5		
No. of samples analysed	: 5		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Nancy Wang	Senior Semivolatile Instrument Chemist	Melbourne Organics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA001: pH in soil using 0.01M CaCl extract (QC Lot: 889728)									
EM1705976-067	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	6.1	6.0	1.65	0% - 20%
EM1706050-004	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	7.0	7.0	0.00	0% - 20%
EA055: Moisture Content (QC Lot: 887922)									
EM1705997-031	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	14.6	14.6	0.00	0% - 50%
EM1706039-004	B17-68301	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	9.2	8.5	8.22	No Limit
EA055: Moisture Content (QC Lot: 887938)									
EM1706034-004	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	8.2	7.3	10.8	No Limit
EM1706050-002	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	20.2	18.3	10.1	0% - 20%
EG005T: Total Metals by ICP-AES (QC Lot: 889870)									
EM1706039-001	TP17-26-69/0.5	EG005T: Copper	7440-50-8	5	mg/kg	14	7	66.3	No Limit
EM1705976-047	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	8	6	27.1	No Limit
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	6	<5	23.8	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Tin	7440-31-5	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	20	12	44.2	No Limit
EM1706039-001	TP17-26-69/0.5	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	7	8	0.00	No Limit
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG005T: Total Metals by ICP-AES (QC Lot: 889870) - continued									
EM1706039-001	TP17-26-69/0.5	EG005T: Arsenic	7440-38-2	5	mg/kg	6	12	60.1	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	20	38	63.1	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Tin	7440-31-5	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	55	76	31.9	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 889871)									
EM1705976-047	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EM1706039-001	TP17-26-69/0.5	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EG048: Hexavalent Chromium (Alkaline Digest) (QC Lot: 889735)									
EM1705848-039	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1706050-001	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EK026SF: Total CN by Segmented Flow Analyser (QC Lot: 890193)									
EM1706050-003	Anonymous	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.00	No Limit
EM1706035-001	Anonymous	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.00	No Limit
EK040T: Fluoride Total (QC Lot: 887497)									
EM1706039-001	TP17-26-69/0.5	EK040T: Fluoride	16984-48-8	40	mg/kg	100	100	0.00	No Limit
EM1706051-001	Anonymous	EK040T: Fluoride	16984-48-8	40	mg/kg	130	140	0.00	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 887275)									
EM1706039-001	TP17-26-69/0.5	EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EM1706054-007	Anonymous	EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 887166)									
EM1706039-001	TP17-26-69/0.5	EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1706051-002	Anonymous	EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074H: Naphthalene (QC Lot: 887166)									
EM1706039-001	TP17-26-69/0.5	EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EM1706051-002	Anonymous	EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EP074I: Volatile Halogenated Compounds (QC Lot: 887166)									

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074I: Volatile Halogenated Compounds (QC Lot: 887166) - continued									
EM1706039-001	TP17-26-69/0.5	EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	<0.04	0.00	No Limit
		EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	<0.4	0.00	No Limit
EM1706051-002	Anonymous	EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	0.01	0.02	0.00	No Limit
		EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	0.05	0.08	44.9	No Limit
		EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	<0.04	0.00	No Limit
		EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	<0.4	0.00	No Limit
EP075A: Phenolic Compounds (Halogenated) (QC Lot: 887273)									
EM1706039-001	TP17-26-69/0.5	EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075A: Phenolic Compounds (Halogenated) (QC Lot: 887273) - continued									
EM1706039-001	TP17-26-69/0.5	EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EM1706054-007	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP075A: Phenolic Compounds (Non-halogenated) (QC Lot: 887273)									
EM1706039-001	TP17-26-69/0.5	EP075-EM: Phenol	108-95-2	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	0.00	No Limit
EM1706054-007	Anonymous	EP075-EM: Phenol	108-95-2	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075B: Polynuclear Aromatic Hydrocarbons (QC Lot: 887273)									
EM1706039-001	TP17-26-69/0.5	EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1706054-007	Anonymous	EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP075I: Organochlorine Pesticides (QC Lot: 887273)									
EM1706039-001	TP17-26-69/0.5	EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075I: Organochlorine Pesticides (QC Lot: 887273) - continued									
EM1706039-001	TP17-26-69/0.5	EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EM1706054-007	Anonymous	EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 887035)									
EM1705997-011	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EM1705997-047	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 887152)									
EM1705976-067	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	1150	1250	8.23	0% - 50%
		EP071: C29 - C36 Fraction	----	100	mg/kg	220	250	12.8	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	240	260	6.82	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 887152) - continued									
EM1705976-067	Anonymous	EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	1610	1760	8.90	0% - 20%
EM1706001-029	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 887166)									
EM1706039-001	TP17-26-69/0.5	EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EM1706051-002	Anonymous	EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 887274)									
EM1706039-001	TP17-26-69/0.5	EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EM1706054-007	Anonymous	EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 887035)									
EM1705997-011	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EM1705997-047	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 887152)									
EM1705976-067	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	1120	1230	9.36	0% - 50%
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	390	410	6.13	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	1510	1640	8.25	0% - 20%
EM1706001-029	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 887166)									
EM1706039-001	TP17-26-69/0.5	EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
		EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	0.00	No Limit
EM1706051-002	Anonymous	EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
		EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 887274)									
EM1706039-001	TP17-26-69/0.5	EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EM1706054-007	Anonymous	EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080: BTEXN (QC Lot: 887035)									
EM1705997-011	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EM1705997-047	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG020T: Total Metals by ICP-MS (QC Lot: 889801)									
EM1705975-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.002	0.002	0.00	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.001	0.002	0.00	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.002	0.002	0.00	No Limit
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	0.005	0.005	0.00	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.004	0.004	0.00	No Limit
		EG020A-T: Tin	7440-31-5	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.010	0.010	0.00	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EM1706039-002	Rinsate Blank	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Tin	7440-31-5	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.00	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EG020T: Total Metals by ICP-MS (QC Lot: 889803)									
EM1706039-002	Rinsate Blank	EG020B-T: Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 889882)									
EM1705980-015	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 889870)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	99.7	79	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	92.2	85	109
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	92.9	84	116
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	96.2	85	107
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	7.9 mg/kg	94.8	86	112
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	94.3	89	111
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	102	93	109
EG005T: Silver	7440-22-4	2	mg/kg	<2	2.1 mg/kg	82.7	80	108
EG005T: Tin	7440-31-5	5	mg/kg	<5	5.2 mg/kg	96.0	92	114
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	98.3	89	111
EG035T: Total Recoverable Mercury by FIMS (QCLot: 889871)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	86.4	85	103
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 889735)								
EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	40 mg/kg	80.1	80	120
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 890193)								
EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	20 mg/kg	93.4	89	108
EK040T: Fluoride Total (QCLot: 887497)								
EK040T: Fluoride	16984-48-8	40	mg/kg	<40	950 mg/kg	92.2	76	108
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 887275)								
EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	112	63	133
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 887166)								
EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	2.1 mg/kg	87.9	74	118
EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	2.1 mg/kg	88.1	70	118
EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2.1 mg/kg	89.5	69	117
EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4.2 mg/kg	88.4	68	116
EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	2.1 mg/kg	92.9	71	117
EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2.1 mg/kg	87.6	70	116
EP074H: Naphthalene (QCLot: 887166)								
EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	0.6 mg/kg	89.9	74	116
EP074I: Volatile Halogenated Compounds (QCLot: 887166)								
EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	0.1 mg/kg	87.8	49	133
EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	0.1 mg/kg	86.2	62	127

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP074I: Volatile Halogenated Compounds (QCLot: 887166) - continued								
EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	2.1 mg/kg	83.7	65	131
EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	0.1 mg/kg	86.8	68	124
EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	0.1 mg/kg	86.1	74	118
EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	0.1 mg/kg	84.6	72	118
EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	0.1 mg/kg	84.6	67	119
EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	0.1 mg/kg	85.3	65	119
EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	0.1 mg/kg	95.3	70	122
EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	0.1 mg/kg	85.6	72	124
EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	0.1 mg/kg	93.7	74	122
EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	0.1 mg/kg	86.8	58	120
EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	0.1 mg/kg	87.2	70	119
EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	0.1 mg/kg	93.3	71	125
EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	0.1 mg/kg	74.2	61	125
EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	0.1 mg/kg	91.0	70	122
EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	0.1 mg/kg	91.7	61	118
EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	0.1 mg/kg	95.2	67	117
EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	0.1 mg/kg	104	53	127
EP075A: Phenolic Compounds (Halogenated) (QCLot: 887273)								
EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	0.5 mg/kg	85.2	43	119
EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	0.5 mg/kg	97.0	44	131
EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	0.5 mg/kg	81.3	43	122
EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	0.5 mg/kg	98.3	50	129
EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	0.5 mg/kg	70.4	44	128
EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	0.5 mg/kg	103	44	126
EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	0.5 mg/kg	54.2	46	126
EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/5 8-90-2	0.05	mg/kg	<0.05	1 mg/kg	69.1	44	124
EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	1 mg/kg	37.0	36	124
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 887273)								
EP075-EM: Phenol	108-95-2	1	mg/kg	<1	0.5 mg/kg	108	41	120
EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	0.5 mg/kg	69.0	41	131
EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	1 mg/kg	91.6	43	130
EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	0.5 mg/kg	104	49	130
EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	0.5 mg/kg	71.0	37	119
EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	3 mg/kg	53.9	23	125
EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	3 mg/kg	85.3	49	133
EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	3 mg/kg	87.7	47	125
EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	3 mg/kg	110	48	123
EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	2.5 mg/kg	85.8	12	132

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 887273)								
EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	0.5 mg/kg	90.3	44	122
EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	0.5 mg/kg	92.4	54	126
EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	0.5 mg/kg	92.2	46	126
EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	0.5 mg/kg	94.4	51	125
EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	0.5 mg/kg	89.8	57	127
EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	0.5 mg/kg	104	55	127
EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	0.5 mg/kg	94.2	57	131
EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	0.5 mg/kg	97.3	57	131
EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	0.5 mg/kg	84.5	56	132
EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	0.5 mg/kg	92.7	58	134
EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	1 mg/kg	92.0	55	133
EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	0.5 mg/kg	91.8	51	135
EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	0.5 mg/kg	83.3	55	137
EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	0.5 mg/kg	101	54	136
EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	0.5 mg/kg	97.1	55	137
EP075I: Organochlorine Pesticides (QCLot: 887273)								
EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	0.5 mg/kg	93.2	54	130
EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	0.5 mg/kg	93.2	54	130
EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	0.5 mg/kg	87.1	54	134
EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	0.5 mg/kg	100	54	132
EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	0.5 mg/kg	87.2	55	131
EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	0.5 mg/kg	87.2	54	128
EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	0.5 mg/kg	87.2	54	128
EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	0.5 mg/kg	83.1	56	130
EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	0.5 mg/kg	84.3	56	130
EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	0.5 mg/kg	84.3	55	131
EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	0.5 mg/kg	85.6	53	133
EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	87.8	54	130
EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	0.5 mg/kg	84.7	57	133
EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	0.5 mg/kg	101	28	174
EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	0.5 mg/kg	61.9	40	148
EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	0.5 mg/kg	88.6	56	138
EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	91.4	57	135
EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	0.5 mg/kg	102	51	133
EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	0.5 mg/kg	76.9	51	133
EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	0.5 mg/kg	85.5	48	136
EP080/071: Total Petroleum Hydrocarbons (QCLot: 887035)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	36 mg/kg	88.3	70	127

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 887152)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	734 mg/kg	99.8	65	131
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	3091 mg/kg	101	70	126
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	1507 mg/kg	100	70	122
EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 887166)								
EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	39.6 mg/kg	83.6	69	114
EP080/071: Total Petroleum Hydrocarbons (QCLot: 887274)								
EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	734 mg/kg	103	72	130
EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	3091 mg/kg	106	77	126
EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	1507 mg/kg	108	75	119
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 887035)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	45 mg/kg	86.6	68	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 887152)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	1101 mg/kg	102	68	130
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	3914 mg/kg	101	72	116
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	283 mg/kg	93.0	38	132
EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 887166)								
EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	48.9 mg/kg	82.6	69	112
EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 887274)								
EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	1101 mg/kg	106	75	123
EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	3914 mg/kg	108	77	127
EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	283 mg/kg	105	43	123
EP080: BTEXN (QCLot: 887035)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	2 mg/kg	94.1	74	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	2 mg/kg	96.2	77	125
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2 mg/kg	91.5	73	125
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4 mg/kg	95.9	77	128
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2 mg/kg	101	81	128
EP080: Naphthalene	91-20-3	1	mg/kg	<1	0.5 mg/kg	99.4	66	130

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 889801)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 889801) - continued								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	106	94	113
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	101	88	110
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	102	87	112
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	104	88	113
EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	109	89	114
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	102	91	111
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	102	86	110
EG020A-T: Tin	7440-31-5	0.001	mg/L	<0.001	0.1 mg/L	108	88	113
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	105	88	112
EG020T: Total Metals by ICP-MS (QCLot: 889803)								
EG020B-T: Silver	7440-22-4	0.001	mg/L	<0.001	0.02 mg/L	110	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 889882)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	103	87	113

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG005T: Total Metals by ICP-AES (QCLot: 889870)							
EM1705976-052	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	103	78	124
		EG005T: Cadmium	7440-43-9	50 mg/kg	97.8	84	116
		EG005T: Copper	7440-50-8	50 mg/kg	96.6	82	124
		EG005T: Lead	7439-92-1	50 mg/kg	96.3	76	124
		EG005T: Molybdenum	7439-98-7	50 mg/kg	94.9	79	117
		EG005T: Nickel	7440-02-0	50 mg/kg	97.9	78	120
		EG005T: Selenium	7782-49-2	50 mg/kg	95.7	71	125
		EG005T: Zinc	7440-66-6	50 mg/kg	99.4	74	128
EG035T: Total Recoverable Mercury by FIMS (QCLot: 889871)							
EM1705976-052	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	95.2	76	116
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 889735)							
EM1705848-041	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	40 mg/kg	60.0	58	114
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 890193)							
EM1705976-067	Anonymous	EK026SF: Total Cyanide	57-12-5	20 mg/kg	89.0	77	113
EK040T: Fluoride Total (QCLot: 887497)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EK040T: Fluoride Total (QCLot: 887497) - continued							
EM1706039-004	B17-68301	EK040T: Fluoride	16984-48-8	400 mg/kg	88.2	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 887275)							
EM1706051-001	Anonymous	EP066-EM: Total Polychlorinated biphenyls	----	1 mg/kg	128	36	152
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 887166)							
EM1706039-004	B17-68301	EP074-UT: Benzene	71-43-2	2 mg/kg	69.4	50	138
		EP074-UT: Toluene	108-88-3	2 mg/kg	70.0	56	134
EP074I: Volatile Halogenated Compounds (QCLot: 887166)							
EM1706039-004	B17-68301	EP074-UT: 1.1-Dichloroethene	75-35-4	2 mg/kg	66.2	26	141
		EP074-UT: Trichloroethene	79-01-6	2 mg/kg	67.0	50	134
		EP074-UT: Chlorobenzene	108-90-7	2 mg/kg	77.7	28	134
EP075A: Phenolic Compounds (Halogenated) (QCLot: 887273)							
EM1706039-004	B17-68301	EP075-EM: 2-Chlorophenol	95-57-8	0.5 mg/kg	80.5	34	118
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.5 mg/kg	73.8	41	139
		EP075-EM: Pentachlorophenol	87-86-5	0.5 mg/kg	31.1	10	144
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 887273)							
EM1706039-004	B17-68301	EP075-EM: Phenol	108-95-2	0.5 mg/kg	84.9	32	134
		EP075-EM: 2-Nitrophenol	88-75-5	0.5 mg/kg	74.0	13	129
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 887273)							
EM1706039-004	B17-68301	EP075-EM: Acenaphthene	83-32-9	0.5 mg/kg	89.4	46	138
		EP075-EM: Pyrene	129-00-0	0.5 mg/kg	101	27	169
EP080/071: Total Petroleum Hydrocarbons (QCLot: 887035)							
EM1705997-008	Anonymous	EP080: C6 - C9 Fraction	----	28 mg/kg	64.7	42	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 887152)							
EM1705976-067	Anonymous	EP071: C10 - C14 Fraction	----	734 mg/kg	83.3	53	123
		EP071: C15 - C28 Fraction	----	3091 mg/kg	85.1	70	124
		EP071: C29 - C36 Fraction	----	1507 mg/kg	94.8	64	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 887166)							
EM1706039-004	B17-68301	EP074-UT: C6 - C9 Fraction	----	28 mg/kg	66.6	43	111
EP080/071: Total Petroleum Hydrocarbons (QCLot: 887274)							
EM1706041-005	Anonymous	EP071-EM: C10 - C14 Fraction	----	734 mg/kg	107	53	123
		EP071-EM: C15 - C28 Fraction	----	3091 mg/kg	106	70	124
		EP071-EM: C29 - C36 Fraction	----	1507 mg/kg	108	64	118
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 887035)							
EM1705997-008	Anonymous	EP080: C6 - C10 Fraction	C6_C10	33 mg/kg	62.2	39	129
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 887152)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 887152) - continued							
EM1705976-067	Anonymous	EP071: >C10 - C16 Fraction	----	1101 mg/kg	85.4	65	123
		EP071: >C16 - C34 Fraction	----	3914 mg/kg	89.2	67	121
		EP071: >C34 - C40 Fraction	----	283 mg/kg	97.0	44	126
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 887166)							
EM1706039-004	B17-68301	EP074-UT: C6 - C10 Fraction	C6_C10	33 mg/kg	65.1	42	106
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 887274)							
EM1706041-005	Anonymous	EP071-EM: >C10 - C16 Fraction	----	1101 mg/kg	108	65	123
		EP071-EM: >C16 - C34 Fraction	----	3914 mg/kg	109	67	121
		EP071-EM: >C34 - C40 Fraction	----	283 mg/kg	104	44	126
EP080: BTEXN (QCLot: 887035)							
EM1705997-008	Anonymous	EP080: Benzene	71-43-2	2 mg/kg	74.7	50	136
		EP080: Toluene	108-88-3	2 mg/kg	78.0	56	139

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 889801)							
EM1705975-001	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	99.9	82	118
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	94.1	75	129
		EG020A-T: Copper	7440-50-8	1 mg/L	94.7	81	115
		EG020A-T: Lead	7439-92-1	1 mg/L	103	83	121
		EG020A-T: Nickel	7440-02-0	1 mg/L	96.2	80	118
		EG020A-T: Zinc	7440-66-6	1 mg/L	97.2	74	116
EG035T: Total Recoverable Mercury by FIMS (QCLot: 889882)							
EM1705980-016	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	98.8	70	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM1706039**	Page	: 1 of 9
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLFA NAZARIO	Telephone	: +61-3-8549 9600
Project	: 2135645A	Date Samples Received	: 12-May-2017
Site	: Site 26 and 27	Issue Date	: 19-May-2017
Sampler	: A.H, J.LY	No. of samples received	: 5
Order number	: ----	No. of samples analysed	: 5

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA001: pH in soil using 0.01M CaCl extract							
Soil Glass Jar - Unpreserved (EA001) B17-68301	**11-May-2017**	**17-May-2017**	18-May-2017	✓	**17-May-2017**	17-May-2017	✓
Soil Glass Jar - Unpreserved (EA001) TP17-26-69/0.5	**12-May-2017**	**17-May-2017**	19-May-2017	✓	**17-May-2017**	17-May-2017	✓
EA055: Moisture Content							
Soil Glass Jar - Unpreserved (EA055-103) B17-68301	**11-May-2017**	**----**	----	----	**15-May-2017**	25-May-2017	✓
Soil Glass Jar - Unpreserved (EA055-103) TP17-26-69/0.5, Trip Blank	**12-May-2017**	**----**	----	----	**15-May-2017**	26-May-2017	✓
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T) B17-68301	**11-May-2017**	**17-May-2017**	07-Nov-2017	✓	**18-May-2017**	07-Nov-2017	✓
Soil Glass Jar - Unpreserved (EG005T) TP17-26-69/0.5	**12-May-2017**	**17-May-2017**	08-Nov-2017	✓	**18-May-2017**	08-Nov-2017	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T) B17-68301	**11-May-2017**	**17-May-2017**	08-Jun-2017	✓	**19-May-2017**	08-Jun-2017	✓
Soil Glass Jar - Unpreserved (EG035T) TP17-26-69/0.5	**12-May-2017**	**17-May-2017**	09-Jun-2017	✓	**19-May-2017**	09-Jun-2017	✓
EG048: Hexavalent Chromium (Alkaline Digest)							
Soil Glass Jar - Unpreserved (EG048G) B17-68301	**11-May-2017**	**16-May-2017**	08-Jun-2017	✓	**17-May-2017**	23-May-2017	✓
Soil Glass Jar - Unpreserved (EG048G) TP17-26-69/0.5	**12-May-2017**	**16-May-2017**	09-Jun-2017	✓	**17-May-2017**	23-May-2017	✓
EK026SF: Total CN by Segmented Flow Analyser							
Soil Glass Jar - Unpreserved (EK026SF) B17-68301	**11-May-2017**	**16-May-2017**	25-May-2017	✓	**17-May-2017**	30-May-2017	✓
Soil Glass Jar - Unpreserved (EK026SF) TP17-26-69/0.5	**12-May-2017**	**16-May-2017**	26-May-2017	✓	**17-May-2017**	30-May-2017	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EK040T: Fluoride Total							
Soil Glass Jar - Unpreserved (EK040T) B17-68301	**11-May-2017**	**15-May-2017**	08-Jun-2017	✓	**17-May-2017**	08-Jun-2017	✓
Soil Glass Jar - Unpreserved (EK040T) TP17-26-69/0.5	**12-May-2017**	**15-May-2017**	09-Jun-2017	✓	**17-May-2017**	09-Jun-2017	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066-EM) B17-68301	**11-May-2017**	**15-May-2017**	25-May-2017	✓	**16-May-2017**	24-Jun-2017	✓
Soil Glass Jar - Unpreserved (EP066-EM) TP17-26-69/0.5	**12-May-2017**	**15-May-2017**	26-May-2017	✓	**16-May-2017**	24-Jun-2017	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074-UT) B17-68301	**11-May-2017**	**15-May-2017**	18-May-2017	✓	**17-May-2017**	18-May-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT) TP17-26-69/0.5	**12-May-2017**	**15-May-2017**	19-May-2017	✓	**17-May-2017**	19-May-2017	✓
EP074H: Naphthalene							
Soil Glass Jar - Unpreserved (EP074-UT) B17-68301	**11-May-2017**	**15-May-2017**	18-May-2017	✓	**17-May-2017**	18-May-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT) TP17-26-69/0.5	**12-May-2017**	**15-May-2017**	19-May-2017	✓	**17-May-2017**	19-May-2017	✓
EP074I: Volatile Halogenated Compounds							
Soil Glass Jar - Unpreserved (EP074-UT) B17-68301	**11-May-2017**	**15-May-2017**	18-May-2017	✓	**17-May-2017**	18-May-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT) TP17-26-69/0.5	**12-May-2017**	**15-May-2017**	19-May-2017	✓	**17-May-2017**	19-May-2017	✓
EP075A: Phenolic Compounds (Halogenated)							
Soil Glass Jar - Unpreserved (EP075-EM) B17-68301	**11-May-2017**	**15-May-2017**	25-May-2017	✓	**17-May-2017**	24-Jun-2017	✓
Soil Glass Jar - Unpreserved (EP075-EM) TP17-26-69/0.5	**12-May-2017**	**15-May-2017**	26-May-2017	✓	**17-May-2017**	24-Jun-2017	✓
EP075A: Phenolic Compounds (Non-halogenated)							
Soil Glass Jar - Unpreserved (EP075-EM) B17-68301	**11-May-2017**	**15-May-2017**	25-May-2017	✓	**17-May-2017**	24-Jun-2017	✓
Soil Glass Jar - Unpreserved (EP075-EM) TP17-26-69/0.5	**12-May-2017**	**15-May-2017**	26-May-2017	✓	**17-May-2017**	24-Jun-2017	✓
EP075B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075-EM) B17-68301	**11-May-2017**	**15-May-2017**	25-May-2017	✓	**17-May-2017**	24-Jun-2017	✓
Soil Glass Jar - Unpreserved (EP075-EM) TP17-26-69/0.5	**12-May-2017**	**15-May-2017**	26-May-2017	✓	**17-May-2017**	24-Jun-2017	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075(I): Organochlorine Pesticides							
Soil Glass Jar - Unpreserved (EP075-EM) B17-68301	**11-May-2017**	**15-May-2017**	25-May-2017	✓	**17-May-2017**	24-Jun-2017	✓
Soil Glass Jar - Unpreserved (EP075-EM) TP17-26-69/0.5	**12-May-2017**	**15-May-2017**	26-May-2017	✓	**17-May-2017**	24-Jun-2017	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP071-EM) B17-68301	**11-May-2017**	**15-May-2017**	25-May-2017	✓	**16-May-2017**	24-Jun-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT) B17-68301	**11-May-2017**	**15-May-2017**	18-May-2017	✓	**17-May-2017**	18-May-2017	✓
Soil Glass Jar - Unpreserved (EP071-EM) TP17-26-69/0.5	**12-May-2017**	**15-May-2017**	26-May-2017	✓	**16-May-2017**	24-Jun-2017	✓
Soil Glass Jar - Unpreserved (EP080) TP17-26-69/0.5, Trip Blank	**12-May-2017**	**15-May-2017**	26-May-2017	✓	**17-May-2017**	26-May-2017	✓
Soil Glass Jar - Unpreserved (EP071) Trip Blank	**12-May-2017**	**16-May-2017**	26-May-2017	✓	**17-May-2017**	25-Jun-2017	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP071-EM) B17-68301	**11-May-2017**	**15-May-2017**	25-May-2017	✓	**16-May-2017**	24-Jun-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT) B17-68301	**11-May-2017**	**15-May-2017**	18-May-2017	✓	**17-May-2017**	18-May-2017	✓
Soil Glass Jar - Unpreserved (EP071-EM) TP17-26-69/0.5	**12-May-2017**	**15-May-2017**	26-May-2017	✓	**16-May-2017**	24-Jun-2017	✓
Soil Glass Jar - Unpreserved (EP080) TP17-26-69/0.5, Trip Blank	**12-May-2017**	**15-May-2017**	26-May-2017	✓	**17-May-2017**	26-May-2017	✓
Soil Glass Jar - Unpreserved (EP071) Trip Blank	**12-May-2017**	**16-May-2017**	26-May-2017	✓	**17-May-2017**	25-Jun-2017	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080) Trip Blank	**12-May-2017**	**15-May-2017**	26-May-2017	✓	**17-May-2017**	26-May-2017	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unspecified (EG020B-T) RB/110517	**11-May-2017**	**16-May-2017**	07-Nov-2017	✓	**16-May-2017**	07-Nov-2017	✓
Clear Plastic Bottle - Nitric Acid; Unspecified (EG020B-T) Rinsate Blank	**12-May-2017**	**16-May-2017**	08-Nov-2017	✓	**16-May-2017**	08-Nov-2017	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unspecified (EG035T) RB/110517	**11-May-2017**	**----**	----	----	**16-May-2017**	08-Jun-2017	✓
Clear Plastic Bottle - Nitric Acid; Unspecified (EG035T) Rinsate Blank	**12-May-2017**	**----**	----	----	**16-May-2017**	09-Jun-2017	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055-103	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	3	20	**15.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Method Blanks (MB) - Continued							
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Total Mercury by FIMS	EG035T	1	7	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite B	EG020B-T	1	3	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Total Mercury by FIMS	EG035T	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite B	EG020B-T	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Total Mercury by FIMS	EG035T	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite B	EG020B-T	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Total Mercury by FIMS	EG035T	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH in soil using a 0.01M CaCl2 extract	EA001	SOIL	In house: Referenced to Rayment and Higginson 4B1 (mod.) 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Moisture Content	EA055-103	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	SOIL	In house: Referenced to USEPA SW846, Method 3060A. Hexavalent chromium is extracted by alkaline digestion. The digest is determined by photometrically by automatic discrete analyser, following pH adjustment. The instrument uses colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Cyanide by Segmented Flow Analyser	EK026SF	SOIL	In house: Referenced to APHA 4500-CN C / ASTM D7511. Caustic leachates of soil samples are introduced into an automated segmented flow analyser. Complex bound cyanide is decomposed in a continuously flowing stream, at a pH of 3.8, by the effect of UV light. A UV-B lamp (312 nm) and a decomposition spiral of borosilicate glass are used to filter out UV light with a wavelength of less than 290 nm thus preventing the conversion of thiocyanate into cyanide. The hydrogen cyanide present at a pH of 3.8 is separated by gas dialysis. The hydrogen cyanide is then determined photometrically, based on the reaction of cyanide with chloramine-T to form cyanogen chloride. This then reacts with 4-pyridine carboxylic acid and 1,3-dimethylbarbituric acid to give a red colour which is measured at 600 nm. This method is compliant with NEPM (2013) Schedule B(3)
Total Fluoride	EK040T	SOIL	(In-house) Total fluoride is determined by ion specific electrode (ISE) in a solution obtained after a Sodium Carbonate / Potassium Carbonate fusion dissolution.
PCB - VIC EPA 448.3 Screen	EP066-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40.
TRH - Semivolatile Fraction	EP071-EM	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40.

Analytical Methods	Method	Matrix	Method Descriptions
Volatile Organic Compounds - Ultra-trace	EP074-UT	SOIL	In house: Referenced to USEPA SW 846 - 8260B Extracts are analysed by Purge and Trap, Capillary GC/MS in partial SIM/Scan mode. Quantification is by comparison against an established multi-point calibration curves. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
Volatile Organic Compounds - Ultra-trace - Summations	EP074-UT-SUM	SOIL	Summation of MAHs and VHCs
Semivolatile Organic Compounds - Waste Classification	EP075-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (2013) Schedule B(3) (Method 502)
SVOC - Waste Classification (Sums)	EP075-EM-SUM	SOIL	Summations for EP075 (EM variation)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260B Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite B	EG020B-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
NaOH leach for CN in Soils	CN-PR	SOIL	In house: APHA 4500 CN. Samples are extracted by end-over-end tumbling with NaOH.
pH in soil using a 0.01M CaCl2 extract	EA001-PR	SOIL	In house: Referenced to Rayment and Higginson 4B1, 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Alkaline digestion for Hexavalent Chromium	EG048PR	SOIL	In house: Referenced to USEPA SW846, Method 3060A.
Total Fluoride	EK040T-PR	SOIL	In house: Samples are fused with Sodium Carbonate / Potassium Carbonate flux.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Methanolic Extraction of Soils - Ultra-trace.	ORG16-UT	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.

Preparation Methods	Method	Matrix	Method Descriptions
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Tumbler Extraction of Solids - VIC EPA Screen	ORG17-EM	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EM1706039**

Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLFA NAZARIO	Contact	: Steven McGrath
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Project	: 2135645A	Page	: 1 of 2
Order number	: ----	Quote number	: EM2016PARBRIVIC0006 (ME-525-16)
C-O-C number	: 85403	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Site 26 and 27		
Sampler	: A.H, J.LY		

Dates

Date Samples Received	: 12-May-2017 16:20	Issue Date	: 12-May-2017
Client Requested Due Date	: 19-May-2017	Scheduled Reporting Date	: **19-May-2017**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 2.9°C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 5 / 5

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.
- **Analytical work for this work order will be conducted at ALS Springvale.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA055-103 Moisture Content	SOIL - P-16 IWRG 621	SOIL - S-04 TRH/BTEXN
EM1706039-001	12-May-2017 00:00	TP17-26-69/0.5	✓	✓	
EM1706039-003	12-May-2017 00:00	Trip Blank	✓		✓
EM1706039-004	11-May-2017 00:00	B17-68301	✓	✓	

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG020T Total Recoverable Metals by ICPMS (including	WATER - EG035T Total Mercury by FIMS
EM1706039-002	12-May-2017 00:00	Rinsate Blank	✓	✓
EM1706039-005	11-May-2017 00:00	RB/110517	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ALL INVOICES

- A4 - AU Tax Invoice (INV)	Email	apinvoices@pb.com.au

OLFA NAZARIO

- *AU Certificate of Analysis - NATA (COA)	Email	onazario@pb.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	onazario@pb.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	onazario@pb.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	onazario@pb.com.au
- AU IWRG 621 2009 Guideline Report (COA_GL_IWRG_621)	Email	onazario@pb.com.au
- Chain of Custody (CoC) (COC)	Email	onazario@pb.com.au
- EDI Format - ENMRG (ENMRG)	Email	onazario@pb.com.au
- EDI Format - ESDAT (ESDAT)	Email	onazario@pb.com.au

WSP | PARSONS BRINCKERHOFF

ABN 80 078 004 798

White Page - Laboratory Copy
Yellow Page - Project File Copy
Pink Page - Remains in Book

☐ **Adelaide** Level 1, 1 King William Street, GPO Box 398 Adelaide SA 5001 Tel: (08) 8405 4300 Fax: (08) 8405 4301

☐ **Brisbane** Level 3, Northbank Plaza 69 Ann Street, GPO Box 2907 Brisbane QLD 4001 Tel: (07) 3854 6200 Fax: (07) 3854 6500

☑ **Melbourne** Level 15, 28 Freshwater Place, Tel: (03) 9861 1111 Fax: (03) 9861 1144

☐ **Sydney** Level 27, Ernst & Young Centre 680 George Street, GPO Box 5394, Sydney NSW 2001 Tel: (02) 9272 5100 Fax: (02) 9272 5101

☐ **Perth** Level 5, 503 Murray Street, PO Box 7181 Cloisters Square WA 6850 Tel: (08) 9489 9700 Fax: (08) 9489 9777

☐ **Singleton** 188 John Street, PO Box 115 Singleton NSW 2330 Tel: (02) 6572 3377 Fax: (02) 6572 4080

☐ **Newcastle** Level 3, 51-55 Bolton Street, Suite 1 PO Box 1162 Newcastle NSW, 2300 Tel: (02) 4929 8300 Fax: (02) 4929 8382

Chain of Custody

Order No: 85403

Job Title: OSAR

PB Job Number: 2135645A

Job Location: Site 26, 27

Project Manager: OLFA NAZARIO

Laboratory Name: ALS SPRINGVALE

Results Expected by/on:

Address:

Fax Results to:

Fax Number:

Phone Number:

Phone Number: 0431 193 218

Contact Name:

Spreadsheet of Results Required: (Y) / N

Delivery Method:

Format:

Quote Number: ME-525-16

Turnaround Time Required:

Invoice to: OLFA NAZARIO,

Comments:

Terms of Business	PB	Other	Checked
	✓		

	Date Sampled	Time	Sample I.D.	Container Size	Sample Location	Medium*	Preservative Type	Filtered (X)	TPH	BTEX	PAH's	OC/OP/PCB's	Metals**	InRG62/Suite	1WaRG metals	TPH/BTEX	Initials	Comments/Additional Information and/or Analysis Required
1			TH17-26-69/0.5	250mL	Site 26	S								✓				
2			Rinsate blank	bottle		W									✓			
3			Trip blank	250mL	Jar	A										✓		
4			B17-68301	250mL Jar	0.5-0.6	S								X				
5			RB/110517	plastic		W									X			

Environmental Division
Melbourne
Work Order Reference
EM1706039

Telephone : +61-3-8549 9600

Relinquished by: J. Ly	Relinquished by:	Relinquished by:
Date & Time: 12/5 1620	Date & Time:	Date & Time:
Company: WSP	Company:	Company:
Signature:	Signature:	Signature:
Received in Good Order & Condition by (Name):	Received in Good Order & Condition by (Name):	Received in Good Order & Condition by (Name):
Date & Time: 12/5 16.20	Date & Time:	Date & Time:
Company: ALS	Company:	Company:
Signature:	Signature:	Signature:

Medium*: S = Soil, W = Water, V = Vapour

Legend**: (circle the following to be tested)

Metals: Al As Be Cd Co Cr Cu Fe Hg Li Mg Mn Ni Pb Se Sn V Zn

Samples on Ice: ☐ Yes ☐ No

Please fax back a signed copy when samples are received at the laboratory

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1706051**	Page	: 1 of 10
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLIVIA HENDERSON	Contact	: Steven McGrath
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9600
Project	: 2135645A	Date Samples Received	: 12-May-2017 16:10
Order number	: ----	Date Analysis Commenced	: 15-May-2017
C-O-C number	: 85524	Issue Date	: 19-May-2017 14:35
Sampler	: ----		
Site	: SITE 26 - MORDIALLOC		
Quote number	: ME-525-16		
No. of samples received	: 5		
No. of samples analysed	: 5		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Nancy Wang	Senior Semivolatile Instrument Chemist	Melbourne Organics, Springvale, VIC
Samantha Smith	Senior Project Manager	WRG Subcontracting, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP074-UT: Particular sample (EM1706051_002) shows minor positive hit. Confirmed by re-analysis.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	B17-68397-01/1.5	B17-68397-01/2.0	B17-68397-01/3.0	----	----
			Client sampling date / time	10-May-2017 00:00	10-May-2017 00:00	10-May-2017 00:00	----	----
Compound	CAS Number	LOR	Unit	EM1706051-001	EM1706051-002	EM1706051-003	--------	--------
				Result	Result	Result	----	----
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	7.7	7.7	7.6	----	----
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1	%	15.5	14.6	21.1	----	----
ED040S : Soluble Sulfate by ICPAES								
Sulfate as SO4 2-	14808-79-8	10	mg/kg	80	60	120	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	150	110	160	----	----
ED093S: Soluble Major Cations								
Calcium	7440-70-2	10	mg/kg	60	60	90	----	----
Magnesium	7439-95-4	10	mg/kg	40	20	30	----	----
Sodium	7440-23-5	10	mg/kg	210	210	240	----	----
Potassium	7440-09-7	10	mg/kg	90	50	90	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	15	12	9	----	----
Cadmium	7440-43-9	1	mg/kg	<1	1	7	----	----
Copper	7440-50-8	5	mg/kg	41	75	98	----	----
Lead	7439-92-1	5	mg/kg	70	426	303	----	----
Molybdenum	7439-98-7	2	mg/kg	<2	2	2	----	----
Nickel	7440-02-0	2	mg/kg	20	16	36	----	----
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	----	----
Silver	7440-22-4	2	mg/kg	<2	<2	<2	----	----
Tin	7440-31-5	5	mg/kg	<5	6	14	----	----
Zinc	7440-66-6	5	mg/kg	131	304	2000	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	0.1	0.1	0.1	----	----
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
EK026SF: Total CN by Segmented Flow Analyser								
Total Cyanide	57-12-5	1	mg/kg	<1	<1	6	----	----
EK040T: Fluoride Total								
Fluoride	16984-48-8	40	mg/kg	130	130	220	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	0.2	<0.1	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B17-68397-01/1.5	B17-68397-01/2.0	B17-68397-01/3.0	----	----
				Client sampling date / time	10-May-2017 00:00	10-May-2017 00:00	10-May-2017 00:00	----	----
Compound	CAS Number	LOR	Unit		EM1706051-001	EM1706051-002	EM1706051-003	--------	--------
					Result	Result	Result	----	----
EP074A: Monocyclic Aromatic Hydrocarbons									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	**1.7**	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	**2.7**	----	----
Styrene	100-42-5	0.5	mg/kg		<0.5	<0.5	**0.5**	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	**0.8**	----	----
^ Sum of monocyclic aromatic hydrocarbons	----	0.2	mg/kg		<0.2	<0.2	**5.7**	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg		<0.5	<0.5	**3.5**	----	----
EP074H: Naphthalene									
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	----	----
EP074I: Volatile Halogenated Compounds									
Vinyl chloride	75-01-4	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
1.1-Dichloroethene	75-35-4	0.01	mg/kg		<0.01	<0.01	<0.01	----	----
Methylene chloride	75-09-2	0.4	mg/kg		<0.4	<0.4	<0.4	----	----
trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg		<0.01	<0.01	<0.01	----	----
Chloroform	67-66-3	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
1.1.1-Trichloroethane	71-55-6	0.01	mg/kg		<0.01	<0.01	<0.01	----	----
Carbon Tetrachloride	56-23-5	0.01	mg/kg		<0.01	<0.01	**0.02**	----	----
1.2-Dichloroethane	107-06-2	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
Trichloroethene	79-01-6	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
1.1.2-Trichloroethane	79-00-5	0.04	mg/kg		<0.04	<0.04	<0.04	----	----
Tetrachloroethene	127-18-4	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg		<0.01	<0.01	<0.01	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
Hexachlorobutadiene	87-68-3	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
Chlorobenzene	108-90-7	0.02	mg/kg		<0.02	<0.02	**0.03**	----	----
1.4-Dichlorobenzene	106-46-7	0.02	mg/kg		<0.02	<0.02	**0.09**	----	----
1.2-Dichlorobenzene	95-50-1	0.02	mg/kg		<0.02	**0.05**	**0.26**	----	----
1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg		<0.01	**0.01**	<0.01	----	----
^ Sum of volatile chlorinated hydrocarbons	----	0.01	mg/kg		<0.01	**0.06**	**0.40**	----	----
^ Sum of other chlorinated hydrocarbons	----	0.01	mg/kg		<0.01	**0.06**	**0.40**	----	----
EP075A: Phenolic Compounds (Halogenated)									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B17-68397-01/1.5	B17-68397-01/2.0	B17-68397-01/3.0	----	----
				Client sampling date / time	10-May-2017 00:00	10-May-2017 00:00	10-May-2017 00:00	----	----
Compound	CAS Number	LOR	Unit		EM1706051-001	EM1706051-002	EM1706051-003	--------	--------
					Result	Result	Result	----	----
EP075A: Phenolic Compounds (Halogenated) - Continued									
2-Chlorophenol	95-57-8	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
2.4-Dichlorophenol	120-83-2	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
2.6-Dichlorophenol	87-65-0	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Pentachlorophenol	87-86-5	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
^ Sum of Phenols (halogenated)	----	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
EP075A: Phenolic Compounds (Non-halogenated)									
Phenol	108-95-2	1	mg/kg		<1	<1	**1**	----	----
2-Methylphenol	95-48-7	1	mg/kg		<1	<1	<1	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	<1	----	----
2-Nitrophenol	88-75-5	1	mg/kg		<1	<1	<1	----	----
2.4-Dimethylphenol	105-67-9	1	mg/kg		<1	<1	<1	----	----
2.4-Dinitrophenol	51-28-5	5	mg/kg		<5	<5	<5	----	----
4-Nitrophenol	100-02-7	5	mg/kg		<5	<5	<5	----	----
2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg		<5	<5	<5	----	----
Dinoseb	88-85-7	5	mg/kg		<5	<5	<5	----	----
2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg		<5	<5	<5	----	----
^ Sum of Phenols (non-halogenated)	----	1	mg/kg		<1	<1	**1**	----	----
EP075B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	**0.8**	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	**0.8**	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg		**0.8**	<0.5	**1.1**	----	----
Pyrene	129-00-0	0.5	mg/kg		**0.9**	<0.5	**1.2**	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	B17-68397-01/1.5	B17-68397-01/2.0	B17-68397-01/3.0	----	----
			Client sampling date / time	10-May-2017 00:00	10-May-2017 00:00	10-May-2017 00:00	----	----
Compound	CAS Number	LOR	Unit	EM1706051-001	EM1706051-002	EM1706051-003	--------	--------
				Result	Result	Result	----	----
EP075B: Polynuclear Aromatic Hydrocarbons - Continued								
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	**0.7**	<0.5	**0.5**	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg	**2.4**	<0.5	**4.4**	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ **Benzo(a)pyrene TEQ (half LOR)**	----	0.5	mg/kg	**0.6**	**0.6**	**0.6**	----	----
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg	**1.2**	**1.2**	**1.2**	----	----
EP075I: Organochlorine Pesticides								
alpha-BHC	319-84-6	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	<0.03	**0.15**	----	----
beta-BHC	319-85-7	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
gamma-BHC	58-89-9	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
delta-BHC	319-86-8	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
Heptachlor	76-44-8	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
Aldrin	309-00-2	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Dieldrin	60-57-1	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
Endrin	72-20-8	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Methoxychlor	72-43-5	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
^ **Sum of organochlorine pesticides**	----	0.03	mg/kg	<0.03	<0.03	**0.15**	----	----
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg	<0.05	<0.05	<0.05	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B17-68397-01/1.5	B17-68397-01/2.0	B17-68397-01/3.0	----	----
				Client sampling date / time	10-May-2017 00:00	10-May-2017 00:00	10-May-2017 00:00	----	----
Compound	CAS Number	LOR	Unit		EM1706051-001	EM1706051-002	EM1706051-003	--------	--------
					Result	Result	Result	----	----
EP075I: Organochlorine Pesticides - Continued									
^ Chlordane	57-74-9	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
^ Sum of other organochlorine pesticides	----	0.03	mg/kg		<0.03	<0.03	**0.15**	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	**18**	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	<50	**230**	----	----
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	**29**	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	**650**	**1300**	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	**380**	**370**	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	**1030**	**1900**	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
>C10 - C16 Fraction	----	50	mg/kg		<50	**50**	**340**	----	----
>C16 - C34 Fraction	----	100	mg/kg		**110**	**910**	**1440**	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	**170**	**140**	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		**110**	**1130**	**1920**	----	----
>C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	**50**	**340**	----	----
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	**24**	----	----
MM802: E.coli and Coliforms by Colilert									
Escherichia coli (Colilert)	----	10	orgs/g		**69**	**23**	**38**	----	----
Total Coliforms (Colilert)	----	10	orgs/g		**15000**	**7800**	**6100**	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**92.1**	**94.0**	**75.8**	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		**80.0**	**90.0**	**83.7**	----	----
Toluene-D8	2037-26-5	0.1	%		**93.0**	**91.9**	**84.7**	----	----
4-Bromofluorobenzene	460-00-4	0.1	%		**90.8**	**103**	**79.2**	----	----
EP075S: Acid Extractable Surrogates									
Phenol-d6	13127-88-3	0.025	%		**76.1**	**80.3**	**72.8**	----	----
2-Chlorophenol-D4	93951-73-6	0.025	%		**70.7**	**71.5**	**74.4**	----	----
2.4.6-Tribromophenol	118-79-6	0.025	%		**63.5**	**66.4**	**67.8**	----	----
EP075T: Base/Neutral Extractable Surrogates									
Nitrobenzene-D5	4165-60-0	0.025	%		**83.9**	**92.2**	**110**	----	----
1.2-Dichlorobenzene-D4	2199-69-1	0.025	%		**70.2**	**72.0**	**75.2**	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B17-68397-01/1.5	B17-68397-01/2.0	B17-68397-01/3.0	----	----
				Client sampling date / time	10-May-2017 00:00	10-May-2017 00:00	10-May-2017 00:00	----	----
Compound	CAS Number	LOR	Unit		EM1706051-001	EM1706051-002	EM1706051-003	--------	--------
					Result	Result	Result	----	----
EP075T: Base/Neutral Extractable Surrogates - Continued									
2-Fluorobiphenyl	321-60-8	0.025	%		**82.0**	**84.3**	**53.7**	**----**	**----**
Anthracene-d10	1719-06-8	0.025	%		**84.5**	**88.0**	**76.9**	**----**	**----**
4-Terphenyl-d14	1718-51-0	0.025	%		**67.5**	**74.5**	**62.8**	**----**	**----**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Client sample ID	RB/100517	TB/100517	----	----	----
			Client sampling date / time	10-May-2017 00:00	10-May-2017 00:00	----	----	----
Compound	CAS Number	LOR	Unit	EM1706051-004	EM1706051-005	--------	--------	--------
				Result	Result	----	----	----
EG020T: Total Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	----	----	----	----
Copper	7440-50-8	0.001	mg/L	<0.001	----	----	----	----
Lead	7439-92-1	0.001	mg/L	<0.001	----	----	----	----
Molybdenum	7439-98-7	0.001	mg/L	<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L	<0.001	----	----	----	----
Selenium	7782-49-2	0.01	mg/L	<0.01	----	----	----	----
Silver	7440-22-4	0.001	mg/L	<0.001	----	----	----	----
Tin	7440-31-5	0.001	mg/L	<0.001	----	----	----	----
Zinc	7440-66-6	0.005	mg/L	<0.005	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	----	<20	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	----	<20	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	----	<20	----	----	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	----	<1	----	----	----
Toluene	108-88-3	2	µg/L	----	<2	----	----	----
Ethylbenzene	100-41-4	2	µg/L	----	<2	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	----	<2	----	----	----
ortho-Xylene	95-47-6	2	µg/L	----	<2	----	----	----
^ Total Xylenes	1330-20-7	2	µg/L	----	<2	----	----	----
^ Sum of BTEX	----	1	µg/L	----	<1	----	----	----
Naphthalene	91-20-3	5	µg/L	----	<5	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	----	**94.8**	----	----	----
Toluene-D8	2037-26-5	2	%	----	**91.4**	----	----	----
4-Bromofluorobenzene	460-00-4	2	%	----	**98.4**	----	----	----

Surrogate Control Limits

Sub-Matrix: **SOIL**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	41	122
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	59	119
Toluene-D8	2037-26-5	55	117
4-Bromofluorobenzene	460-00-4	59	123
EP075S: Acid Extractable Surrogates			
Phenol-d6	13127-88-3	28	134
2-Chlorophenol-D4	93951-73-6	27	123
2.4.6-Tribromophenol	118-79-6	25	149
EP075T: Base/Neutral Extractable Surrogates			
Nitrobenzene-D5	4165-60-0	29	125
1.2-Dichlorobenzene-D4	2199-69-1	31	117
2-Fluorobiphenyl	321-60-8	44	136
Anthracene-d10	1719-06-8	53	133
4-Terphenyl-d14	1718-51-0	59	141

Sub-Matrix: **WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	129
Toluene-D8	2037-26-5	70	125
4-Bromofluorobenzene	460-00-4	71	129

Automated Guideline Comparison Report

EPA Victoria Publication IWRG 621 (2009) - Table 2: Soil Hazard Categorisation

Work Order	: **EM1706051**	Page	: 1 of 8
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLIVIA HENDERSON		
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: ohenderson@pb.com.au	E-mail	: steven.mcgrath@alsglobal.com
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9600
Facsimile	: +61 03 9861 1144	Facsimile	: +61-3-8549 9601
Project	: 2135645A	Date Received	: 12-May-2017 16:10
Order number	: ----	Date Analysed	: 15-May-2017
C-O-C number	: 85524	Date Issued	: 19-May-2017 14:35
No. of samples received	: 5		
No. of samples analysed	: 5	Quote number	: ME-525-16

General Comments

This guideline comparison report **only** provides evaluation of total concentration data against upper limit thresholds for the 'Fill Material', 'C', 'B' Categories in Table 2 of EPA Publication IWRG621.

This guideline comparison report is **NOT** a soil classification report. Classification of soils as Fill Material, Category C, Category B or Category A requires consideration of a number of other factors including preliminary site investigation, sampling density and statistical calculations, as set out in EPA Publication IWRG 702.
Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

This guideline comparison report only provides evaluation data where chemical parameters specifically listed within the IWRG621 (2009) guideline are analysed by ALS using the **P-16 package in full**.

Red shading is applied where the result is equal to or greater than the guideline upper limit and/or equal to or lower than the guideline lower limit. Red shading is not applied to the 'Summary of Thresholds Reached or Exceeded'.

For the 'Summary of Thresholds Reached or Exceeded' to accurately function, all samples must be analysed and included in the 'Analytical Results' section of the following report. Please verify that all required IDs are listed and analysed.

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Summary of Thresholds Reached or Exceeded

EPA Victoria Publication IWRG 621 (2009)

Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Client Sample ID	*ALS Sample ID*	*Compound*	*Method*	*LOR*	*Limits*	*Result*
B17-68397-01/2.0	**EM1706051-002**	Lead	EG005T	5	*< 300 mg/kg*	**426 mg/kg**
B17-68397-01/2.0	**EM1706051-002**	Zinc	EG005T	5	*< 200 mg/kg*	**304 mg/kg**
B17-68397-01/2.0	**EM1706051-002**	C10 - C36 Fraction (sum)	EP071-EM	50	*< 1,000 mg/kg*	**1030 mg/kg**
B17-68397-01/3.0	**EM1706051-003**	Cadmium	EG005T	1	*< 3 mg/kg*	**7 mg/kg**
B17-68397-01/3.0	**EM1706051-003**	Lead	EG005T	5	*< 300 mg/kg*	**303 mg/kg**
B17-68397-01/3.0	**EM1706051-003**	Zinc	EG005T	5	*< 200 mg/kg*	**2000 mg/kg**
B17-68397-01/3.0	**EM1706051-003**	C10 - C36 Fraction (sum)	EP071-EM	50	*< 1,000 mg/kg*	**1900 mg/kg**

Analytical Results

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Client sample ID: B17-68397-01/ 1.5	B17-68397-01/ 2.0	B17-68397-01/ 3.0	----	----
			Sampling date/time			10-May-2017	10-May-2017	10-May-2017	----	----
						EM1706051-001	EM1706051-002	EM1706051-003	--------	--------
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	2	12.5	**7.7**	**7.7**	**7.6**	----	----
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	2000	**15**	**12**	**9**	----	----
Cadmium	EG005T	1	mg/kg	----	400	<1	**1**	**7**	----	----
Copper	EG005T	5	mg/kg	----	20000	**41**	**75**	**98**	----	----
Lead	EG005T	5	mg/kg	----	6000	**70**	**426**	**303**	----	----
Molybdenum	EG005T	2	mg/kg	----	4000	<2	**2**	**2**	----	----
Nickel	EG005T	2	mg/kg	----	12000	**20**	**16**	**36**	----	----
Selenium	EG005T	5	mg/kg	----	200	<5	<5	<5	----	----
Silver	EG005T	2	mg/kg	----	720	<2	<2	<2	----	----
Zinc	EG005T	5	mg/kg	----	140000	**131**	**304**	**2000**	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	300	**0.1**	**0.1**	**0.1**	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	2000	<0.5	<0.5	<0.5	----	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	10000	<1	<1	**6**	----	----
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	40000	**130**	**130**	**220**	----	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	16	<0.2	<0.2	<0.2	----	----
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	240	<0.2	<0.2	**5.7**	----	----
EP074I: Volatile Halogenated Compounds										
Vinyl chloride	EP074-UT	0.02	mg/kg	----	4.8	<0.02	<0.02	<0.02	----	----
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	11	<0.02	<0.02	<0.02	----	----
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	50	<0.01	**0.06**	**0.40**	----	----
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	320	<0.03	<0.03	<0.03	----	----
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	2200	<1	<1	**1**	----	----
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	20	<0.5	<0.5	<0.5	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Client sample ID: B17-68397-01/ 1.5	B17-68397-01/ 2.0	B17-68397-01/ 3.0	----	----
						Sampling date/time: 10-May-2017	10-May-2017	10-May-2017	----	----
						EM1706051-001	EM1706051-002	EM1706051-003	--------	--------
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	400	**2.4**	<0.5	**4.4**	----	----
EP075I: Organochlorine Pesticides										
Heptachlor	EP075-EM	0.03	mg/kg	----	4.8	<0.03	<0.03	<0.03	----	----
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	4.8	<0.03	<0.03	<0.03	----	----
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50	<0.05	<0.05	<0.05	----	----
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	16	<0.03	<0.03	<0.03	----	----
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	50	<0.03	<0.03	**0.15**	----	----
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	2600	<10	<10	**18**	----	----
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	40000	<50	**1030**	**1900**	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

				Client sample ID	Guideline Lower Limit	Guideline Upper Limit	B17-68397-01/ 1.5	B17-68397-01/ 2.0	B17-68397-01/ 3.0	----	----
				Sampling date/time			10-May-2017	10-May-2017	10-May-2017	----	----
Compound	*Method*	*LOR*	*Unit*				EM1706051-001	EM1706051-002	EM1706051-003	--------	--------
EA001: pH in soil using 0.01M CaCl extract											
pH (CaCl2)	EA001	0.1	pH Unit		4	9	**7.7**	**7.7**	**7.6**	----	----
EG005T: Total Metals by ICP-AES											
Arsenic	EG005T	5	mg/kg		----	500	**15**	**12**	**9**	----	----
Cadmium	EG005T	1	mg/kg		----	100	<1	**1**	**7**	----	----
Copper	EG005T	5	mg/kg		----	5000	**41**	**75**	**98**	----	----
Lead	EG005T	5	mg/kg		----	1500	**70**	**426**	**303**	----	----
Molybdenum	EG005T	2	mg/kg		----	1000	<2	**2**	**2**	----	----
Nickel	EG005T	2	mg/kg		----	3000	**20**	**16**	**36**	----	----
Selenium	EG005T	5	mg/kg		----	50	<5	<5	<5	----	----
Silver	EG005T	2	mg/kg		----	180	<2	<2	<2	----	----
Tin	EG005T	5	mg/kg		----	500	<5	**6**	**14**	----	----
Zinc	EG005T	5	mg/kg		----	35000	**131**	**304**	**2000**	----	----
EG035T: Total Recoverable Mercury by FIMS											
Mercury	EG035T	0.1	mg/kg		----	75	**0.1**	**0.1**	**0.1**	----	----
EG048: Hexavalent Chromium (Alkaline Digest)											
Hexavalent Chromium	EG048G	0.5	mg/kg		----	500	<0.5	<0.5	<0.5	----	----
EK026SF: Total CN by Segmented Flow Analyser											
Total Cyanide	EK026SF	1	mg/kg		----	2500	<1	<1	**6**	----	----
EK040T: Fluoride Total											
Fluoride	EK040T	40	mg/kg		----	10000	**130**	**130**	**220**	----	----
EP074A: Monocyclic Aromatic Hydrocarbons											
Benzene	EP074-UT	0.2	mg/kg		----	4	<0.2	<0.2	<0.2	----	----
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg		----	70	<0.2	<0.2	**5.7**	----	----
EP074I: Volatile Halogenated Compounds											
Vinyl chloride	EP074-UT	0.02	mg/kg		----	1.2	<0.02	<0.02	<0.02	----	----
Hexachlorobutadiene	EP074-UT	0.02	mg/kg		----	2.8	<0.02	<0.02	<0.02	----	----
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg		----	10	<0.01	**0.06**	**0.40**	----	----
EP075A: Phenolic Compounds (Halogenated)											
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg		----	10	<0.03	<0.03	<0.03	----	----
EP075A: Phenolic Compounds (Non-halogenated)											
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg		----	560	<1	<1	**1**	----	----
EP075B: Polynuclear Aromatic Hydrocarbons											
Benzo(a)pyrene	EP075-EM	0.5	mg/kg		----	5	<0.5	<0.5	<0.5	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

				Client sample ID	Guideline Lower Limit	Guideline Upper Limit	B17-68397-01/ 1.5	B17-68397-01/ 2.0	B17-68397-01/ 3.0	----	----
				Sampling date/time			10-May-2017	10-May-2017	10-May-2017	----	----
Compound	*Method*	*LOR*	*Unit*				EM1706051-001	EM1706051-002	EM1706051-003	--------	--------
EP075B: Polynuclear Aromatic Hydrocarbons - Continued											
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	100	**2.4**	<0.5	**4.4**	----	----
EP075I: Organochlorine Pesticides											
Heptachlor	EP075-EM	0.03	mg/kg	----	1.2	<0.03	<0.03	<0.03	----	----
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	1.2	<0.03	<0.03	<0.03	----	----
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50	<0.05	<0.05	<0.05	----	----
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	4	<0.03	<0.03	<0.03	----	----
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	10	<0.03	<0.03	**0.15**	----	----
EP080/071: Total Petroleum Hydrocarbons											
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	650	<10	<10	**18**	----	----
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	10000	<50	**1030**	**1900**	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

				Client sample ID		B17-68397-01/ 1.5	B17-68397-01/ 2.0	B17-68397-01/ 3.0	----	----
				Sampling date/time	Guideline Lower Limit	Guideline Upper Limit	10-May-2017	10-May-2017	10-May-2017	----	----
Compound	*Method*	*LOR*	*Unit*				EM1706051-001	EM1706051-002	EM1706051-003	--------	--------
EA001: pH in soil using 0.01M CaCl extract											
pH (CaCl2)	EA001	0.1	pH Unit		4	9	**7.7**	**7.7**	**7.6**	----	----
EG005T: Total Metals by ICP-AES											
Arsenic	EG005T	5	mg/kg		----	20	**15**	**12**	**9**	----	----
Cadmium	EG005T	1	mg/kg		----	3	<1	**1**	**7**	----	----
Copper	EG005T	5	mg/kg		----	100	**41**	**75**	**98**	----	----
Lead	EG005T	5	mg/kg		----	300	**70**	**426**	**303**	----	----
Molybdenum	EG005T	2	mg/kg		----	40	<2	**2**	**2**	----	----
Nickel	EG005T	2	mg/kg		----	60	**20**	**16**	**36**	----	----
Selenium	EG005T	5	mg/kg		----	10	<5	<5	<5	----	----
Silver	EG005T	2	mg/kg		----	10	<2	<2	<2	----	----
Tin	EG005T	5	mg/kg		----	50	<5	**6**	**14**	----	----
Zinc	EG005T	5	mg/kg		----	200	**131**	**304**	**2000**	----	----
EG035T: Total Recoverable Mercury by FIMS											
Mercury	EG035T	0.1	mg/kg		----	1	**0.1**	**0.1**	**0.1**	----	----
EG048: Hexavalent Chromium (Alkaline Digest)											
Hexavalent Chromium	EG048G	0.5	mg/kg		----	1	<0.5	<0.5	<0.5	----	----
EK026SF: Total CN by Segmented Flow Analyser											
Total Cyanide	EK026SF	1	mg/kg		----	50	<1	<1	**6**	----	----
EK040T: Fluoride Total											
Fluoride	EK040T	40	mg/kg		----	450	**130**	**130**	**220**	----	----
EP066: Polychlorinated Biphenyls (PCB)											
Total Polychlorinated biphenyls	EP066-EM	0.1	mg/kg		----	2	<0.1	**0.2**	<0.1	----	----
EP074A: Monocyclic Aromatic Hydrocarbons											
Benzene	EP074-UT	0.2	mg/kg		----	1	<0.2	<0.2	<0.2	----	----
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg		----	7	<0.2	<0.2	**5.7**	----	----
EP074I: Volatile Halogenated Compounds											
Sum of volatile chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg		----	1	<0.01	**0.06**	**0.40**	----	----
EP075A: Phenolic Compounds (Halogenated)											
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg		----	1	<0.03	<0.03	<0.03	----	----
EP075A: Phenolic Compounds (Non-halogenated)											
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg		----	60	<1	<1	**1**	----	----
EP075B: Polynuclear Aromatic Hydrocarbons											
Benzo(a)pyrene	EP075-EM	0.5	mg/kg		----	1	<0.5	<0.5	<0.5	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

				Client sample ID	Guideline Lower Limit	Guideline Upper Limit	B17-68397-01/ 1.5	B17-68397-01/ 2.0	B17-68397-01/ 3.0	----	----
				Sampling date/time			10-May-2017	10-May-2017	10-May-2017	----	----
Compound	*Method*	*LOR*	*Unit*				EM1706051-001	EM1706051-002	EM1706051-003	--------	--------
EP075B: Polynuclear Aromatic Hydrocarbons - Continued											
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	20		**2.4**	<0.5	**4.4**	----	----
EP075I: Organochlorine Pesticides											
Sum of organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	1		<0.03	<0.03	**0.15**	----	----
EP080/071: Total Petroleum Hydrocarbons											
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	100		<10	<10	**18**	----	----
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	1000		<50	**1030**	**1900**	----	----

Note: Red shading is applied where the result is equal to or greater than the guideline upper limit and/or equal to or lower than the guideline lower limit.

QUALITY CONTROL REPORT

Work Order	: **EM1706051**	Page	: 1 of 16
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLIVIA HENDERSON	Contact	: Steven McGrath
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9600
Project	: 2135645A	Date Samples Received	: 12-May-2017
Order number	: ----	Date Analysis Commenced	: 15-May-2017
C-O-C number	: 85524	Issue Date	: 19-May-2017
Sampler	: ----		
Site	: SITE 26 - MORDIALLOC		
Quote number	: ME-525-16		
No. of samples received	: 5		
No. of samples analysed	: 5		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Nancy Wang	Senior Semivolatile Instrument Chemist	Melbourne Organics, Springvale, VIC
Samantha Smith	Senior Project Manager	WRG Subcontracting, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA001: pH in soil using 0.01M CaCl extract (QC Lot: 889728)									
EM1705976-067	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	6.1	6.0	1.65	0% - 20%
EM1706050-004	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	7.0	7.0	0.00	0% - 20%
EA055: Moisture Content (QC Lot: 887922)									
EM1705997-031	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	14.6	14.6	0.00	0% - 50%
EM1706039-004	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	9.2	8.5	8.22	No Limit
ED040S: Soluble Major Anions (QC Lot: 889739)									
EM1706051-001	B17-68397-01/1.5	ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	80	80	0.00	No Limit
ED045G: Chloride by Discrete Analyser (QC Lot: 889738)									
EM1706051-001	B17-68397-01/1.5	ED045G: Chloride	16887-00-6	10	mg/kg	150	160	0.00	0% - 50%
ED093S: Soluble Major Cations (QC Lot: 889740)									
EM1706051-001	B17-68397-01/1.5	ED093S: Calcium	7440-70-2	10	mg/kg	60	60	0.00	No Limit
		ED093S: Magnesium	7439-95-4	10	mg/kg	40	40	0.00	No Limit
		ED093S: Sodium	7440-23-5	10	mg/kg	210	210	0.00	0% - 20%
		ED093S: Potassium	7440-09-7	10	mg/kg	90	100	0.00	0% - 50%
EG005T: Total Metals by ICP-AES (QC Lot: 889870)									
EM1706039-001	Anonymous	EG005T: Copper	7440-50-8	5	mg/kg	14	7	66.3	No Limit
EM1705976-047	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	8	6	27.1	No Limit
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	6	<5	23.8	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG005T: Total Metals by ICP-AES (QC Lot: 889870) - continued									
EM1705976-047	Anonymous	EG005T: Tin	7440-31-5	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	20	12	44.2	No Limit
EM1706039-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	7	8	0.00	No Limit
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	6	12	60.1	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	20	38	63.1	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Tin	7440-31-5	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	55	76	31.9	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 889871)									
EM1705976-047	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EM1706039-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EG048: Hexavalent Chromium (Alkaline Digest) (QC Lot: 889735)									
EM1705848-039	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1706050-001	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EK026SF: Total CN by Segmented Flow Analyser (QC Lot: 890193)									
EM1706050-003	Anonymous	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.00	No Limit
EM1706035-001	Anonymous	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.00	No Limit
EK040T: Fluoride Total (QC Lot: 887497)									
EM1706039-001	Anonymous	EK040T: Fluoride	16984-48-8	40	mg/kg	100	100	0.00	No Limit
EM1706051-001	B17-68397-01/1.5	EK040T: Fluoride	16984-48-8	40	mg/kg	130	140	0.00	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 887275)									
EM1706039-001	Anonymous	EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EM1706054-007	Anonymous	EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 887166)									
EM1706039-001	Anonymous	EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1706051-002	B17-68397-01/2.0	EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 887166) - continued									
EM1706051-002	B17-68397-01/2.0	EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074H: Naphthalene (QC Lot: 887166)									
EM1706039-001	Anonymous	EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EM1706051-002	B17-68397-01/2.0	EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EP074I: Volatile Halogenated Compounds (QC Lot: 887166)									
EM1706039-001	Anonymous	EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	<0.04	0.00	No Limit
		EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	<0.4	0.00	No Limit
EM1706051-002	B17-68397-01/2.0	EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	0.01	0.02	0.00	No Limit
		EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074I: Volatile Halogenated Compounds (QC Lot: 887166) - continued									
EM1706051-002	B17-68397-01/2.0	EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	0.05	0.08	44.9	No Limit
		EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	<0.04	0.00	No Limit
		EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	<0.4	0.00	No Limit
EP075A: Phenolic Compounds (Halogenated) (QC Lot: 887273)									
EM1706039-001	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EM1706054-007	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP075A: Phenolic Compounds (Non-halogenated) (QC Lot: 887273)									
EM1706039-001	Anonymous	EP075-EM: Phenol	108-95-2	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	0.00	No Limit
EM1706054-007	Anonymous	EP075-EM: Phenol	108-95-2	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075A: Phenolic Compounds (Non-halogenated) (QC Lot: 887273) - continued									
EM1706054-007	Anonymous	EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	0.00	No Limit
EP075B: Polynuclear Aromatic Hydrocarbons (QC Lot: 887273)									
EM1706039-001	Anonymous	EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1706054-007	Anonymous	EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP075I: Organochlorine Pesticides (QC Lot: 887273)									

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075I: Organochlorine Pesticides (QC Lot: 887273) - continued									
EM1706039-001	Anonymous	EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EM1706054-007	Anonymous	EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 887166)									
EM1706039-001	Anonymous	EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EM1706051-002	B17-68397-01/2.0	EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 887274)									
EM1706039-001	Anonymous	EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EM1706054-007	Anonymous	EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 887166)									
EM1706039-001	Anonymous	EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
		EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	0.00	No Limit
EM1706051-002	B17-68397-01/2.0	EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
		EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 887274)									
EM1706039-001	Anonymous	EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EM1706054-007	Anonymous	EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG020T: Total Metals by ICP-MS (QC Lot: 889801)									
EM1705975-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.002	0.002	0.00	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.001	0.002	0.00	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.002	0.002	0.00	No Limit
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	0.005	0.005	0.00	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.004	0.004	0.00	No Limit
		EG020A-T: Tin	7440-31-5	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.010	0.010	0.00	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EM1706039-002	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG020T: Total Metals by ICP-MS (QC Lot: 889801) - continued									
EM1706039-002	Anonymous	EG020A-T: Tin	7440-31-5	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.00	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EG020T: Total Metals by ICP-MS (QC Lot: 889803)									
EM1706039-002	Anonymous	EG020B-T: Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 889882)									
EM1705980-015	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 889355)									
EM1706054-013	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EM1706043-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	320	310	3.80	0% - 50%
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 889355)									
EM1706054-013	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EM1706043-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	310	300	0.00	0% - 50%
EP080: BTEXN (QC Lot: 889355)									
EM1706054-013	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
EM1706043-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	54	54	0.00	0% - 20%
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	4	4	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	8	7	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
ED040S: Soluble Major Anions (QCLot: 889739)								
ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	----	----	----	----
ED045G: Chloride by Discrete Analyser (QCLot: 889738)								
ED045G: Chloride	16887-00-6	10	mg/kg	<10	50 mg/kg	108	93	111
				<10	5000 mg/kg	105	93	111
ED093S: Soluble Major Cations (QCLot: 889740)								
ED093S: Calcium	7440-70-2	10	mg/kg	<10	50 mg/kg	101	96	107
ED093S: Magnesium	7439-95-4	10	mg/kg	<10	50 mg/kg	100	93	109
ED093S: Sodium	7440-23-5	10	mg/kg	<10	500 mg/kg	103	93	107
ED093S: Potassium	7440-09-7	10	mg/kg	<10	500 mg/kg	102	94	106
EG005T: Total Metals by ICP-AES (QCLot: 889870)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	99.7	79	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	92.2	85	109
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	92.9	84	116
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	96.2	85	107
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	7.9 mg/kg	94.8	86	112
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	94.3	89	111
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	102	93	109
EG005T: Silver	7440-22-4	2	mg/kg	<2	2.1 mg/kg	82.7	80	108
EG005T: Tin	7440-31-5	5	mg/kg	<5	5.2 mg/kg	96.0	92	114
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	98.3	89	111
EG035T: Total Recoverable Mercury by FIMS (QCLot: 889871)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	86.4	85	103
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 889735)								
EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	40 mg/kg	80.1	80	120
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 890193)								
EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	20 mg/kg	93.4	89	108
EK040T: Fluoride Total (QCLot: 887497)								
EK040T: Fluoride	16984-48-8	40	mg/kg	<40	950 mg/kg	92.2	76	108
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 887275)								
EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	112	63	133
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 887166)								
EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	2.1 mg/kg	87.9	74	118
EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	2.1 mg/kg	88.1	70	118

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 887166) - continued								
EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2.1 mg/kg	89.5	69	117
EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4.2 mg/kg	88.4	68	116
EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	2.1 mg/kg	92.9	71	117
EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2.1 mg/kg	87.6	70	116
EP074H: Naphthalene (QCLot: 887166)								
EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	0.6 mg/kg	89.9	74	116
EP074I: Volatile Halogenated Compounds (QCLot: 887166)								
EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	0.1 mg/kg	87.8	49	133
EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	0.1 mg/kg	86.2	62	127
EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	2.1 mg/kg	83.7	65	131
EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	0.1 mg/kg	86.8	68	124
EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	0.1 mg/kg	86.1	74	118
EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	0.1 mg/kg	84.6	72	118
EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	0.1 mg/kg	84.6	67	119
EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	0.1 mg/kg	85.3	65	119
EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	0.1 mg/kg	95.3	70	122
EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	0.1 mg/kg	85.6	72	124
EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	0.1 mg/kg	93.7	74	122
EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	0.1 mg/kg	86.8	58	120
EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	0.1 mg/kg	87.2	70	119
EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	0.1 mg/kg	93.3	71	125
EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	0.1 mg/kg	74.2	61	125
EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	0.1 mg/kg	91.0	70	122
EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	0.1 mg/kg	91.7	61	118
EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	0.1 mg/kg	95.2	67	117
EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	0.1 mg/kg	104	53	127
EP075A: Phenolic Compounds (Halogenated) (QCLot: 887273)								
EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	0.5 mg/kg	85.2	43	119
EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	0.5 mg/kg	97.0	44	131
EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	0.5 mg/kg	81.3	43	122
EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	0.5 mg/kg	98.3	50	129
EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	0.5 mg/kg	70.4	44	128
EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	0.5 mg/kg	103	44	126
EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	0.5 mg/kg	54.2	46	126
EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/5 8-90-2	0.05	mg/kg	<0.05	1 mg/kg	69.1	44	124
EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	1 mg/kg	37.0	36	124

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 887273)								
EP075-EM: Phenol	108-95-2	1	mg/kg	<1	0.5 mg/kg	108	41	120
EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	0.5 mg/kg	69.0	41	131
EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	1 mg/kg	91.6	43	130
EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	0.5 mg/kg	104	49	130
EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	0.5 mg/kg	71.0	37	119
EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	3 mg/kg	53.9	23	125
EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	3 mg/kg	85.3	49	133
EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	3 mg/kg	87.7	47	125
EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	3 mg/kg	110	48	123
EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	2.5 mg/kg	85.8	12	132
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 887273)								
EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	0.5 mg/kg	90.3	44	122
EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	0.5 mg/kg	92.4	54	126
EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	0.5 mg/kg	92.2	46	126
EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	0.5 mg/kg	94.4	51	125
EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	0.5 mg/kg	89.8	57	127
EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	0.5 mg/kg	104	55	127
EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	0.5 mg/kg	94.2	57	131
EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	0.5 mg/kg	97.3	57	131
EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	0.5 mg/kg	84.5	56	132
EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	0.5 mg/kg	92.7	58	134
EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	1 mg/kg	92.0	55	133
EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	0.5 mg/kg	91.8	51	135
EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	0.5 mg/kg	83.3	55	137
EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	0.5 mg/kg	101	54	136
EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	0.5 mg/kg	97.1	55	137
EP075I: Organochlorine Pesticides (QCLot: 887273)								
EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	0.5 mg/kg	93.2	54	130
EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	0.5 mg/kg	93.2	54	130
EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	0.5 mg/kg	87.1	54	134
EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	0.5 mg/kg	100	54	132
EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	0.5 mg/kg	87.2	55	131
EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	0.5 mg/kg	87.2	54	128
EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	0.5 mg/kg	87.2	54	128
EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	0.5 mg/kg	83.1	56	130
EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	0.5 mg/kg	84.3	56	130
EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	0.5 mg/kg	84.3	55	131
EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	0.5 mg/kg	85.6	53	133

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP075I: Organochlorine Pesticides (QCLot: 887273) - continued								
EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	87.8	54	130
EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	0.5 mg/kg	84.7	57	133
EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	0.5 mg/kg	101	28	174
EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	0.5 mg/kg	61.9	40	148
EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	0.5 mg/kg	88.6	56	138
EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	91.4	57	135
EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	0.5 mg/kg	102	51	133
EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	0.5 mg/kg	76.9	51	133
EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	0.5 mg/kg	85.5	48	136
EP080/071: Total Petroleum Hydrocarbons (QCLot: 887166)								
EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	39.6 mg/kg	83.6	69	114
EP080/071: Total Petroleum Hydrocarbons (QCLot: 887274)								
EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	734 mg/kg	103	72	130
EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	3091 mg/kg	106	77	126
EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	1507 mg/kg	108	75	119
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 887166)								
EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	48.9 mg/kg	82.6	69	112
EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 887274)								
EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	1101 mg/kg	106	75	123
EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	3914 mg/kg	108	77	127
EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	283 mg/kg	105	43	123

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 889801)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	106	94	113
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	101	88	110
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	102	87	112
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	104	88	113
EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	109	89	114
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	102	91	111
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	102	86	110
EG020A-T: Tin	7440-31-5	0.001	mg/L	<0.001	0.1 mg/L	108	88	113
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	105	88	112
EG020T: Total Metals by ICP-MS (QCLot: 889803)								
EG020B-T: Silver	7440-22-4	0.001	mg/L	<0.001	0.02 mg/L	110	70	130

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EG035T: Total Recoverable Mercury by FIMS (QCLot: 889882)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	103	87	113
EP080/071: Total Petroleum Hydrocarbons (QCLot: 889355)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	360 µg/L	113	67	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 889355)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	110	65	125
EP080: BTEXN (QCLot: 889355)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	108	76	120
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	116	76	124
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	112	72	124
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	119	72	130
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	118	78	128
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	107	71	129

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
ED045G: Chloride by Discrete Analyser (QCLot: 889738)							
EM1706051-002	B17-68397-01/2.0	ED045G: Chloride	16887-00-6	2000 mg/kg	116	93	125
EG005T: Total Metals by ICP-AES (QCLot: 889870)							
EM1705976-052	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	103	78	124
		EG005T: Cadmium	7440-43-9	50 mg/kg	97.8	84	116
		EG005T: Copper	7440-50-8	50 mg/kg	96.6	82	124
		EG005T: Lead	7439-92-1	50 mg/kg	96.3	76	124
		EG005T: Molybdenum	7439-98-7	50 mg/kg	94.9	79	117
		EG005T: Nickel	7440-02-0	50 mg/kg	97.9	78	120
		EG005T: Selenium	7782-49-2	50 mg/kg	95.7	71	125
		EG005T: Zinc	7440-66-6	50 mg/kg	99.4	74	128
EG035T: Total Recoverable Mercury by FIMS (QCLot: 889871)							
EM1705976-052	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	95.2	76	116
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 889735)							
EM1705848-041	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	40 mg/kg	60.0	58	114
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 890193)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 890193) - continued							
EM1705976-067	Anonymous	EK026SF: Total Cyanide	57-12-5	20 mg/kg	89.0	77	113
EK040T: Fluoride Total (QCLot: 887497)							
EM1706039-004	Anonymous	EK040T: Fluoride	16984-48-8	400 mg/kg	88.2	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 887275)							
EM1706051-001	B17-68397-01/1.5	EP066-EM: Total Polychlorinated biphenyls	----	1 mg/kg	128	36	152
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 887166)							
EM1706039-004	Anonymous	EP074-UT: Benzene	71-43-2	2 mg/kg	69.4	50	138
		EP074-UT: Toluene	108-88-3	2 mg/kg	70.0	56	134
EP074I: Volatile Halogenated Compounds (QCLot: 887166)							
EM1706039-004	Anonymous	EP074-UT: 1.1-Dichloroethene	75-35-4	2 mg/kg	66.2	26	141
		EP074-UT: Trichloroethene	79-01-6	2 mg/kg	67.0	50	134
		EP074-UT: Chlorobenzene	108-90-7	2 mg/kg	77.7	28	134
EP075A: Phenolic Compounds (Halogenated) (QCLot: 887273)							
EM1706039-004	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	0.5 mg/kg	80.5	34	118
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.5 mg/kg	73.8	41	139
		EP075-EM: Pentachlorophenol	87-86-5	0.5 mg/kg	31.1	10	144
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 887273)							
EM1706039-004	Anonymous	EP075-EM: Phenol	108-95-2	0.5 mg/kg	84.9	32	134
		EP075-EM: 2-Nitrophenol	88-75-5	0.5 mg/kg	74.0	13	129
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 887273)							
EM1706039-004	Anonymous	EP075-EM: Acenaphthene	83-32-9	0.5 mg/kg	89.4	46	138
		EP075-EM: Pyrene	129-00-0	0.5 mg/kg	101	27	169
EP080/071: Total Petroleum Hydrocarbons (QCLot: 887166)							
EM1706039-004	Anonymous	EP074-UT: C6 - C9 Fraction	----	28 mg/kg	66.6	43	111
EP080/071: Total Petroleum Hydrocarbons (QCLot: 887274)							
EM1706041-005	Anonymous	EP071-EM: C10 - C14 Fraction	----	734 mg/kg	107	53	123
		EP071-EM: C15 - C28 Fraction	----	3091 mg/kg	106	70	124
		EP071-EM: C29 - C36 Fraction	----	1507 mg/kg	108	64	118
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 887166)							
EM1706039-004	Anonymous	EP074-UT: C6 - C10 Fraction	C6_C10	33 mg/kg	65.1	42	106
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 887274)							
EM1706041-005	Anonymous	EP071-EM: >C10 - C16 Fraction	----	1101 mg/kg	108	65	123
		EP071-EM: >C16 - C34 Fraction	----	3914 mg/kg	109	67	121
		EP071-EM: >C34 - C40 Fraction	----	283 mg/kg	104	44	126

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EG020T: Total Metals by ICP-MS (QCLot: 889801)							
EM1705975-001	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	99.9	82	118
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	94.1	75	129
		EG020A-T: Copper	7440-50-8	1 mg/L	94.7	81	115
		EG020A-T: Lead	7439-92-1	1 mg/L	103	83	121
		EG020A-T: Nickel	7440-02-0	1 mg/L	96.2	80	118
		EG020A-T: Zinc	7440-66-6	1 mg/L	97.2	74	116
EG035T: Total Recoverable Mercury by FIMS (QCLot: 889882)							
EM1705980-016	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	98.8	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 889355)							
EM1706054-015	Anonymous	EP080: C6 - C9 Fraction	----	280 µg/L	66.4	43	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 889355)							
EM1706054-015	Anonymous	EP080: C6 - C10 Fraction	C6_C10	330 µg/L	66.0	44	122
EP080: BTEXN (QCLot: 889355)							
EM1706054-015	Anonymous	EP080: Benzene	71-43-2	20 µg/L	81.7	68	130
		EP080: Toluene	108-88-3	20 µg/L	83.1	72	132

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM1706051**	Page	: 1 of 9
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLIVIA HENDERSON	Telephone	: +61-3-8549 9600
Project	: 2135645A	Date Samples Received	: 12-May-2017
Site	: SITE 26 - MORDIALLOC	Issue Date	: 19-May-2017
Sampler	: ----	No. of samples received	: 5
Order number	: ----	No. of samples analysed	: 5

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA001: pH in soil using 0.01M CaCl extract							
Soil Glass Jar - Unpreserved (EA001)							
B17-68397-01/1.5, B17-68397-01/2.0, B17-68397-01/3.0	**10-May-2017**	**17-May-2017**	17-May-2017	✓	**17-May-2017**	17-May-2017	✓
EA055: Moisture Content							
Soil Glass Jar - Unpreserved (EA055-103)							
B17-68397-01/1.5, B17-68397-01/2.0, B17-68397-01/3.0	**10-May-2017**	**----**	----	----	**15-May-2017**	24-May-2017	✓
ED040S : Soluble Sulfate by ICPAES							
Soil Glass Jar - Unpreserved (ED040S)							
B17-68397-01/1.5, B17-68397-01/2.0, B17-68397-01/3.0	**10-May-2017**	**17-May-2017**	07-Jun-2017	✓	**18-May-2017**	14-Jun-2017	✓
ED045G: Chloride by Discrete Analyser							
Soil Glass Jar - Unpreserved (ED045G)							
B17-68397-01/1.5, B17-68397-01/2.0, B17-68397-01/3.0	**10-May-2017**	**17-May-2017**	07-Jun-2017	✓	**19-May-2017**	14-Jun-2017	✓
ED093S: Soluble Major Cations							
Soil Glass Jar - Unpreserved (ED093S)							
B17-68397-01/1.5, B17-68397-01/2.0, B17-68397-01/3.0	**10-May-2017**	**17-May-2017**	06-Nov-2017	✓	**18-May-2017**	06-Nov-2017	✓
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
B17-68397-01/1.5, B17-68397-01/2.0, B17-68397-01/3.0	**10-May-2017**	**17-May-2017**	06-Nov-2017	✓	**18-May-2017**	06-Nov-2017	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
B17-68397-01/1.5, B17-68397-01/2.0, B17-68397-01/3.0	**10-May-2017**	**17-May-2017**	07-Jun-2017	✓	**19-May-2017**	07-Jun-2017	✓
EG048: Hexavalent Chromium (Alkaline Digest)							
Soil Glass Jar - Unpreserved (EG048G)							
B17-68397-01/1.5, B17-68397-01/2.0, B17-68397-01/3.0	**10-May-2017**	**16-May-2017**	07-Jun-2017	✓	**17-May-2017**	23-May-2017	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EK026SF: Total CN by Segmented Flow Analyser							
Soil Glass Jar - Unpreserved (EK026SF)							
B17-68397-01/1.5, B17-68397-01/2.0, B17-68397-01/3.0	**10-May-2017**	**16-May-2017**	24-May-2017	✓	**17-May-2017**	30-May-2017	✓
EK040T: Fluoride Total							
Soil Glass Jar - Unpreserved (EK040T)							
B17-68397-01/1.5, B17-68397-01/2.0, B17-68397-01/3.0	**10-May-2017**	**15-May-2017**	07-Jun-2017	✓	**17-May-2017**	07-Jun-2017	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066-EM)							
B17-68397-01/1.5, B17-68397-01/2.0, B17-68397-01/3.0	**10-May-2017**	**15-May-2017**	24-May-2017	✓	**16-May-2017**	24-Jun-2017	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074-UT)							
B17-68397-01/1.5, B17-68397-01/2.0, B17-68397-01/3.0	**10-May-2017**	**15-May-2017**	17-May-2017	✓	**17-May-2017**	17-May-2017	✓
EP074H: Naphthalene							
Soil Glass Jar - Unpreserved (EP074-UT)							
B17-68397-01/1.5, B17-68397-01/2.0, B17-68397-01/3.0	**10-May-2017**	**15-May-2017**	17-May-2017	✓	**17-May-2017**	17-May-2017	✓
EP074I: Volatile Halogenated Compounds							
Soil Glass Jar - Unpreserved (EP074-UT)							
B17-68397-01/1.5, B17-68397-01/2.0, B17-68397-01/3.0	**10-May-2017**	**15-May-2017**	17-May-2017	✓	**17-May-2017**	17-May-2017	✓
EP075A: Phenolic Compounds (Halogenated)							
Soil Glass Jar - Unpreserved (EP075-EM)							
B17-68397-01/1.5, B17-68397-01/2.0, B17-68397-01/3.0	**10-May-2017**	**15-May-2017**	24-May-2017	✓	**17-May-2017**	24-Jun-2017	✓
EP075A: Phenolic Compounds (Non-halogenated)							
Soil Glass Jar - Unpreserved (EP075-EM)							
B17-68397-01/1.5, B17-68397-01/2.0, B17-68397-01/3.0	**10-May-2017**	**15-May-2017**	24-May-2017	✓	**17-May-2017**	24-Jun-2017	✓
EP075B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075-EM)							
B17-68397-01/1.5, B17-68397-01/2.0, B17-68397-01/3.0	**10-May-2017**	**15-May-2017**	24-May-2017	✓	**17-May-2017**	24-Jun-2017	✓
EP075I: Organochlorine Pesticides							
Soil Glass Jar - Unpreserved (EP075-EM)							
B17-68397-01/1.5, B17-68397-01/2.0, B17-68397-01/3.0	**10-May-2017**	**15-May-2017**	24-May-2017	✓	**17-May-2017**	24-Jun-2017	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP071-EM)							
B17-68397-01/1.5, B17-68397-01/2.0, B17-68397-01/3.0	**10-May-2017**	**15-May-2017**	24-May-2017	✓	**16-May-2017**	24-Jun-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT)							
B17-68397-01/1.5, B17-68397-01/2.0, B17-68397-01/3.0	**10-May-2017**	**15-May-2017**	17-May-2017	✓	**17-May-2017**	17-May-2017	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP071-EM)							
B17-68397-01/1.5, B17-68397-01/2.0, B17-68397-01/3.0	**10-May-2017**	**15-May-2017**	24-May-2017	✓	**16-May-2017**	24-Jun-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT)							
B17-68397-01/1.5, B17-68397-01/2.0, B17-68397-01/3.0	**10-May-2017**	**15-May-2017**	17-May-2017	✓	**17-May-2017**	17-May-2017	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unspecified (EG020B-T)							
RB/100517	**10-May-2017**	**16-May-2017**	06-Nov-2017	✓	**16-May-2017**	06-Nov-2017	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unspecified (EG035T)							
RB/100517	**10-May-2017**	**----**	----	----	**16-May-2017**	07-Jun-2017	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP080)							
TB/100517	**10-May-2017**	**17-May-2017**	24-May-2017	✓	**17-May-2017**	24-May-2017	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber VOC Vial - Sulfuric Acid (EP080)							
TB/100517	**10-May-2017**	**17-May-2017**	24-May-2017	✓	**17-May-2017**	24-May-2017	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
TB/100517	**10-May-2017**	**17-May-2017**	24-May-2017	✓	**17-May-2017**	24-May-2017	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Cations - soluble by ICP-AES	ED093S	1	4	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride Soluble By Discrete Analyser	ED045G	1	3	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Anions - Soluble	ED040S	1	3	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055-103	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	3	20	**15.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Cations - soluble by ICP-AES	ED093S	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride Soluble By Discrete Analyser	ED045G	2	3	**66.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Cations - soluble by ICP-AES	ED093S	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride Soluble By Discrete Analyser	ED045G	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Anions - Soluble	ED040S	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Method Blanks (MB) - Continued							
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Chloride Soluble By Discrete Analyser	ED045G	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Total Mercury by FIMS	EG035T	1	7	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite B	EG020B-T	1	3	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Total Mercury by FIMS	EG035T	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite B	EG020B-T	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Total Mercury by FIMS	EG035T	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite B	EG020B-T	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Total Mercury by FIMS	EG035T	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH in soil using a 0.01M CaCl2 extract	EA001	SOIL	In house: Referenced to Rayment and Higginson 4B1 (mod.) 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Moisture Content	EA055-103	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Major Anions - Soluble	ED040S	SOIL	In house: Soluble Anions are determined off a 1:5 soil / water extract by ICPAES.
Chloride Soluble By Discrete Analyser	ED045G	SOIL	In house: Referenced to APHA 4500-Cl- E. The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride.in the presence of ferric ions the librated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm. Analysis is performed on a 1:5 soil / water leachate.
Cations - soluble by ICP-AES	ED093S	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010 (ICPAES) Water extracts of the soil are analyzed for major cations by ICPAES. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	SOIL	In house: Referenced to USEPA SW846, Method 3060A. Hexavalent chromium is extracted by alkaline digestion. The digest is determined by photometrically by automatic discrete analyser, following pH adjustment. The instrument uses colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Cyanide by Segmented Flow Analyser	EK026SF	SOIL	In house: Referenced to APHA 4500-CN C / ASTM D7511. Caustic leachates of soil samples are introduced into an automated segmented flow analyser. Complex bound cyanide is decomposed in a continuously flowing stream, at a pH of 3.8, by the effect of UV light. A UV-B lamp (312 nm) and a decomposition spiral of borosilicate glass are used to filter out UV light with a wavelength of less than 290 nm thus preventing the conversion of thiocyanate into cyanide. The hydrogen cyanide present at a pH of 3.8 is separated by gas dialysis. The hydrogen cyanide is then determined photometrically, based on the reaction of cyanide with chloramine-T to form cyanogen chloride. This then reacts with 4-pyridine carboxylic acid and 1,3-dimethylbarbituric acid to give a red colour which is measured at 600 nm. This method is compliant with NEPM (2013) Schedule B(3)
Total Fluoride	EK040T	SOIL	(In-house) Total fluoride is determined by ion specific electrode (ISE) in a solution obtained after a Sodium Carbonate / Potassium Carbonate fusion dissolution.

Analytical Methods	Method	Matrix	Method Descriptions
PCB - VIC EPA 448.3 Screen	EP066-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
TRH - Semivolatile Fraction	EP071-EM	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40.
Volatile Organic Compounds - Ultra-trace	EP074-UT	SOIL	In house: Referenced to USEPA SW 846 - 8260B Extracts are analysed by Purge and Trap, Capillary GC/MS in partial SIM/Scan mode. Quantification is by comparison against an established multi-point calibration curves. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
Volatile Organic Compounds - Ultra-trace - Summations	EP074-UT-SUM	SOIL	Summation of MAHs and VHCs
Semivolatile Organic Compounds - Waste Classification	EP075-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (2013) Schedule B(3) (Method 502)
SVOC - Waste Classification (Sums)	EP075-EM-SUM	SOIL	Summations for EP075 (EM variation)
E.coli and Coliforms by Colilert	MM802	SOIL	Microbiological analysis subcontracted to ALS Scoresby (NATA Accredited Laboratory No. 992).
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite B	EG020B-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
NaOH leach for CN in Soils	CN-PR	SOIL	In house: APHA 4500 CN. Samples are extracted by end-over-end tumbling with NaOH.
pH in soil using a 0.01M CaCl2 extract	EA001-PR	SOIL	In house: Referenced to Rayment and Higginson 4B1, 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Alkaline digestion for Hexavalent Chromium	EG048PR	SOIL	In house: Referenced to USEPA SW846, Method 3060A.
Total Fluoride	EK040T-PR	SOIL	In house: Samples are fused with Sodium Carbonate / Potassium Carbonate flux.

Preparation Methods	Method	Matrix	Method Descriptions
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of distilled water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils - Ultra-trace.	ORG16-UT	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids - VIC EPA Screen	ORG17-EM	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

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ABN 80 078 004 798

White Page - Laboratory Copy
Yellow Page - Project File Copy
Pink Page - Remains in Book

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Chain of Custody

Order No: 85524

Job Title: DSAR - SITE 26

Laboratory Name: ALS

Address: 2-4 WESTALL ROAD
SPRINGVALE, VIC

Fax Number:

Phone Number: 5 G' JABLONKAS

Contact Name: ☎ (03) 8549 9600

Delivery Method: COURIER

Quote Number:

PB Job Number: 21356454

Job Location: SITE 26 - MORNINGTON

Terms of Business	PB	Other	Checked

Project Manager: OLIVIA HENDERSON

Results Expected by/on: STD.

Fax Results to: D. NAZARIO

Fax Number:

Phone Number: 9861-1111

Spreadsheet of Results Required: (Y) / N

Format: ESDAT, PDF

Turnaround Time Required: STD.

Invoice to: D. HENDERSON (1/1)

Comments:

Date Sampled	Time	Sample I.D.	Container Size	Sample Location	Medium*	Preservative Type	Filtered (X)	TPH C6-C9	BTEX	PAHs	OC/OP/PCBs	Metals**	TRG SUITE	DNRG METALS	CYANIDE	CATION/ANION	E. COLI	TOTAL COLIFORM	Initials	Comments/Additional Information and/or Analysis Required
10/5/17	pm	B17-68397-01/1.5	1	B17-68397-01/SA26	S	ICE							X	X	X	X	X	X	MN	NOTE: SAMPLES (SPECIALLY @ 3.0 MBGL) MAY CONTAIN GLASS SHREDS AND A FEW OTHER FOREIGN MATERIALS - EXTRA CAUTION RECOMMENDED WHEN HANDLING.)
	↓	" /2.0	2	↓	↓	↓							X	X	X	X	X	X	↓	
		" /3.0	3										X	X	X	X	X	X		
↓	↓	RB/100517	4											X						
		TB/100517	5					X	X											

Environmental Division
Melbourne
Work Order Reference
EM1706051

Telephone : + 61-3-8549 9600

dium*: S = Soil, W = Water, V = Vapour

end**: (circle the following to be tested)

Metals: Al As Be Cd Co Cr Cu Fe Hg
Li Mg Mn Ni Pb Se Sn V Zn

Samples on Ice: ☐ Yes ☐ No

Please fax back a signed copy when samples are received at the laboratory

Relinquished by:	D. NAZARIO		
Date & Time:	12/5/17		
Company:	WSP		
Signature:			
Received in Good Order & Condition by (Name):			
Date & Time:	12/5		
Company:	ALS 16:10		
Signature:			

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1706717**	Page	: 1 of 24
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLFA NAZARIO	Contact	: Steven McGrath
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9600
Project	: 2135645A	Date Samples Received	: 25-May-2017 16:00
Order number	: ----	Date Analysis Commenced	: 26-May-2017
C-O-C number	: 72866-72867	Issue Date	: 31-May-2017 19:21
Sampler	: ----		
Site	: Site 26		
Quote number	: ME-525-16		
No. of samples received	: 23		
No. of samples analysed	: 21		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	Senior Semivolatile Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	Senior Semivolatile Instrument Chemist	Melbourne Organics, Springvale, VIC
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TP17-26-14/0.8	TP17-26-16/0.7	TP17-26-29/0.4	TP17-26-31/1.0	TP17-26-27/0.8
			Client sampling date / time	22-May-2017 00:00	22-May-2017 00:00	22-May-2017 00:00	23-May-2017 00:00	23-May-2017 00:00
Compound	CAS Number	LOR	Unit	EM1706717-001	EM1706717-002	EM1706717-003	EM1706717-004	EM1706717-005
				Result	Result	Result	Result	Result
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	4.8	5.2	7.6	8.1	7.9
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1	%	25.3	18.3	21.8	17.5	23.8
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	5	<5	5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Copper	7440-50-8	5	mg/kg	8	<5	20	<5	<5
Lead	7439-92-1	5	mg/kg	12	9	15	6	<5
Molybdenum	7439-98-7	2	mg/kg	<2	<2	<2	<2	<2
Nickel	7440-02-0	2	mg/kg	7	5	15	5	12
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Silver	7440-22-4	2	mg/kg	<2	<2	<2	<2	<2
Tin	7440-31-5	5	mg/kg	<5	<5	<5	<5	<5
Zinc	7440-66-6	5	mg/kg	5	<5	186	6	13
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.2	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
EK026SF: Total CN by Segmented Flow Analyser								
Total Cyanide	57-12-5	1	mg/kg	1	<1	1	<1	<1
EK040T: Fluoride Total								
Fluoride	16984-48-8	40	mg/kg	230	210	500	640	470
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of monocyclic aromatic hydrocarbons	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP17-26-14/0.8	TP17-26-16/0.7	TP17-26-29/0.4	TP17-26-31/1.0	TP17-26-27/0.8
				Client sampling date / time	22-May-2017 00:00	22-May-2017 00:00	22-May-2017 00:00	23-May-2017 00:00	23-May-2017 00:00
Compound	CAS Number	LOR	Unit		EM1706717-001	EM1706717-002	EM1706717-003	EM1706717-004	EM1706717-005
					Result	Result	Result	Result	Result
EP074H: Naphthalene									
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP074I: Volatile Halogenated Compounds									
Vinyl chloride	75-01-4	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.1-Dichloroethene	75-35-4	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Methylene chloride	75-09-2	0.4	mg/kg		<0.4	<0.4	<0.4	<0.4	<0.4
trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Chloroform	67-66-3	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.1.1-Trichloroethane	71-55-6	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Carbon Tetrachloride	56-23-5	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
1.2-Dichloroethane	107-06-2	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Trichloroethene	79-01-6	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.1.2-Trichloroethane	79-00-5	0.04	mg/kg		<0.04	<0.04	<0.04	<0.04	<0.04
Tetrachloroethene	127-18-4	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Hexachlorobutadiene	87-68-3	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Chlorobenzene	108-90-7	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.4-Dichlorobenzene	106-46-7	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.2-Dichlorobenzene	95-50-1	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
^ Sum of volatile chlorinated hydrocarbons	----	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
^ Sum of other chlorinated hydrocarbons	----	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
EP075A: Phenolic Compounds (Halogenated)									
2-Chlorophenol	95-57-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
2.4-Dichlorophenol	120-83-2	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
2.6-Dichlorophenol	87-65-0	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Pentachlorophenol	87-86-5	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Sum of Phenols (halogenated)	----	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TP17-26-14/0.8	TP17-26-16/0.7	TP17-26-29/0.4	TP17-26-31/1.0	TP17-26-27/0.8
			Client sampling date / time	22-May-2017 00:00	22-May-2017 00:00	22-May-2017 00:00	23-May-2017 00:00	23-May-2017 00:00
Compound	CAS Number	LOR	Unit	EM1706717-001	EM1706717-002	EM1706717-003	EM1706717-004	EM1706717-005
				Result	Result	Result	Result	Result
EP075A: Phenolic Compounds (Halogenated) - Continued								
EP075A: Phenolic Compounds (Non-halogenated)								
Phenol	108-95-2	1	mg/kg	<1	<1	<1	<1	<1
2-Methylphenol	95-48-7	1	mg/kg	<1	<1	<1	<1	<1
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	<1	<1	<1
2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	<1	<1	<1
2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	<5	<5	<5	<5
4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	<5	<5	<5
2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	<5	<5	<5
Dinoseb	88-85-7	5	mg/kg	<5	<5	<5	<5	<5
2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	<5	<5	<5
^ Sum of Phenols (non-halogenated)	----	1	mg/kg	<1	<1	<1	<1	<1
EP075B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP075I: Organochlorine Pesticides								

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP17-26-14/0.8	TP17-26-16/0.7	TP17-26-29/0.4	TP17-26-31/1.0	TP17-26-27/0.8
				Client sampling date / time	22-May-2017 00:00	22-May-2017 00:00	22-May-2017 00:00	23-May-2017 00:00	23-May-2017 00:00
Compound	CAS Number	LOR	Unit		EM1706717-001	EM1706717-002	EM1706717-003	EM1706717-004	EM1706717-005
					Result	Result	Result	Result	Result
EP075l: Organochlorine Pesticides - Continued									
alpha-BHC	319-84-6	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
beta-BHC	319-85-7	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
gamma-BHC	58-89-9	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
delta-BHC	319-86-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Heptachlor	76-44-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Aldrin	309-00-2	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Heptachlor epoxide	1024-57-3	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
cis-Chlordane	5103-71-9	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
trans-Chlordane	5103-74-2	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Endosulfan 1	959-98-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.03	mg/kg		<0.03	<0.03	**0.06**	<0.03	<0.03
Endrin aldehyde	7421-93-4	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Endrin	72-20-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Endosulfan 2	33213-65-9	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
4.4`-DDT	50-29-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
^ Sum of organochlorine pesticides	----	0.03	mg/kg		<0.03	<0.03	**0.06**	<0.03	<0.03
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.03	mg/kg		<0.03	<0.03	**0.06**	<0.03	<0.03
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ Chlordane	57-74-9	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
^ Sum of other organochlorine pesticides	----	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	**100**	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	**100**	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP17-26-14/0.8	TP17-26-16/0.7	TP17-26-29/0.4	TP17-26-31/1.0	TP17-26-27/0.8
				Client sampling date / time	22-May-2017 00:00	22-May-2017 00:00	22-May-2017 00:00	23-May-2017 00:00	23-May-2017 00:00
Compound	CAS Number	LOR	Unit		EM1706717-001	EM1706717-002	EM1706717-003	EM1706717-004	EM1706717-005
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	**160**	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		<50	<50	**160**	<50	<50
>C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	<50
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**108**	**108**	**118**	**96.3**	**107**
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		**80.4**	**83.9**	**86.2**	**81.8**	**73.5**
Toluene-D8	2037-26-5	0.1	%		**93.7**	**101**	**96.4**	**98.2**	**85.7**
4-Bromofluorobenzene	460-00-4	0.1	%		**90.8**	**92.7**	**100**	**98.6**	**86.1**
EP075S: Acid Extractable Surrogates									
Phenol-d6	13127-88-3	0.025	%		**83.2**	**78.4**	**84.8**	**88.7**	**76.5**
2-Chlorophenol-D4	93951-73-6	0.025	%		**68.9**	**64.5**	**68.6**	**75.0**	**63.0**
2.4.6-Tribromophenol	118-79-6	0.025	%		**81.0**	**75.5**	**84.5**	**72.9**	**69.7**
EP075T: Base/Neutral Extractable Surrogates									
Nitrobenzene-D5	4165-60-0	0.025	%		**92.0**	**84.0**	**91.3**	**90.6**	**76.4**
1.2-Dichlorobenzene-D4	2199-69-1	0.025	%		**83.7**	**79.5**	**84.3**	**83.0**	**69.4**
2-Fluorobiphenyl	321-60-8	0.025	%		**82.7**	**75.1**	**85.3**	**82.0**	**69.0**
Anthracene-d10	1719-06-8	0.025	%		**92.8**	**90.8**	**99.6**	**88.8**	**86.0**
4-Terphenyl-d14	1718-51-0	0.025	%		**81.2**	**80.5**	**97.1**	**77.4**	**78.8**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TP17-26-25/0.7	TP17-26-24/0.8	TP17-26-33/0.5-0.6	TP17-26-35/0.5-0.6	TP17-26-64/0.5
			Client sampling date / time	23-May-2017 00:00	23-May-2017 00:00	24-May-2017 00:00	24-May-2017 00:00	24-May-2017 00:00
Compound	CAS Number	LOR	Unit	EM1706717-006	EM1706717-007	EM1706717-008	EM1706717-009	EM1706717-010
				Result	Result	Result	Result	Result
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	7.8	7.6	8.1	7.7	4.4
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1	%	38.0	28.4	17.5	17.7	4.5
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	22	5	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Copper	7440-50-8	5	mg/kg	8	11	<5	<5	<5
Lead	7439-92-1	5	mg/kg	11	12	13	8	8
Molybdenum	7439-98-7	2	mg/kg	<2	<2	3	<2	<2
Nickel	7440-02-0	2	mg/kg	9	16	8	9	<2
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Silver	7440-22-4	2	mg/kg	<2	<2	<2	<2	<2
Tin	7440-31-5	5	mg/kg	<5	<5	<5	<5	<5
Zinc	7440-66-6	5	mg/kg	6	5	<5	6	7
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
EK026SF: Total CN by Segmented Flow Analyser								
Total Cyanide	57-12-5	1	mg/kg	<1	<1	<1	<1	1
EK040T: Fluoride Total								
Fluoride	16984-48-8	40	mg/kg	320	350	280	350	<40
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of monocyclic aromatic hydrocarbons	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP17-26-25/0.7	TP17-26-24/0.8	TP17-26-33/0.5-0.6	TP17-26-35/0.5-0.6	TP17-26-64/0.5
				Client sampling date / time	23-May-2017 00:00	23-May-2017 00:00	24-May-2017 00:00	24-May-2017 00:00	24-May-2017 00:00
Compound	CAS Number	LOR	Unit		EM1706717-006	EM1706717-007	EM1706717-008	EM1706717-009	EM1706717-010
					Result	Result	Result	Result	Result
EP074H: Naphthalene									
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP074I: Volatile Halogenated Compounds									
Vinyl chloride	75-01-4	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.1-Dichloroethene	75-35-4	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Methylene chloride	75-09-2	0.4	mg/kg		<0.4	<0.4	<0.4	<0.4	<0.4
trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Chloroform	67-66-3	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.1.1-Trichloroethane	71-55-6	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Carbon Tetrachloride	56-23-5	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
1.2-Dichloroethane	107-06-2	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Trichloroethene	79-01-6	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.1.2-Trichloroethane	79-00-5	0.04	mg/kg		<0.04	<0.04	<0.04	<0.04	<0.04
Tetrachloroethene	127-18-4	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Hexachlorobutadiene	87-68-3	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Chlorobenzene	108-90-7	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.4-Dichlorobenzene	106-46-7	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.2-Dichlorobenzene	95-50-1	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
^ Sum of volatile chlorinated hydrocarbons	----	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
^ Sum of other chlorinated hydrocarbons	----	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
EP075A: Phenolic Compounds (Halogenated)									
2-Chlorophenol	95-57-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
2.4-Dichlorophenol	120-83-2	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
2.6-Dichlorophenol	87-65-0	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Pentachlorophenol	87-86-5	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Sum of Phenols (halogenated)	----	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP17-26-25/0.7	TP17-26-24/0.8	TP17-26-33/0.5-0.6	TP17-26-35/0.5-0.6	TP17-26-64/0.5
				Client sampling date / time	23-May-2017 00:00	23-May-2017 00:00	24-May-2017 00:00	24-May-2017 00:00	24-May-2017 00:00
Compound	CAS Number	LOR	Unit		EM1706717-006	EM1706717-007	EM1706717-008	EM1706717-009	EM1706717-010
					Result	Result	Result	Result	Result
EP075A: Phenolic Compounds (Halogenated) - Continued									
EP075A: Phenolic Compounds (Non-halogenated)									
Phenol	108-95-2	1	mg/kg		<1	<1	<1	<1	<1
2-Methylphenol	95-48-7	1	mg/kg		<1	<1	<1	<1	<1
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	1	mg/kg		<1	<1	<1	<1	<1
2.4-Dimethylphenol	105-67-9	1	mg/kg		<1	<1	<1	<1	<1
2.4-Dinitrophenol	51-28-5	5	mg/kg		<5	<5	<5	<5	<5
4-Nitrophenol	100-02-7	5	mg/kg		<5	<5	<5	<5	<5
2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg		<5	<5	<5	<5	<5
Dinoseb	88-85-7	5	mg/kg		<5	<5	<5	<5	<5
2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg		<5	<5	<5	<5	<5
^ Sum of Phenols (non-halogenated)	----	1	mg/kg		<1	<1	<1	<1	<1
EP075B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP075I: Organochlorine Pesticides									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP17-26-25/0.7	TP17-26-24/0.8	TP17-26-33/0.5-0.6	TP17-26-35/0.5-0.6	TP17-26-64/0.5
				Client sampling date / time	23-May-2017 00:00	23-May-2017 00:00	24-May-2017 00:00	24-May-2017 00:00	24-May-2017 00:00
Compound	CAS Number	LOR	Unit		EM1706717-006	EM1706717-007	EM1706717-008	EM1706717-009	EM1706717-010
					Result	Result	Result	Result	Result
EP075(l): Organochlorine Pesticides - Continued									
alpha-BHC	319-84-6	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
beta-BHC	319-85-7	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
gamma-BHC	58-89-9	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
delta-BHC	319-86-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Heptachlor	76-44-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Aldrin	309-00-2	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Heptachlor epoxide	1024-57-3	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
cis-Chlordane	5103-71-9	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
trans-Chlordane	5103-74-2	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Endosulfan 1	959-98-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Endrin aldehyde	7421-93-4	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Endrin	72-20-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Endosulfan 2	33213-65-9	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
4.4`-DDT	50-29-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
^ Sum of organochlorine pesticides	----	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ Chlordane	57-74-9	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
^ Sum of other organochlorine pesticides	----	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP17-26-25/0.7	TP17-26-24/0.8	TP17-26-33/0.5-0.6	TP17-26-35/0.5-0.6	TP17-26-64/0.5
				Client sampling date / time	23-May-2017 00:00	23-May-2017 00:00	24-May-2017 00:00	24-May-2017 00:00	24-May-2017 00:00
Compound	CAS Number	LOR	Unit		EM1706717-006	EM1706717-007	EM1706717-008	EM1706717-009	EM1706717-010
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		<50	<50	<50	<50	<50
>C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	<50
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**93.5**	**102**	**94.9**	**110**	**109**
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		**79.8**	**83.8**	**80.6**	**84.0**	**90.0**
Toluene-D8	2037-26-5	0.1	%		**94.3**	**97.6**	**93.8**	**92.1**	**100**
4-Bromofluorobenzene	460-00-4	0.1	%		**90.1**	**95.0**	**88.9**	**89.4**	**92.8**
EP075S: Acid Extractable Surrogates									
Phenol-d6	13127-88-3	0.025	%		**78.2**	**89.2**	**81.2**	**93.0**	**90.4**
2-Chlorophenol-D4	93951-73-6	0.025	%		**68.6**	**69.0**	**67.4**	**72.7**	**73.4**
2.4.6-Tribromophenol	118-79-6	0.025	%		**72.1**	**74.0**	**69.1**	**85.0**	**81.6**
EP075T: Base/Neutral Extractable Surrogates									
Nitrobenzene-D5	4165-60-0	0.025	%		**82.5**	**91.6**	**88.7**	**94.8**	**89.4**
1.2-Dichlorobenzene-D4	2199-69-1	0.025	%		**77.9**	**83.8**	**80.4**	**83.4**	**79.3**
2-Fluorobiphenyl	321-60-8	0.025	%		**74.4**	**80.9**	**76.5**	**88.0**	**80.8**
Anthracene-d10	1719-06-8	0.025	%		**88.9**	**87.5**	**84.3**	**104**	**93.9**
4-Terphenyl-d14	1718-51-0	0.025	%		**78.2**	**77.4**	**74.9**	**92.4**	**83.3**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	DUPA TP17-26-64/0.5	TP17-26-37/0.4	TP17-26-41/0.8	TP17-26-70/0.1	DUPA TP17-26-70/0.1
			Client sampling date / time	24-May-2017 00:00	24-May-2017 00:00	25-May-2017 00:00	25-May-2017 00:00	25-May-2017 00:00
Compound	CAS Number	LOR	Unit	EM1706717-011	EM1706717-013	EM1706717-014	EM1706717-015	EM1706717-016
				Result	Result	Result	Result	Result
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	4.3	7.9	7.2	6.1	6.0
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1	%	4.1	11.3	4.7	2.0	2.7
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	23	<5	<5	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Copper	7440-50-8	5	mg/kg	<5	<5	<5	<5	<5
Lead	7439-92-1	5	mg/kg	7	7	14	<5	<5
Molybdenum	7439-98-7	2	mg/kg	<2	<2	<2	<2	<2
Nickel	7440-02-0	2	mg/kg	<2	30	7	<2	<2
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Silver	7440-22-4	2	mg/kg	<2	<2	<2	<2	<2
Tin	7440-31-5	5	mg/kg	<5	<5	<5	<5	<5
Zinc	7440-66-6	5	mg/kg	7	38	26	<5	<5
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
EK026SF: Total CN by Segmented Flow Analyser								
Total Cyanide	57-12-5	1	mg/kg	1	<1	<1	<1	<1
EK040T: Fluoride Total								
Fluoride	16984-48-8	40	mg/kg	<40	150	50	<40	<40
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of monocyclic aromatic hydrocarbons	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	DUPA TP17-26-64/0.5	TP17-26-37/0.4	TP17-26-41/0.8	TP17-26-70/0.1	DUPA TP17-26-70/0.1
				Client sampling date / time	24-May-2017 00:00	24-May-2017 00:00	25-May-2017 00:00	25-May-2017 00:00	25-May-2017 00:00
Compound	CAS Number	LOR	Unit		EM1706717-011	EM1706717-013	EM1706717-014	EM1706717-015	EM1706717-016
					Result	Result	Result	Result	Result
EP074H: Naphthalene									
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP074I: Volatile Halogenated Compounds									
Vinyl chloride	75-01-4	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.1-Dichloroethene	75-35-4	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Methylene chloride	75-09-2	0.4	mg/kg		<0.4	<0.4	<0.4	<0.4	<0.4
trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Chloroform	67-66-3	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.1.1-Trichloroethane	71-55-6	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Carbon Tetrachloride	56-23-5	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
1.2-Dichloroethane	107-06-2	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Trichloroethene	79-01-6	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.1.2-Trichloroethane	79-00-5	0.04	mg/kg		<0.04	<0.04	<0.04	<0.04	<0.04
Tetrachloroethene	127-18-4	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Hexachlorobutadiene	87-68-3	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Chlorobenzene	108-90-7	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.4-Dichlorobenzene	106-46-7	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.2-Dichlorobenzene	95-50-1	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
^ Sum of volatile chlorinated hydrocarbons	----	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
^ Sum of other chlorinated hydrocarbons	----	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
EP075A: Phenolic Compounds (Halogenated)									
2-Chlorophenol	95-57-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
2.4-Dichlorophenol	120-83-2	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
2.6-Dichlorophenol	87-65-0	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Pentachlorophenol	87-86-5	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Sum of Phenols (halogenated)	----	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	DUPA TP17-26-64/0.5	TP17-26-37/0.4	TP17-26-41/0.8	TP17-26-70/0.1	DUPA TP17-26-70/0.1
				Client sampling date / time	24-May-2017 00:00	24-May-2017 00:00	25-May-2017 00:00	25-May-2017 00:00	25-May-2017 00:00
Compound	CAS Number	LOR	Unit		EM1706717-011	EM1706717-013	EM1706717-014	EM1706717-015	EM1706717-016
					Result	Result	Result	Result	Result
EP075A: Phenolic Compounds (Halogenated) - Continued									
EP075A: Phenolic Compounds (Non-halogenated)									
Phenol	108-95-2	1	mg/kg		<1	<1	<1	<1	<1
2-Methylphenol	95-48-7	1	mg/kg		<1	<1	<1	<1	<1
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	1	mg/kg		<1	<1	<1	<1	<1
2.4-Dimethylphenol	105-67-9	1	mg/kg		<1	<1	<1	<1	<1
2.4-Dinitrophenol	51-28-5	5	mg/kg		<5	<5	<5	<5	<5
4-Nitrophenol	100-02-7	5	mg/kg		<5	<5	<5	<5	<5
2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg		<5	<5	<5	<5	<5
Dinoseb	88-85-7	5	mg/kg		<5	<5	<5	<5	<5
2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg		<5	<5	<5	<5	<5
^ Sum of Phenols (non-halogenated)	----	1	mg/kg		<1	<1	<1	<1	<1
EP075B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	**0.7**	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	**0.7**	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg		<0.5	<0.5	**0.8**	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	**2.2**	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP075I: Organochlorine Pesticides									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	DUPA TP17-26-64/0.5	TP17-26-37/0.4	TP17-26-41/0.8	TP17-26-70/0.1	DUPA TP17-26-70/0.1
				Client sampling date / time	24-May-2017 00:00	24-May-2017 00:00	25-May-2017 00:00	25-May-2017 00:00	25-May-2017 00:00
Compound	CAS Number	LOR	Unit		EM1706717-011	EM1706717-013	EM1706717-014	EM1706717-015	EM1706717-016
					Result	Result	Result	Result	Result
EP075l: Organochlorine Pesticides - Continued									
alpha-BHC	319-84-6	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
beta-BHC	319-85-7	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
gamma-BHC	58-89-9	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
delta-BHC	319-86-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Heptachlor	76-44-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Aldrin	309-00-2	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Heptachlor epoxide	1024-57-3	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
cis-Chlordane	5103-71-9	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
trans-Chlordane	5103-74-2	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Endosulfan 1	959-98-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Endrin aldehyde	7421-93-4	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Endrin	72-20-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Endosulfan 2	33213-65-9	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
4.4`-DDT	50-29-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
^ Sum of organochlorine pesticides	----	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ Chlordane	57-74-9	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
^ Sum of other organochlorine pesticides	----	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	DUPA TP17-26-64/0.5	TP17-26-37/0.4	TP17-26-41/0.8	TP17-26-70/0.1	DUPA TP17-26-70/0.1
				Client sampling date / time	24-May-2017 00:00	24-May-2017 00:00	25-May-2017 00:00	25-May-2017 00:00	25-May-2017 00:00
Compound	CAS Number	LOR	Unit		EM1706717-011	EM1706717-013	EM1706717-014	EM1706717-015	EM1706717-016
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
>C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	<50
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		116	110	97.6	101	92.8
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		88.4	82.0	89.5	92.3	94.6
Toluene-D8	2037-26-5	0.1	%		96.0	89.5	101	107	107
4-Bromofluorobenzene	460-00-4	0.1	%		99.1	91.7	98.9	96.8	100
EP075S: Acid Extractable Surrogates									
Phenol-d6	13127-88-3	0.025	%		86.4	72.9	103	85.8	86.3
2-Chlorophenol-D4	93951-73-6	0.025	%		69.9	59.6	81.5	66.8	68.9
2.4.6-Tribromophenol	118-79-6	0.025	%		85.5	70.6	92.2	77.3	70.8
EP075T: Base/Neutral Extractable Surrogates									
Nitrobenzene-D5	4165-60-0	0.025	%		86.0	72.1	93.6	71.2	76.3
1.2-Dichlorobenzene-D4	2199-69-1	0.025	%		76.5	63.8	88.7	70.1	71.7
2-Fluorobiphenyl	321-60-8	0.025	%		78.9	67.7	90.0	69.1	74.8
Anthracene-d10	1719-06-8	0.025	%		95.3	81.2	95.4	90.5	87.1
4-Terphenyl-d14	1718-51-0	0.025	%		84.2	85.7	87.4	84.7	82.3

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TP17-26-43/0.7	----	----	----	----
			Client sampling date / time	25-May-2017 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EM1706717-018	--------	--------	--------	--------
				Result	----	----	----	----
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	**6.9**	----	----	----	----
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1	%	**9.2**	----	----	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----
Copper	7440-50-8	5	mg/kg	<5	----	----	----	----
Lead	7439-92-1	5	mg/kg	<5	----	----	----	----
Molybdenum	7439-98-7	2	mg/kg	<2	----	----	----	----
Nickel	7440-02-0	2	mg/kg	**3**	----	----	----	----
Selenium	7782-49-2	5	mg/kg	<5	----	----	----	----
Silver	7440-22-4	2	mg/kg	<2	----	----	----	----
Tin	7440-31-5	5	mg/kg	<5	----	----	----	----
Zinc	7440-66-6	5	mg/kg	<5	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	----	----	----	----
EK026SF: Total CN by Segmented Flow Analyser								
Total Cyanide	57-12-5	1	mg/kg	<1	----	----	----	----
EK040T: Fluoride Total								
Fluoride	16984-48-8	40	mg/kg	**80**	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	----	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	71-43-2	0.2	mg/kg	<0.2	----	----	----	----
Toluene	108-88-3	0.5	mg/kg	<0.5	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	----	----	----	----
Styrene	100-42-5	0.5	mg/kg	<0.5	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	----	----	----	----
^ **Sum of monocyclic aromatic hydrocarbons**	----	0.2	mg/kg	<0.2	----	----	----	----
^ **Total Xylenes**	1330-20-7	0.5	mg/kg	<0.5	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TP17-26-43/0.7	----	----	----	----
			Client sampling date / time	25-May-2017 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EM1706717-018	--------	--------	--------	--------
				Result	----	----	----	----
EP074H: Naphthalene								
Naphthalene	91-20-3	1	mg/kg	<1	----	----	----	----
EP074I: Volatile Halogenated Compounds								
Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	----	----	----	----
1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	----	----	----	----
Methylene chloride	75-09-2	0.4	mg/kg	<0.4	----	----	----	----
trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	----	----	----	----
cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	----	----	----	----
Chloroform	67-66-3	0.02	mg/kg	<0.02	----	----	----	----
1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	----	----	----	----
Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	----	----	----	----
1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	----	----	----	----
Trichloroethene	79-01-6	0.02	mg/kg	<0.02	----	----	----	----
1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	----	----	----	----
Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	----	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	----	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	----	----	----	----
Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	----	----	----	----
Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	----	----	----	----
1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	----	----	----	----
1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	----	----	----	----
1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	----	----	----	----
^ **Sum of volatile chlorinated hydrocarbons**	----	0.01	mg/kg	<0.01	----	----	----	----
^ **Sum of other chlorinated hydrocarbons**	----	0.01	mg/kg	<0.01	----	----	----	----
EP075A: Phenolic Compounds (Halogenated)								
2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	----	----	----	----
2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	----	----	----	----
2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	----	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	----	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	----	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	----	----	----	----
2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	----	----	----	----
2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg	<0.05	----	----	----	----
Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	----	----	----	----
^ **Sum of Phenols (halogenated)**	----	0.03	mg/kg	<0.03	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP17-26-43/0.7	----	----	----	----
				Client sampling date / time	25-May-2017 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM1706717-018	--------	--------	--------	--------
					Result	----	----	----	----
EP075A: Phenolic Compounds (Halogenated) - Continued									
EP075A: Phenolic Compounds (Non-halogenated)									
Phenol	108-95-2	1	mg/kg		<1	----	----	----	----
2-Methylphenol	95-48-7	1	mg/kg		<1	----	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	----	----	----	----
2-Nitrophenol	88-75-5	1	mg/kg		<1	----	----	----	----
2.4-Dimethylphenol	105-67-9	1	mg/kg		<1	----	----	----	----
2.4-Dinitrophenol	51-28-5	5	mg/kg		<5	----	----	----	----
4-Nitrophenol	100-02-7	5	mg/kg		<5	----	----	----	----
2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg		<5	----	----	----	----
Dinoseb	88-85-7	5	mg/kg		<5	----	----	----	----
2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg		<5	----	----	----	----
^ Sum of Phenols (non-halogenated)	----	1	mg/kg		<1	----	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	----	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	----	----	----	----
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg		<0.5	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	----	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	----	----	----	----
EP075I: Organochlorine Pesticides									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP17-26-43/0.7	----	----	----	----
				Client sampling date / time	25-May-2017 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM1706717-018	--------	--------	--------	--------
					Result	----	----	----	----
EP075l: Organochlorine Pesticides - Continued									
alpha-BHC	319-84-6	0.03	mg/kg		<0.03	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg		<0.03	----	----	----	----
beta-BHC	319-85-7	0.03	mg/kg		<0.03	----	----	----	----
gamma-BHC	58-89-9	0.03	mg/kg		<0.03	----	----	----	----
delta-BHC	319-86-8	0.03	mg/kg		<0.03	----	----	----	----
Heptachlor	76-44-8	0.03	mg/kg		<0.03	----	----	----	----
Aldrin	309-00-2	0.03	mg/kg		<0.03	----	----	----	----
Heptachlor epoxide	1024-57-3	0.03	mg/kg		<0.03	----	----	----	----
cis-Chlordane	5103-71-9	0.03	mg/kg		<0.03	----	----	----	----
trans-Chlordane	5103-74-2	0.03	mg/kg		<0.03	----	----	----	----
Endosulfan 1	959-98-8	0.03	mg/kg		<0.03	----	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	----	----	----	----
Dieldrin	60-57-1	0.03	mg/kg		<0.03	----	----	----	----
Endrin aldehyde	7421-93-4	0.03	mg/kg		<0.03	----	----	----	----
Endrin	72-20-8	0.03	mg/kg		<0.03	----	----	----	----
Endosulfan 2	33213-65-9	0.03	mg/kg		<0.03	----	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	----	----	----	----
Endosulfan sulfate	1031-07-8	0.03	mg/kg		<0.03	----	----	----	----
4.4`-DDT	50-29-3	0.05	mg/kg		<0.05	----	----	----	----
Methoxychlor	72-43-5	0.03	mg/kg		<0.03	----	----	----	----
^ Sum of organochlorine pesticides	----	0.03	mg/kg		<0.03	----	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.03	mg/kg		<0.03	----	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	----	----	----	----
^ Chlordane	57-74-9	0.03	mg/kg		<0.03	----	----	----	----
^ Sum of other organochlorine pesticides	----	0.03	mg/kg		<0.03	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	----	----	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	----	----	----	----
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
>C10 - C16 Fraction	----	50	mg/kg		<50	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP17-26-43/0.7	----	----	----	----
				Client sampling date / time	25-May-2017 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM1706717-018	--------	--------	--------	--------
					Result	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C16 - C34 Fraction	----	100	mg/kg		<100	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	----	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		<50	----	----	----	----
>C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	----	----	----	----
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	----	----	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**97.9**	----	----	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		**87.7**	----	----	----	----
Toluene-D8	2037-26-5	0.1	%		**101**	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%		**90.9**	----	----	----	----
EP075S: Acid Extractable Surrogates									
Phenol-d6	13127-88-3	0.025	%		**92.4**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.025	%		**71.2**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	0.025	%		**85.7**	----	----	----	----
EP075T: Base/Neutral Extractable Surrogates									
Nitrobenzene-D5	4165-60-0	0.025	%		**77.0**	----	----	----	----
1.2-Dichlorobenzene-D4	2199-69-1	0.025	%		**65.6**	----	----	----	----
2-Fluorobiphenyl	321-60-8	0.025	%		**81.2**	----	----	----	----
Anthracene-d10	1719-06-8	0.025	%		**95.5**	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.025	%		**90.8**	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	RB 260417	RB 260417	RB 260417	RB 260417	TB/260417
				Client sampling date / time	22-May-2017 00:00	23-May-2017 00:00	24-May-2017 00:00	25-May-2017 00:00	23-May-2017 00:00
Compound	CAS Number	LOR	Unit		EM1706717-019	EM1706717-020	EM1706717-021	EM1706717-022	EM1706717-023
					Result	Result	Result	Result	Result
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	----
Copper	7440-50-8	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	----
Lead	7439-92-1	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	----
Molybdenum	7439-98-7	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	----
Nickel	7440-02-0	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	----
Selenium	7782-49-2	0.01	mg/L		<0.01	<0.01	<0.01	<0.01	----
Silver	7440-22-4	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	----
Tin	7440-31-5	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	----
Zinc	7440-66-6	0.005	mg/L		<0.005	<0.005	<0.005	<0.005	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		----	----	----	----	<20
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		----	----	----	----	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		----	----	----	----	<20
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		----	----	----	----	<1
Toluene	108-88-3	2	µg/L		----	----	----	----	<2
Ethylbenzene	100-41-4	2	µg/L		----	----	----	----	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		----	----	----	----	<2
ortho-Xylene	95-47-6	2	µg/L		----	----	----	----	<2
^ Total Xylenes	1330-20-7	2	µg/L		----	----	----	----	<2
^ Sum of BTEX	----	1	µg/L		----	----	----	----	<1
Naphthalene	91-20-3	5	µg/L		----	----	----	----	<5
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		----	----	----	----	**90.4**
Toluene-D8	2037-26-5	2	%		----	----	----	----	**82.2**
4-Bromofluorobenzene	460-00-4	2	%		----	----	----	----	**94.6**

Surrogate Control Limits

Sub-Matrix: **SOIL**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	41	122
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	59	119
Toluene-D8	2037-26-5	55	117
4-Bromofluorobenzene	460-00-4	59	123
EP075S: Acid Extractable Surrogates			
Phenol-d6	13127-88-3	28	134
2-Chlorophenol-D4	93951-73-6	27	123
2.4.6-Tribromophenol	118-79-6	25	149
EP075T: Base/Neutral Extractable Surrogates			
Nitrobenzene-D5	4165-60-0	29	125
1.2-Dichlorobenzene-D4	2199-69-1	31	117
2-Fluorobiphenyl	321-60-8	44	136
Anthracene-d10	1719-06-8	53	133
4-Terphenyl-d14	1718-51-0	59	141

Sub-Matrix: **WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	129
Toluene-D8	2037-26-5	70	125
4-Bromofluorobenzene	460-00-4	71	129

ALS Environmental

Automated Guideline Comparison Report

EPA Victoria Publication IWRG 621 (2009) - Table 2: Soil Hazard Categorisation

Work Order	: **EM1706717**	Page	: 1 of 26
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLFA NAZARIO		
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: onazario@pb.com.au	E-mail	: steven.mcgrath@alsglobal.com
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9600
Facsimile	: +61 03 9861 1144	Facsimile	: +61-3-8549 9601
Project	: 2135645A	Date Received	: 25-May-2017 16:00
Order number	: ----	Date Analysed	: 26-May-2017
C-O-C number	: 72866-72867	Date Issued	: 31-May-2017 19:35
No. of samples received	: 23		
No. of samples analysed	: 21	Quote number	: ME-525-16

General Comments

This guideline comparison report **only** provides evaluation of total concentration data against upper limit thresholds for the 'Fill Material', 'C', 'B' Categories in Table 2 of EPA Publication IWRG621.

This guideline comparison report is **NOT** a soil classification report. Classification of soils as Fill Material, Category C, Category B or Category A requires consideration of a number of other factors including preliminary site investigation, sampling density and statistical calculations, as set out in EPA Publication IWRG 702.
Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

This guideline comparison report only provides evaluation data where chemical parameters specifically listed within the IWRG621 (2009) guideline are analysed by ALS using the **P-16 package in full**.

Red shading is applied where the result is equal to or greater than the guideline upper limit and/or equal to or lower than the guideline lower limit. Red shading is not applied to the 'Summary of Thresholds Reached or Exceeded'.

For the 'Summary of Thresholds Reached or Exceeded' to accurately function, all samples must be analysed and included in the 'Analytical Results' section of the following report. Please verify that all required IDs are listed and analysed.

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Summary of Thresholds Reached or Exceeded

EPA Victoria Publication IWRG 621 (2009)

Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Client Sample ID	*ALS Sample ID*	*Compound*	*Method*	*LOR*	*Limits*	*Result*
TP17-26-29/0.4	**EM1706717-003**	Fluoride	EK040T	40	*< 450 mg/kg*	**500 mg/kg**
TP17-26-31/1.0	**EM1706717-004**	Fluoride	EK040T	40	*< 450 mg/kg*	**640 mg/kg**
TP17-26-27/0.8	**EM1706717-005**	Fluoride	EK040T	40	*< 450 mg/kg*	**470 mg/kg**
TP17-26-33/0.5-0.6	**EM1706717-008**	Arsenic	EG005T	5	*< 20 mg/kg*	**22 mg/kg**
TP17-26-37/0.4	**EM1706717-013**	Arsenic	EG005T	5	*< 20 mg/kg*	**23 mg/kg**

Analytical Results

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	TP17-26-14/0.8	TP17-26-16/0.7	TP17-26-29/0.4	TP17-26-31/1.0	TP17-26-27/0.8
Client sample ID										
Sampling date/time						22-May-2017	22-May-2017	22-May-2017	23-May-2017	23-May-2017
						EM1706717-001	EM1706717-002	EM1706717-003	EM1706717-004	EM1706717-005
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	2	12.5	**4.8**	**5.2**	**7.6**	**8.1**	**7.9**
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	2000	<5	<5	**5**	<5	**5**
Cadmium	EG005T	1	mg/kg	----	400	<1	<1	<1	<1	<1
Copper	EG005T	5	mg/kg	----	20000	**8**	<5	**20**	<5	<5
Lead	EG005T	5	mg/kg	----	6000	**12**	**9**	**15**	**6**	<5
Molybdenum	EG005T	2	mg/kg	----	4000	<2	<2	<2	<2	<2
Nickel	EG005T	2	mg/kg	----	12000	**7**	**5**	**15**	**5**	**12**
Selenium	EG005T	5	mg/kg	----	200	<5	<5	<5	<5	<5
Silver	EG005T	2	mg/kg	----	720	<2	<2	<2	<2	<2
Zinc	EG005T	5	mg/kg	----	140000	**5**	<5	**186**	**6**	**13**
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	300	<0.1	<0.1	**0.2**	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	2000	<0.5	<0.5	<0.5	<0.5	<0.5
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	10000	**1**	<1	**1**	<1	<1
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	40000	**230**	**210**	**500**	**640**	**470**
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	16	<0.2	<0.2	<0.2	<0.2	<0.2
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	240	<0.2	<0.2	<0.2	<0.2	<0.2
EP074I: Volatile Halogenated Compounds										
Vinyl chloride	EP074-UT	0.02	mg/kg	----	4.8	<0.02	<0.02	<0.02	<0.02	<0.02
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	11	<0.02	<0.02	<0.02	<0.02	<0.02
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	50	<0.01	<0.01	<0.01	<0.01	<0.01
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	320	<0.03	<0.03	<0.03	<0.03	<0.03
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	2200	<1	<1	<1	<1	<1
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	20	<0.5	<0.5	<0.5	<0.5	<0.5

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

				Client sample ID	Guideline Lower Limit	Guideline Upper Limit	TP17-26-14/0.8	TP17-26-16/0.7	TP17-26-29/0.4	TP17-26-31/1.0	TP17-26-27/0.8
				Sampling date/time			22-May-2017	22-May-2017	22-May-2017	23-May-2017	23-May-2017
Compound	*Method*	*LOR*	*Unit*				EM1706717-001	EM1706717-002	EM1706717-003	EM1706717-004	EM1706717-005
EP075B: Polynuclear Aromatic Hydrocarbons - Continued											
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg		----	400	<0.5	<0.5	<0.5	<0.5	<0.5
EP075I: Organochlorine Pesticides											
Heptachlor	EP075-EM	0.03	mg/kg		----	4.8	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg		----	4.8	<0.03	<0.03	**0.06**	<0.03	<0.03
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg		----	50	<0.05	<0.05	<0.05	<0.05	<0.05
Chlordane	EP075-EM-SUM	0.03	mg/kg		----	16	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg		----	50	<0.03	<0.03	<0.03	<0.03	<0.03
EP080/071: Total Petroleum Hydrocarbons											
C6 - C9 Fraction	EP074-UT	10	mg/kg		----	2600	<10	<10	<10	<10	<10
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg		----	40000	<50	<50	**100**	<50	<50

Soil Hazard Categorisation and Management
Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

				Client sample ID		TP17-26-14/0.8	TP17-26-16/0.7	TP17-26-29/0.4	TP17-26-31/1.0	TP17-26-27/0.8
				Sampling date/time		22-May-2017	22-May-2017	22-May-2017	23-May-2017	23-May-2017
Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	EM1706717-001	EM1706717-002	EM1706717-003	EM1706717-004	EM1706717-005
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	4	9	**4.8**	**5.2**	**7.6**	**8.1**	**7.9**
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	500	<5	<5	**5**	<5	**5**
Cadmium	EG005T	1	mg/kg	----	100	<1	<1	<1	<1	<1
Copper	EG005T	5	mg/kg	----	5000	**8**	<5	**20**	<5	<5
Lead	EG005T	5	mg/kg	----	1500	**12**	**9**	**15**	**6**	<5
Molybdenum	EG005T	2	mg/kg	----	1000	<2	<2	<2	<2	<2
Nickel	EG005T	2	mg/kg	----	3000	**7**	**5**	**15**	**5**	**12**
Selenium	EG005T	5	mg/kg	----	50	<5	<5	<5	<5	<5
Silver	EG005T	2	mg/kg	----	180	<2	<2	<2	<2	<2
Tin	EG005T	5	mg/kg	----	500	<5	<5	<5	<5	<5
Zinc	EG005T	5	mg/kg	----	35000	**5**	<5	**186**	**6**	**13**
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	75	<0.1	<0.1	**0.2**	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	500	<0.5	<0.5	<0.5	<0.5	<0.5
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	2500	**1**	<1	**1**	<1	<1
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	10000	**230**	**210**	**500**	**640**	**470**
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	4	<0.2	<0.2	<0.2	<0.2	<0.2
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	70	<0.2	<0.2	<0.2	<0.2	<0.2
EP074I: Volatile Halogenated Compounds										
Vinyl chloride	EP074-UT	0.02	mg/kg	----	1.2	<0.02	<0.02	<0.02	<0.02	<0.02
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	2.8	<0.02	<0.02	<0.02	<0.02	<0.02
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	10	<0.01	<0.01	<0.01	<0.01	<0.01
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	10	<0.03	<0.03	<0.03	<0.03	<0.03
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	560	<1	<1	<1	<1	<1
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	5	<0.5	<0.5	<0.5	<0.5	<0.5

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

				Client sample ID	Guideline Lower Limit	Guideline Upper Limit	TP17-26-14/0.8	TP17-26-16/0.7	TP17-26-29/0.4	TP17-26-31/1.0	TP17-26-27/0.8
				Sampling date/time			22-May-2017	22-May-2017	22-May-2017	23-May-2017	23-May-2017
Compound	*Method*	*LOR*	*Unit*				EM1706717-001	EM1706717-002	EM1706717-003	EM1706717-004	EM1706717-005
EP075B: Polynuclear Aromatic Hydrocarbons - Continued											
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg		----	100	<0.5	<0.5	<0.5	<0.5	<0.5
EP075I: Organochlorine Pesticides											
Heptachlor	EP075-EM	0.03	mg/kg		----	1.2	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg		----	1.2	<0.03	<0.03	**0.06**	<0.03	<0.03
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg		----	50	<0.05	<0.05	<0.05	<0.05	<0.05
Chlordane	EP075-EM-SUM	0.03	mg/kg		----	4	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg		----	10	<0.03	<0.03	<0.03	<0.03	<0.03
EP080/071: Total Petroleum Hydrocarbons											
C6 - C9 Fraction	EP074-UT	10	mg/kg		----	650	<10	<10	<10	<10	<10
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg		----	10000	<50	<50	**100**	<50	<50

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

				Client sample ID		TP17-26-14/0.8	TP17-26-16/0.7	TP17-26-29/0.4	TP17-26-31/1.0	TP17-26-27/0.8
				Sampling date/time		22-May-2017	22-May-2017	22-May-2017	23-May-2017	23-May-2017
Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	EM1706717-001	EM1706717-002	EM1706717-003	EM1706717-004	EM1706717-005
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	4	9	**4.8**	**5.2**	**7.6**	**8.1**	**7.9**
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	20	<5	<5	**5**	<5	**5**
Cadmium	EG005T	1	mg/kg	----	3	<1	<1	<1	<1	<1
Copper	EG005T	5	mg/kg	----	100	**8**	<5	**20**	<5	<5
Lead	EG005T	5	mg/kg	----	300	**12**	**9**	**15**	**6**	<5
Molybdenum	EG005T	2	mg/kg	----	40	<2	<2	<2	<2	<2
Nickel	EG005T	2	mg/kg	----	60	**7**	**5**	**15**	**5**	**12**
Selenium	EG005T	5	mg/kg	----	10	<5	<5	<5	<5	<5
Silver	EG005T	2	mg/kg	----	10	<2	<2	<2	<2	<2
Tin	EG005T	5	mg/kg	----	50	<5	<5	<5	<5	<5
Zinc	EG005T	5	mg/kg	----	200	**5**	<5	**186**	**6**	**13**
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	1	<0.1	<0.1	**0.2**	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	1	<0.5	<0.5	<0.5	<0.5	<0.5
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	50	**1**	<1	**1**	<1	<1
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	450	**230**	**210**	**500**	**640**	**470**
EP066: Polychlorinated Biphenyls (PCB)										
Total Polychlorinated biphenyls	EP066-EM	0.1	mg/kg	----	2	<0.1	<0.1	<0.1	<0.1	<0.1
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	1	<0.2	<0.2	<0.2	<0.2	<0.2
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	7	<0.2	<0.2	<0.2	<0.2	<0.2
EP074I: Volatile Halogenated Compounds										
Sum of volatile chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	1	<0.01	<0.01	<0.01	<0.01	<0.01
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	1	<0.03	<0.03	<0.03	<0.03	<0.03
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	60	<1	<1	<1	<1	<1
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	1	<0.5	<0.5	<0.5	<0.5	<0.5

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	TP17-26-14/0.8 22-May-2017 EM1706717-001	TP17-26-16/0.7 22-May-2017 EM1706717-002	TP17-26-29/0.4 22-May-2017 EM1706717-003	TP17-26-31/1.0 23-May-2017 EM1706717-004	TP17-26-27/0.8 23-May-2017 EM1706717-005
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	20	<0.5	<0.5	<0.5	<0.5	<0.5
EP075I: Organochlorine Pesticides										
Sum of organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	1	<0.03	<0.03	**0.06**	<0.03	<0.03
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	100	<10	<10	<10	<10	<10
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	1000	<50	<50	**100**	<50	<50

Soil Hazard Categorisation and Management
Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Client sample ID: TP17-26-25/0.7	TP17-26-24/0.8	TP17-26-33/0.5-0.6	TP17-26-35/0.5-0.6	TP17-26-64/0.5
			Sampling date/time			23-May-2017	23-May-2017	24-May-2017	24-May-2017	24-May-2017
						EM1706717-006	EM1706717-007	EM1706717-008	EM1706717-009	EM1706717-010
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	2	12.5	**7.8**	**7.6**	**8.1**	**7.7**	**4.4**
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	2000	<5	<5	**22**	**5**	<5
Cadmium	EG005T	1	mg/kg	----	400	<1	<1	<1	<1	<1
Copper	EG005T	5	mg/kg	----	20000	**8**	**11**	<5	<5	<5
Lead	EG005T	5	mg/kg	----	6000	**11**	**12**	**13**	**8**	**8**
Molybdenum	EG005T	2	mg/kg	----	4000	<2	<2	**3**	<2	<2
Nickel	EG005T	2	mg/kg	----	12000	**9**	**16**	**8**	**9**	<2
Selenium	EG005T	5	mg/kg	----	200	<5	<5	<5	<5	<5
Silver	EG005T	2	mg/kg	----	720	<2	<2	<2	<2	<2
Zinc	EG005T	5	mg/kg	----	140000	**6**	**5**	<5	**6**	**7**
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	300	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	2000	<0.5	<0.5	<0.5	<0.5	<0.5
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	10000	<1	<1	<1	<1	**1**
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	40000	**320**	**350**	**280**	**350**	<40
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	16	<0.2	<0.2	<0.2	<0.2	<0.2
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	240	<0.2	<0.2	<0.2	<0.2	<0.2
EP074I: Volatile Halogenated Compounds										
Vinyl chloride	EP074-UT	0.02	mg/kg	----	4.8	<0.02	<0.02	<0.02	<0.02	<0.02
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	11	<0.02	<0.02	<0.02	<0.02	<0.02
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	50	<0.01	<0.01	<0.01	<0.01	<0.01
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	320	<0.03	<0.03	<0.03	<0.03	<0.03
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	2200	<1	<1	<1	<1	<1
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	20	<0.5	<0.5	<0.5	<0.5	<0.5
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	400	<0.5	<0.5	<0.5	<0.5	<0.5

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Client sample ID: TP17-26-25/0.7	TP17-26-24/0.8	TP17-26-33/0.5-0.6	TP17-26-35/0.5-0.6	TP17-26-64/0.5
						Sampling date/time: 23-May-2017	23-May-2017	24-May-2017	24-May-2017	24-May-2017
						EM1706717-006	EM1706717-007	EM1706717-008	EM1706717-009	EM1706717-010
EP075I: Organochlorine Pesticides										
Heptachlor	EP075-EM	0.03	mg/kg	----	4.8	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	4.8	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50	<0.05	<0.05	<0.05	<0.05	<0.05
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	16	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	50	<0.03	<0.03	<0.03	<0.03	<0.03
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	2600	<10	<10	<10	<10	<10
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	40000	<50	<50	<50	<50	<50

Soil Hazard Categorisation and Management
Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Client sample ID: TP17-26-25/0.7	TP17-26-24/0.8	TP17-26-33/0.5-0.6	TP17-26-35/0.5-0.6	TP17-26-64/0.5
			Sampling date/time			23-May-2017	23-May-2017	24-May-2017	24-May-2017	24-May-2017
						EM1706717-006	EM1706717-007	EM1706717-008	EM1706717-009	EM1706717-010
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	4	9	**7.8**	**7.6**	**8.1**	**7.7**	**4.4**
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	500	<5	<5	**22**	**5**	<5
Cadmium	EG005T	1	mg/kg	----	100	<1	<1	<1	<1	<1
Copper	EG005T	5	mg/kg	----	5000	**8**	**11**	<5	<5	<5
Lead	EG005T	5	mg/kg	----	1500	**11**	**12**	**13**	**8**	**8**
Molybdenum	EG005T	2	mg/kg	----	1000	<2	<2	**3**	<2	<2
Nickel	EG005T	2	mg/kg	----	3000	**9**	**16**	**8**	**9**	<2
Selenium	EG005T	5	mg/kg	----	50	<5	<5	<5	<5	<5
Silver	EG005T	2	mg/kg	----	180	<2	<2	<2	<2	<2
Tin	EG005T	5	mg/kg	----	500	<5	<5	<5	<5	<5
Zinc	EG005T	5	mg/kg	----	35000	**6**	**5**	<5	**6**	**7**
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	75	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	500	<0.5	<0.5	<0.5	<0.5	<0.5
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	2500	<1	<1	<1	<1	**1**
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	10000	**320**	**350**	**280**	**350**	<40
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	4	<0.2	<0.2	<0.2	<0.2	<0.2
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	70	<0.2	<0.2	<0.2	<0.2	<0.2
EP074I: Volatile Halogenated Compounds										
Vinyl chloride	EP074-UT	0.02	mg/kg	----	1.2	<0.02	<0.02	<0.02	<0.02	<0.02
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	2.8	<0.02	<0.02	<0.02	<0.02	<0.02
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	10	<0.01	<0.01	<0.01	<0.01	<0.01
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	10	<0.03	<0.03	<0.03	<0.03	<0.03
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	560	<1	<1	<1	<1	<1
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	5	<0.5	<0.5	<0.5	<0.5	<0.5

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	TP17-26-25/0.7	TP17-26-24/0.8	TP17-26-33/0.5-0.6	TP17-26-35/0.5-0.6	TP17-26-64/0.5
Client sample ID										
Sampling date/time						23-May-2017	23-May-2017	24-May-2017	24-May-2017	24-May-2017
						EM1706717-006	EM1706717-007	EM1706717-008	EM1706717-009	EM1706717-010
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	100	<0.5	<0.5	<0.5	<0.5	<0.5
EP075I: Organochlorine Pesticides										
Heptachlor	EP075-EM	0.03	mg/kg	----	1.2	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	1.2	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50	<0.05	<0.05	<0.05	<0.05	<0.05
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	4	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	10	<0.03	<0.03	<0.03	<0.03	<0.03
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	650	<10	<10	<10	<10	<10
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	10000	<50	<50	<50	<50	<50

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

				Client sample ID		TP17-26-25/0.7	TP17-26-24/0.8	TP17-26-33/0.5-0.6	TP17-26-35/0.5-0.6	TP17-26-64/0.5
				Sampling date/time		23-May-2017	23-May-2017	24-May-2017	24-May-2017	24-May-2017
Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	EM1706717-006	EM1706717-007	EM1706717-008	EM1706717-009	EM1706717-010
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	4	9	**7.8**	**7.6**	**8.1**	**7.7**	**4.4**
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	20	<5	<5	**22**	**5**	<5
Cadmium	EG005T	1	mg/kg	----	3	<1	<1	<1	<1	<1
Copper	EG005T	5	mg/kg	----	100	**8**	**11**	<5	<5	<5
Lead	EG005T	5	mg/kg	----	300	**11**	**12**	**13**	**8**	**8**
Molybdenum	EG005T	2	mg/kg	----	40	<2	<2	**3**	<2	<2
Nickel	EG005T	2	mg/kg	----	60	**9**	**16**	**8**	**9**	<2
Selenium	EG005T	5	mg/kg	----	10	<5	<5	<5	<5	<5
Silver	EG005T	2	mg/kg	----	10	<2	<2	<2	<2	<2
Tin	EG005T	5	mg/kg	----	50	<5	<5	<5	<5	<5
Zinc	EG005T	5	mg/kg	----	200	**6**	**5**	<5	**6**	**7**
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	1	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	1	<0.5	<0.5	<0.5	<0.5	<0.5
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	50	<1	<1	<1	<1	**1**
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	450	**320**	**350**	**280**	**350**	<40
EP066: Polychlorinated Biphenyls (PCB)										
Total Polychlorinated biphenyls	EP066-EM	0.1	mg/kg	----	2	<0.1	<0.1	<0.1	<0.1	<0.1
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	1	<0.2	<0.2	<0.2	<0.2	<0.2
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	7	<0.2	<0.2	<0.2	<0.2	<0.2
EP074I: Volatile Halogenated Compounds										
Sum of volatile chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	1	<0.01	<0.01	<0.01	<0.01	<0.01
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	1	<0.03	<0.03	<0.03	<0.03	<0.03
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	60	<1	<1	<1	<1	<1
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	1	<0.5	<0.5	<0.5	<0.5	<0.5

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Client sample ID: TP17-26-25/0.7	TP17-26-24/0.8	TP17-26-33/0.5-0.6	TP17-26-35/0.5-0.6	TP17-26-64/0.5
						Sampling date/time: 23-May-2017	23-May-2017	24-May-2017	24-May-2017	24-May-2017
						EM1706717-006	EM1706717-007	EM1706717-008	EM1706717-009	EM1706717-010
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	20	<0.5	<0.5	<0.5	<0.5	<0.5
EP075I: Organochlorine Pesticides										
Sum of organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	1	<0.03	<0.03	<0.03	<0.03	<0.03
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	100	<10	<10	<10	<10	<10
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	1000	<50	<50	<50	<50	<50

Soil Hazard Categorisation and Management
Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	DUPA TP17-26-64/0.5	TP17-26-37/0.4	TP17-26-41/0.8	TP17-26-70/0.1	DUPA TP17-26-70/0.1
Client sample ID										
Sampling date/time						24-May-2017	24-May-2017	25-May-2017	25-May-2017	25-May-2017
						EM1706717-011	EM1706717-013	EM1706717-014	EM1706717-015	EM1706717-016
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	2	12.5	**4.3**	**7.9**	**7.2**	**6.1**	**6.0**
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	2000	<5	**23**	<5	<5	<5
Cadmium	EG005T	1	mg/kg	----	400	<1	<1	<1	<1	<1
Copper	EG005T	5	mg/kg	----	20000	<5	<5	<5	<5	<5
Lead	EG005T	5	mg/kg	----	6000	**7**	**7**	**14**	<5	<5
Molybdenum	EG005T	2	mg/kg	----	4000	<2	<2	<2	<2	<2
Nickel	EG005T	2	mg/kg	----	12000	<2	**30**	**7**	<2	<2
Selenium	EG005T	5	mg/kg	----	200	<5	<5	<5	<5	<5
Silver	EG005T	2	mg/kg	----	720	<2	<2	<2	<2	<2
Zinc	EG005T	5	mg/kg	----	140000	**7**	**38**	**26**	<5	<5
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	300	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	2000	<0.5	<0.5	<0.5	<0.5	<0.5
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	10000	**1**	<1	<1	<1	<1
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	40000	<40	**150**	**50**	<40	<40
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	16	<0.2	<0.2	<0.2	<0.2	<0.2
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	240	<0.2	<0.2	<0.2	<0.2	<0.2
EP074I: Volatile Halogenated Compounds										
Vinyl chloride	EP074-UT	0.02	mg/kg	----	4.8	<0.02	<0.02	<0.02	<0.02	<0.02
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	11	<0.02	<0.02	<0.02	<0.02	<0.02
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	50	<0.01	<0.01	<0.01	<0.01	<0.01
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	320	<0.03	<0.03	<0.03	<0.03	<0.03
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	2200	<1	<1	<1	<1	<1
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	20	<0.5	<0.5	<0.5	<0.5	<0.5

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	DUPA TP17-26-64/0.5	TP17-26-37/0.4	TP17-26-41/0.8	TP17-26-70/0.1	DUPA TP17-26-70/0.1
Client sample ID										
Sampling date/time						24-May-2017	24-May-2017	25-May-2017	25-May-2017	25-May-2017
						EM1706717-011	EM1706717-013	EM1706717-014	EM1706717-015	EM1706717-016
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	400	<0.5	<0.5	**2.2**	<0.5	<0.5
EP075I: Organochlorine Pesticides										
Heptachlor	EP075-EM	0.03	mg/kg	----	4.8	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	4.8	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50	<0.05	<0.05	<0.05	<0.05	<0.05
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	16	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	50	<0.03	<0.03	<0.03	<0.03	<0.03
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	2600	<10	<10	<10	<10	<10
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	40000	<50	<50	<50	<50	<50

Soil Hazard Categorisation and Management
Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	DUPA TP17-26-64/0.5	TP17-26-37/0.4	TP17-26-41/0.8	TP17-26-70/0.1	DUPA TP17-26-70/0.1
Client sample ID										
Sampling date/time						24-May-2017	24-May-2017	25-May-2017	25-May-2017	25-May-2017
						EM1706717-011	EM1706717-013	EM1706717-014	EM1706717-015	EM1706717-016
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	4	9	**4.3**	**7.9**	**7.2**	**6.1**	**6.0**
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	500	<5	**23**	<5	<5	<5
Cadmium	EG005T	1	mg/kg	----	100	<1	<1	<1	<1	<1
Copper	EG005T	5	mg/kg	----	5000	<5	<5	<5	<5	<5
Lead	EG005T	5	mg/kg	----	1500	**7**	**7**	**14**	<5	<5
Molybdenum	EG005T	2	mg/kg	----	1000	<2	<2	<2	<2	<2
Nickel	EG005T	2	mg/kg	----	3000	<2	**30**	**7**	<2	<2
Selenium	EG005T	5	mg/kg	----	50	<5	<5	<5	<5	<5
Silver	EG005T	2	mg/kg	----	180	<2	<2	<2	<2	<2
Tin	EG005T	5	mg/kg	----	500	<5	<5	<5	<5	<5
Zinc	EG005T	5	mg/kg	----	35000	**7**	**38**	**26**	<5	<5
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	75	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	500	<0.5	<0.5	<0.5	<0.5	<0.5
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	2500	**1**	<1	<1	<1	<1
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	10000	<40	**150**	**50**	<40	<40
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	4	<0.2	<0.2	<0.2	<0.2	<0.2
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	70	<0.2	<0.2	<0.2	<0.2	<0.2
EP074I: Volatile Halogenated Compounds										
Vinyl chloride	EP074-UT	0.02	mg/kg	----	1.2	<0.02	<0.02	<0.02	<0.02	<0.02
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	2.8	<0.02	<0.02	<0.02	<0.02	<0.02
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	10	<0.01	<0.01	<0.01	<0.01	<0.01
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	10	<0.03	<0.03	<0.03	<0.03	<0.03
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	560	<1	<1	<1	<1	<1
EP075B: Polynuclear Aromatic Hydrocarbons										

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	DUPA TP17-26-64/0.5	TP17-26-37/0.4	TP17-26-41/0.8	TP17-26-70/0.1	DUPA TP17-26-70/0.1
Client sample ID										
Sampling date/time						24-May-2017	24-May-2017	25-May-2017	25-May-2017	25-May-2017
						EM1706717-011	EM1706717-013	EM1706717-014	EM1706717-015	EM1706717-016
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	5	<0.5	<0.5	<0.5	<0.5	<0.5
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	100	<0.5	<0.5	**2.2**	<0.5	<0.5
EP075I: Organochlorine Pesticides										
Heptachlor	EP075-EM	0.03	mg/kg	----	1.2	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	1.2	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50	<0.05	<0.05	<0.05	<0.05	<0.05
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	4	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	10	<0.03	<0.03	<0.03	<0.03	<0.03
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	650	<10	<10	<10	<10	<10
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	10000	<50	<50	<50	<50	<50

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

				Client sample ID		DUPA TP17-26-64/0.5	TP17-26-37/0.4	TP17-26-41/0.8	TP17-26-70/0.1	DUPA TP17-26-70/0.1
				Sampling date/time		24-May-2017	24-May-2017	25-May-2017	25-May-2017	25-May-2017
Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	EM1706717-011	EM1706717-013	EM1706717-014	EM1706717-015	EM1706717-016
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	4	9	**4.3**	**7.9**	**7.2**	**6.1**	**6.0**
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	20	<5	**23**	<5	<5	<5
Cadmium	EG005T	1	mg/kg	----	3	<1	<1	<1	<1	<1
Copper	EG005T	5	mg/kg	----	100	<5	<5	<5	<5	<5
Lead	EG005T	5	mg/kg	----	300	**7**	**7**	**14**	<5	<5
Molybdenum	EG005T	2	mg/kg	----	40	<2	<2	<2	<2	<2
Nickel	EG005T	2	mg/kg	----	60	<2	**30**	**7**	<2	<2
Selenium	EG005T	5	mg/kg	----	10	<5	<5	<5	<5	<5
Silver	EG005T	2	mg/kg	----	10	<2	<2	<2	<2	<2
Tin	EG005T	5	mg/kg	----	50	<5	<5	<5	<5	<5
Zinc	EG005T	5	mg/kg	----	200	**7**	**38**	**26**	<5	<5
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	1	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	1	<0.5	<0.5	<0.5	<0.5	<0.5
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	50	**1**	<1	<1	<1	<1
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	450	<40	**150**	**50**	<40	<40
EP066: Polychlorinated Biphenyls (PCB)										
Total Polychlorinated biphenyls	EP066-EM	0.1	mg/kg	----	2	<0.1	<0.1	<0.1	<0.1	<0.1
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	1	<0.2	<0.2	<0.2	<0.2	<0.2
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	7	<0.2	<0.2	<0.2	<0.2	<0.2
EP074I: Volatile Halogenated Compounds										
Sum of volatile chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	1	<0.01	<0.01	<0.01	<0.01	<0.01
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	1	<0.03	<0.03	<0.03	<0.03	<0.03
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	60	<1	<1	<1	<1	<1
EP075B: Polynuclear Aromatic Hydrocarbons										

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	*Client sample ID* **DUPA TP17-26-64/0.5**	**TP17-26-37/0.4**	**TP17-26-41/0.8**	**TP17-26-70/0.1**	**DUPA TP17-26-70/0.1**
			Sampling date/time			24-May-2017	24-May-2017	25-May-2017	25-May-2017	25-May-2017
						EM1706717-011	**EM1706717-013**	**EM1706717-014**	**EM1706717-015**	**EM1706717-016**
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	1	<0.5	<0.5	<0.5	<0.5	<0.5
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	20	<0.5	<0.5	**2.2**	<0.5	<0.5
EP075I: Organochlorine Pesticides										
Sum of organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	1	<0.03	<0.03	<0.03	<0.03	<0.03
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	100	<10	<10	<10	<10	<10
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	1000	<50	<50	<50	<50	<50

Soil Hazard Categorisation and Management
Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Client sample ID: TP17-26-43/0.7	----	----	----	----
			Sampling date/time			25-May-2017	----	----	----	----
						EM1706717-018	--------	--------	--------	--------
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	2	12.5	**6.9**	----	----	----	----
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	2000	<5	----	----	----	----
Cadmium	EG005T	1	mg/kg	----	400	<1	----	----	----	----
Copper	EG005T	5	mg/kg	----	20000	<5	----	----	----	----
Lead	EG005T	5	mg/kg	----	6000	<5	----	----	----	----
Molybdenum	EG005T	2	mg/kg	----	4000	<2	----	----	----	----
Nickel	EG005T	2	mg/kg	----	12000	**3**	----	----	----	----
Selenium	EG005T	5	mg/kg	----	200	<5	----	----	----	----
Silver	EG005T	2	mg/kg	----	720	<2	----	----	----	----
Zinc	EG005T	5	mg/kg	----	140000	<5	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	300	<0.1	----	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	2000	<0.5	----	----	----	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	10000	<1	----	----	----	----
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	40000	**80**	----	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	16	<0.2	----	----	----	----
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	240	<0.2	----	----	----	----
EP074I: Volatile Halogenated Compounds										
Vinyl chloride	EP074-UT	0.02	mg/kg	----	4.8	<0.02	----	----	----	----
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	11	<0.02	----	----	----	----
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	50	<0.01	----	----	----	----
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	320	<0.03	----	----	----	----
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	2200	<1	----	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	20	<0.5	----	----	----	----
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	400	<0.5	----	----	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Client sample ID: TP17-26-43/0.7	----	----	----	----
						Sampling date/time: 25-May-2017	----	----	----	----
						EM1706717-018	--------	--------	--------	--------
EP075I: Organochlorine Pesticides										
Heptachlor	EP075-EM	0.03	mg/kg	----	4.8	<0.03	----	----	----	----
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	4.8	<0.03	----	----	----	----
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50	<0.05	----	----	----	----
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	16	<0.03	----	----	----	----
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	50	<0.03	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	2600	<10	----	----	----	----
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	40000	<50	----	----	----	----

Soil Hazard Categorisation and Management
Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Client sample ID: TP17-26-43/0.7	----	----	----	----
			Sampling date/time			25-May-2017	----	----	----	----
						EM1706717-018	--------	--------	--------	--------
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	4	9	**6.9**	----	----	----	----
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	500	<5	----	----	----	----
Cadmium	EG005T	1	mg/kg	----	100	<1	----	----	----	----
Copper	EG005T	5	mg/kg	----	5000	<5	----	----	----	----
Lead	EG005T	5	mg/kg	----	1500	<5	----	----	----	----
Molybdenum	EG005T	2	mg/kg	----	1000	<2	----	----	----	----
Nickel	EG005T	2	mg/kg	----	3000	**3**	----	----	----	----
Selenium	EG005T	5	mg/kg	----	50	<5	----	----	----	----
Silver	EG005T	2	mg/kg	----	180	<2	----	----	----	----
Tin	EG005T	5	mg/kg	----	500	<5	----	----	----	----
Zinc	EG005T	5	mg/kg	----	35000	<5	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	75	<0.1	----	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	500	<0.5	----	----	----	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	2500	<1	----	----	----	----
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	10000	**80**	----	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	4	<0.2	----	----	----	----
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	70	<0.2	----	----	----	----
EP074I: Volatile Halogenated Compounds										
Vinyl chloride	EP074-UT	0.02	mg/kg	----	1.2	<0.02	----	----	----	----
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	2.8	<0.02	----	----	----	----
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	10	<0.01	----	----	----	----
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	10	<0.03	----	----	----	----
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	560	<1	----	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	5	<0.5	----	----	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Client sample ID: TP17-26-43/0.7	----	----	----	----
						Sampling date/time: 25-May-2017	----	----	----	----
						EM1706717-018	--------	--------	--------	--------
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	100	<0.5	----	----	----	----
EP075I: Organochlorine Pesticides										
Heptachlor	EP075-EM	0.03	mg/kg	----	1.2	<0.03	----	----	----	----
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	1.2	<0.03	----	----	----	----
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50	<0.05	----	----	----	----
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	4	<0.03	----	----	----	----
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	10	<0.03	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	650	<10	----	----	----	----
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	10000	<50	----	----	----	----

Soil Hazard Categorisation and Management
Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Client sample ID: TP17-26-43/0.7	----	----	----	----
				Sampling date/time		25-May-2017	----	----	----	----
						EM1706717-018	--------	--------	--------	--------
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	4	9	**6.9**	----	----	----	----
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	20	<5	----	----	----	----
Cadmium	EG005T	1	mg/kg	----	3	<1	----	----	----	----
Copper	EG005T	5	mg/kg	----	100	<5	----	----	----	----
Lead	EG005T	5	mg/kg	----	300	<5	----	----	----	----
Molybdenum	EG005T	2	mg/kg	----	40	<2	----	----	----	----
Nickel	EG005T	2	mg/kg	----	60	**3**	----	----	----	----
Selenium	EG005T	5	mg/kg	----	10	<5	----	----	----	----
Silver	EG005T	2	mg/kg	----	10	<2	----	----	----	----
Tin	EG005T	5	mg/kg	----	50	<5	----	----	----	----
Zinc	EG005T	5	mg/kg	----	200	<5	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	1	<0.1	----	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	1	<0.5	----	----	----	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	50	<1	----	----	----	----
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	450	**80**	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)										
Total Polychlorinated biphenyls	EP066-EM	0.1	mg/kg	----	2	<0.1	----	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	1	<0.2	----	----	----	----
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	7	<0.2	----	----	----	----
EP074I: Volatile Halogenated Compounds										
Sum of volatile chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	1	<0.01	----	----	----	----
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	1	<0.03	----	----	----	----
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	60	<1	----	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	1	<0.5	----	----	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

				Client sample ID	Guideline Lower Limit	Guideline Upper Limit	TP17-26-43/0.7	----	----	----	----
				Sampling date/time			25-May-2017	----	----	----	----
Compound	*Method*	*LOR*	*Unit*				EM1706717-018	--------	--------	--------	--------
EP075B: Polynuclear Aromatic Hydrocarbons - Continued											
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	20	<0.5	----	----	----	----
EP075I: Organochlorine Pesticides											
Sum of organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	1	<0.03	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons											
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	100	<10	----	----	----	----
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	1000	<50	----	----	----	----

Note: Red shading is applied where the result is equal to or greater than the guideline upper limit and/or equal to or lower than the guideline lower limit.

QUALITY CONTROL REPORT

Work Order	: **EM1706717**	Page	: 1 of 25
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLFA NAZARIO	Contact	: Steven McGrath
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9600
Project	: 2135645A	Date Samples Received	: 25-May-2017
Order number	: ----	Date Analysis Commenced	: 26-May-2017
C-O-C number	: 72866-72867	Issue Date	: 31-May-2017
Sampler	: ----		
Site	: Site 26		
Quote number	: ME-525-16		
No. of samples received	: 23		
No. of samples analysed	: 21		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	Senior Semivolatile Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	Senior Semivolatile Instrument Chemist	Melbourne Organics, Springvale, VIC
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA001: pH in soil using 0.01M CaCl extract (QC Lot: 911076)									
EM1706644-010	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	8.1	8.2	1.23	0% - 20%
EM1706649-004	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	6.5	6.3	3.12	0% - 20%
EA001: pH in soil using 0.01M CaCl extract (QC Lot: 913934)									
EM1706647-010	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	6.9	6.8	1.46	0% - 20%
EM1706717-009	TP17-26-35/0.5-0.6	EA001: pH (CaCl2)	----	0.1	pH Unit	7.7	7.8	1.29	0% - 20%
EA055: Moisture Content (QC Lot: 910558)									
EM1706713-001	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	18.7	17.2	8.22	0% - 50%
EM1706713-013	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	9.0	6.8	27.7	No Limit
EA055: Moisture Content (QC Lot: 910559)									
EM1706717-018	TP17-26-43/0.7	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	9.2	9.3	0.00	No Limit
EM1706719-010	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	9.4	8.4	11.1	No Limit
EA055: Moisture Content (QC Lot: 911136)									
EM1706647-011	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	21.9	19.4	12.3	0% - 20%
EM1706717-010	TP17-26-64/0.5	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	4.5	4.6	3.43	No Limit
EG005T: Total Metals by ICP-AES (QC Lot: 911417)									
EM1706713-016	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	2	0.00	No Limit
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Tin	7440-31-5	5	mg/kg	<5	<5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG005T: Total Metals by ICP-AES (QC Lot: 911417) - continued									
EM1706713-016	Anonymous	EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.00	No Limit
EM1706717-007	TP17-26-24/0.8	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	16	11	34.6	No Limit
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	11	9	22.4	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	12	11	0.00	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Tin	7440-31-5	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	5	<5	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 911418)									
EM1706713-016	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EM1706717-007	TP17-26-24/0.8	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EG048: Hexavalent Chromium (Alkaline Digest) (QC Lot: 911267)									
EM1706578-001	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1706713-010	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EG048: Hexavalent Chromium (Alkaline Digest) (QC Lot: 911268)									
EM1706717-010	TP17-26-64/0.5	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1706720-004	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EK026SF: Total CN by Segmented Flow Analyser (QC Lot: 913898)									
EM1706717-001	TP17-26-14/0.8	EK026SF: Total Cyanide	57-12-5	1	mg/kg	1	1	0.00	No Limit
EM1706717-010	TP17-26-64/0.5	EK026SF: Total Cyanide	57-12-5	1	mg/kg	1	1	0.00	No Limit
EK040T: Fluoride Total (QC Lot: 910256)									
EM1706713-018	Anonymous	EK040T: Fluoride	16984-48-8	40	mg/kg	60	70	15.4	No Limit
EM1706726-001	Anonymous	EK040T: Fluoride	16984-48-8	40	mg/kg	260	260	0.00	No Limit
EK040T: Fluoride Total (QC Lot: 911070)									
EM1706717-001	TP17-26-14/0.8	EK040T: Fluoride	16984-48-8	40	mg/kg	230	240	4.22	No Limit
EM1706717-010	TP17-26-64/0.5	EK040T: Fluoride	16984-48-8	40	mg/kg	<40	<40	0.00	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 910610)									
EM1706713-002	Anonymous	EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EM1706719-001	Anonymous	EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 911212)									
EM1706717-001	TP17-26-14/0.8	EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EM1706717-011	DUPA TP17-26-64/0.5	EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 910607)									
EM1706717-014	TP17-26-41/0.8	EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 910607) - continued									
EM1706717-014	TP17-26-41/0.8	EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 910889)									
EM1706717-001	TP17-26-14/0.8	EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1706717-011	DUPA TP17-26-64/0.5	EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074H: Naphthalene (QC Lot: 910607)									
EM1706717-014	TP17-26-41/0.8	EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EP074H: Naphthalene (QC Lot: 910889)									
EM1706717-001	TP17-26-14/0.8	EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EM1706717-011	DUPA TP17-26-64/0.5	EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EP074I: Volatile Halogenated Compounds (QC Lot: 910607)									
EM1706717-014	TP17-26-41/0.8	EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074I: Volatile Halogenated Compounds (QC Lot: 910607) - continued									
EM1706717-014	TP17-26-41/0.8	EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	<0.04	0.00	No Limit
		EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	<0.4	0.00	No Limit
EP074I: Volatile Halogenated Compounds (QC Lot: 910889)									
EM1706717-001	TP17-26-14/0.8	EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	<0.04	0.00	No Limit
		EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	<0.4	0.00	No Limit
EM1706717-011	DUPA TP17-26-64/0.5	EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074I: Volatile Halogenated Compounds (QC Lot: 910889) - continued									
EM1706717-011	DUPA TP17-26-64/0.5	EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	<0.04	0.00	No Limit
		EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	<0.4	0.00	No Limit
EP075A: Phenolic Compounds (Halogenated) (QC Lot: 910608)									
EM1706713-002	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EM1706719-001	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP075A: Phenolic Compounds (Halogenated) (QC Lot: 911210)									
EM1706717-001	TP17-26-14/0.8	EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EM1706717-011	DUPA TP17-26-64/0.5	EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075A: Phenolic Compounds (Halogenated) (QC Lot: 911210) - continued									
EM1706717-011	DUPA TP17-26-64/0.5	EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP075A: Phenolic Compounds (Non-halogenated) (QC Lot: 910608)									
EM1706713-002	Anonymous	EP075-EM: Phenol	108-95-2	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	0.00	No Limit
EM1706719-001	Anonymous	EP075-EM: Phenol	108-95-2	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	0.00	No Limit
EP075A: Phenolic Compounds (Non-halogenated) (QC Lot: 911210)									
EM1706717-001	TP17-26-14/0.8	EP075-EM: Phenol	108-95-2	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	0.00	No Limit
EM1706717-011	DUPA TP17-26-64/0.5	EP075-EM: Phenol	108-95-2	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	<1	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075A: Phenolic Compounds (Non-halogenated) (QC Lot: 911210) - continued									
EM1706717-011	DUPA TP17-26-64/0.5	EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	0.00	No Limit
EP075B: Polynuclear Aromatic Hydrocarbons (QC Lot: 910608)									
EM1706713-002	Anonymous	EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	0.7	36.5	No Limit
		EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	3.6	# 6.1	51.0	0% - 50%
		EP075-EM: Anthracene	120-12-7	0.5	mg/kg	1.2	2.2	60.5	No Limit
		EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	10.4	10.1	3.46	0% - 20%
		EP075-EM: Pyrene	129-00-0	0.5	mg/kg	9.0	9.3	3.08	0% - 50%
		EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	8.1	6.1	27.7	0% - 50%
		EP075-EM: Chrysene	218-01-9	0.5	mg/kg	8.3	5.8	34.4	0% - 50%
		EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	15.8	# 11.4	32.2	0% - 20%
		EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	7.6	6.0	23.2	0% - 50%
		EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	4.3	3.1	32.3	No Limit
		EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	1.6	1.0	43.8	No Limit
		EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	4.4	3.4	26.3	No Limit
EM1706719-001	Anonymous	EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075B: Polynuclear Aromatic Hydrocarbons (QC Lot: 910608) - continued									
EM1706719-001	Anonymous	EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP075B: Polynuclear Aromatic Hydrocarbons (QC Lot: 911210)									
EM1706717-001	TP17-26-14/0.8	EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1706717-011	DUPA TP17-26-64/0.5	EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP075I: Organochlorine Pesticides (QC Lot: 910608)									
EM1706713-002	Anonymous	EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075I: Organochlorine Pesticides (QC Lot: 910608) - continued									
EM1706713-002	Anonymous	EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EM1706719-001	Anonymous	EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EP075I: Organochlorine Pesticides (QC Lot: 911210)									
EM1706717-001	TP17-26-14/0.8	EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075I: Organochlorine Pesticides (QC Lot: 911210) - continued									
EM1706717-001	TP17-26-14/0.8	EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EM1706717-011	DUPA TP17-26-64/0.5	EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 910607)									
EM1706717-014	TP17-26-41/0.8	EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 910609)									
EM1706713-002	Anonymous	EP071-EM: C15 - C28 Fraction	----	100	mg/kg	200	<100	67.7	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 910609) - continued									
EM1706713-002	Anonymous	EP071-EM: C29 - C36 Fraction	----	100	mg/kg	120	<100	20.5	No Limit
		EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EM1706719-001	Anonymous	EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 910889)									
EM1706717-001	TP17-26-14/0.8	EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EM1706717-011	DUPA TP17-26-64/0.5	EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 911211)									
EM1706717-001	TP17-26-14/0.8	EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EM1706717-011	DUPA TP17-26-64/0.5	EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 910607)									
EM1706717-014	TP17-26-41/0.8	EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
		EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 910609)									
EM1706713-002	Anonymous	EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	280	140	67.4	No Limit
		EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EM1706719-001	Anonymous	EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 910889)									
EM1706717-001	TP17-26-14/0.8	EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
		EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	0.00	No Limit
EM1706717-011	DUPA TP17-26-64/0.5	EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
		EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 911211)									
EM1706717-001	TP17-26-14/0.8	EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EM1706717-011	DUPA TP17-26-64/0.5	EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG020T: Total Metals by ICP-MS (QC Lot: 910287)									
EM1706717-022	RB 260417	EG020B-T: Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	0.00	No Limit
EM1706556-050	Anonymous	EG020B-T: Silver	7440-22-4	0.001	mg/L	0.001	<0.001	0.00	No Limit
EG020T: Total Metals by ICP-MS (QC Lot: 910288)									
EM1706700-002	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.007	0.007	0.00	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.002	0.002	0.00	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	0.008	0.008	0.00	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.005	0.004	0.00	No Limit
		EG020A-T: Tin	7440-31-5	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.015	0.012	18.7	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EM1706721-004	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.001	0.001	0.00	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.006	0.006	0.00	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	0.005	0.006	0.00	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.057	0.060	4.13	0% - 20%
		EG020A-T: Tin	7440-31-5	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.013	0.013	0.00	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	0.01	0.01	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 915869)									
EM1706551-007	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EM1706675-007	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 910736)									
EM1706717-023	TB/260417	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EM1706731-009	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 910736)									
EM1706717-023	TB/260417	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EM1706731-009	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 910736)									
EM1706717-023	TB/260417	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
EM1706731-009	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080: BTEXN (QC Lot: 910736) - continued									
EM1706731-009	Anonymous	EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 911417)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	92.2	79	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	93.3	85	109
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	91.8	84	116
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	96.7	85	107
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	7.9 mg/kg	97.5	86	112
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	98.3	89	111
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	93.0	93	109
EG005T: Silver	7440-22-4	2	mg/kg	<2	2.1 mg/kg	85.2	80	108
EG005T: Tin	7440-31-5	5	mg/kg	<5	5.2 mg/kg	101	92	114
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	93.9	89	111
EG035T: Total Recoverable Mercury by FIMS (QCLot: 911418)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	94.7	85	103
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 911267)								
EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	40 mg/kg	90.4	80	120
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 911268)								
EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	40 mg/kg	87.9	80	120
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 913898)								
EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	20 mg/kg	92.9	80	110
EK040T: Fluoride Total (QCLot: 910256)								
EK040T: Fluoride	16984-48-8	40	mg/kg	<40	950 mg/kg	93.5	76	108
EK040T: Fluoride Total (QCLot: 911070)								
EK040T: Fluoride	16984-48-8	40	mg/kg	<40	950 mg/kg	92.6	76	108
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 910610)								
EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	81.2	63	133
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 911212)								
EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	90.5	63	133
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 910607)								
EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	2.1 mg/kg	106	74	118
EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	2.1 mg/kg	106	70	118
EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2.1 mg/kg	104	69	117
EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4.2 mg/kg	99.4	68	116
EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	2.1 mg/kg	97.2	71	117

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 910607) - continued								
EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2.1 mg/kg	99.3	70	116
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 910889)								
EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	2.1 mg/kg	100	74	118
EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	2.1 mg/kg	102	70	118
EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2.1 mg/kg	104	69	117
EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4.2 mg/kg	102	68	116
EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	2.1 mg/kg	99.4	71	117
EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2.1 mg/kg	99.0	70	116
EP074H: Naphthalene (QCLot: 910607)								
EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	0.6 mg/kg	104	74	116
EP074H: Naphthalene (QCLot: 910889)								
EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	0.6 mg/kg	93.3	74	116
EP074I: Volatile Halogenated Compounds (QCLot: 910607)								
EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	0.1 mg/kg	114	49	133
EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	0.1 mg/kg	106	62	127
EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	2.1 mg/kg	87.6	65	131
EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	0.1 mg/kg	106	68	124
EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	0.1 mg/kg	96.9	74	118
EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	0.1 mg/kg	92.9	72	118
EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	0.1 mg/kg	97.9	67	119
EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	0.1 mg/kg	103	65	119
EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	0.1 mg/kg	92.4	70	122
EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	0.1 mg/kg	103	72	124
EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	0.1 mg/kg	96.8	74	122
EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	0.1 mg/kg	113	58	120
EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	0.1 mg/kg	92.2	70	119
EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	0.1 mg/kg	86.7	71	125
EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	0.1 mg/kg	102	61	125
EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	0.1 mg/kg	105	70	122
EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	0.1 mg/kg	103	61	118
EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	0.1 mg/kg	99.7	67	117
EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	0.1 mg/kg	104	53	127
EP074I: Volatile Halogenated Compounds (QCLot: 910889)								
EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	0.1 mg/kg	110	49	133
EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	0.1 mg/kg	101	62	127
EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	2.1 mg/kg	87.1	65	131
EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	0.1 mg/kg	101	68	124

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP074I: Volatile Halogenated Compounds (QCLot: 910889) - continued								
EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	0.1 mg/kg	97.3	74	118
EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	0.1 mg/kg	94.0	72	118
EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	0.1 mg/kg	105	67	119
EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	0.1 mg/kg	107	65	119
EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	0.1 mg/kg	90.0	70	122
EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	0.1 mg/kg	116	72	124
EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	0.1 mg/kg	93.1	74	122
EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	0.1 mg/kg	104	58	120
EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	0.1 mg/kg	94.6	70	119
EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	0.1 mg/kg	84.1	71	125
EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	0.1 mg/kg	112	61	125
EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	0.1 mg/kg	100	70	122
EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	0.1 mg/kg	101	61	118
EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	0.1 mg/kg	100	67	117
EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	0.1 mg/kg	107	53	127
EP075A: Phenolic Compounds (Halogenated) (QCLot: 910608)								
EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	0.5 mg/kg	107	43	119
EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	0.5 mg/kg	129	44	131
EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	0.5 mg/kg	106	43	122
EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	0.5 mg/kg	119	50	129
EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	0.5 mg/kg	105	44	128
EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	0.5 mg/kg	123	44	126
EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	0.5 mg/kg	104	46	126
EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/5 8-90-2	0.05	mg/kg	<0.05	1 mg/kg	119	44	124
EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	1 mg/kg	112	36	124
EP075A: Phenolic Compounds (Halogenated) (QCLot: 911210)								
EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	0.5 mg/kg	101	43	119
EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	0.5 mg/kg	128	44	131
EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	0.5 mg/kg	95.3	43	122
EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	0.5 mg/kg	121	50	129
EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	0.5 mg/kg	98.5	44	128
EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	0.5 mg/kg	120	44	126
EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	0.5 mg/kg	96.7	46	126
EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/5 8-90-2	0.05	mg/kg	<0.05	1 mg/kg	91.1	44	124
EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	1 mg/kg	108	36	124
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 910608)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 910608) - continued								
EP075-EM: Phenol	108-95-2	1	mg/kg	<1	0.5 mg/kg	# 126	41	120
EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	0.5 mg/kg	99.9	41	131
EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	1 mg/kg	112	43	130
EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	0.5 mg/kg	126	49	130
EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	0.5 mg/kg	93.0	37	119
EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	3 mg/kg	24.0	23	125
EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	3 mg/kg	113	49	133
EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	3 mg/kg	55.0	47	125
EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	3 mg/kg	89.9	48	123
EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	2.5 mg/kg	36.2	12	132
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 911210)								
EP075-EM: Phenol	108-95-2	1	mg/kg	<1	0.5 mg/kg	# 132	41	120
EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	0.5 mg/kg	107	41	131
EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	1 mg/kg	117	43	130
EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	0.5 mg/kg	124	49	130
EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	0.5 mg/kg	87.2	37	119
EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	3 mg/kg	49.1	23	125
EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	3 mg/kg	94.6	49	133
EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	3 mg/kg	59.6	47	125
EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	3 mg/kg	84.3	48	123
EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	2.5 mg/kg	43.2	12	132
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 910608)								
EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	0.5 mg/kg	102	44	122
EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	0.5 mg/kg	104	54	126
EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	0.5 mg/kg	104	46	126
EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	0.5 mg/kg	109	51	125
EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	0.5 mg/kg	109	57	127
EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	0.5 mg/kg	76.6	55	127
EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	0.5 mg/kg	107	57	131
EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	0.5 mg/kg	106	57	131
EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	0.5 mg/kg	103	56	132
EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	0.5 mg/kg	108	58	134
EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	1 mg/kg	107	55	133
EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	0.5 mg/kg	104	51	135
EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	0.5 mg/kg	129	55	137
EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	0.5 mg/kg	130	54	136
EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	0.5 mg/kg	129	55	137

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 911210)								
EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	0.5 mg/kg	97.0	44	122
EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	0.5 mg/kg	98.0	54	126
EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	0.5 mg/kg	94.7	46	126
EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	0.5 mg/kg	97.4	51	125
EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	0.5 mg/kg	107	57	127
EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	0.5 mg/kg	74.5	55	127
EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	0.5 mg/kg	102	57	131
EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	0.5 mg/kg	102	57	131
EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	0.5 mg/kg	92.0	56	132
EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	0.5 mg/kg	102	58	134
EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	1 mg/kg	111	55	133
EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	0.5 mg/kg	110	51	135
EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	0.5 mg/kg	119	55	137
EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	0.5 mg/kg	118	54	136
EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	0.5 mg/kg	121	55	137
EP075I: Organochlorine Pesticides (QCLot: 910608)								
EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	0.5 mg/kg	107	54	130
EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	0.5 mg/kg	108	54	130
EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	0.5 mg/kg	106	54	134
EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	0.5 mg/kg	107	54	132
EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	0.5 mg/kg	110	55	131
EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	0.5 mg/kg	105	54	128
EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	0.5 mg/kg	107	54	128
EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	0.5 mg/kg	104	56	130
EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	0.5 mg/kg	104	56	130
EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	0.5 mg/kg	104	55	131
EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	0.5 mg/kg	105	53	133
EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	94.8	54	130
EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	0.5 mg/kg	105	57	133
EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	0.5 mg/kg	104	28	174
EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	0.5 mg/kg	109	40	148
EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	0.5 mg/kg	104	56	138
EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	104	57	135
EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	0.5 mg/kg	102	51	133
EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	0.5 mg/kg	101	51	133
EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	0.5 mg/kg	101	48	136
EP075I: Organochlorine Pesticides (QCLot: 911210)								
EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	0.5 mg/kg	96.8	54	130

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP075I: Organochlorine Pesticides (QCLot: 911210) - continued								
EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	0.5 mg/kg	97.7	54	130
EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	0.5 mg/kg	89.9	54	134
EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	0.5 mg/kg	95.7	54	132
EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	0.5 mg/kg	104	55	131
EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	0.5 mg/kg	103	54	128
EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	0.5 mg/kg	105	54	128
EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	0.5 mg/kg	102	56	130
EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	0.5 mg/kg	100	56	130
EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	0.5 mg/kg	100	55	131
EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	0.5 mg/kg	101	53	133
EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	83.8	54	130
EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	0.5 mg/kg	104	57	133
EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	0.5 mg/kg	103	28	174
EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	0.5 mg/kg	105	40	148
EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	0.5 mg/kg	101	56	138
EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	96.8	57	135
EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	0.5 mg/kg	101	51	133
EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	0.5 mg/kg	98.8	51	133
EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	0.5 mg/kg	97.0	48	136
EP080/071: Total Petroleum Hydrocarbons (QCLot: 910607)								
EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	39.6 mg/kg	88.0	69	114
EP080/071: Total Petroleum Hydrocarbons (QCLot: 910609)								
EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	734 mg/kg	102	72	130
EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	3091 mg/kg	106	77	126
EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	1507 mg/kg	98.9	75	119
EP080/071: Total Petroleum Hydrocarbons (QCLot: 910889)								
EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	39.6 mg/kg	101	69	114
EP080/071: Total Petroleum Hydrocarbons (QCLot: 911211)								
EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	734 mg/kg	109	72	130
EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	3091 mg/kg	94.5	77	126
EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	1507 mg/kg	101	75	119
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 910607)								
EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	48.9 mg/kg	88.2	69	112
EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 910609)								
EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	1101 mg/kg	103	75	123
EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	3914 mg/kg	102	77	127

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 910609) - continued								
EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	283 mg/kg	99.0	43	123
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 910889)								
EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	48.9 mg/kg	102	69	112
EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 911211)								
EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	1101 mg/kg	111	75	123
EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	3914 mg/kg	97.1	77	127
EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	283 mg/kg	102	43	123

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 910287)								
EG020B-T: Silver	7440-22-4	0.001	mg/L	<0.001	0.02 mg/L	99.8	70	130
EG020T: Total Metals by ICP-MS (QCLot: 910288)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	104	94	113
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	101	88	110
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	95.0	87	112
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	101	88	113
EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	101	89	114
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	94.3	91	111
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	107	86	110
EG020A-T: Tin	7440-31-5	0.001	mg/L	<0.001	0.1 mg/L	102	88	113
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	98.5	88	112
EG035T: Total Recoverable Mercury by FIMS (QCLot: 915869)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	89.6	87	113
EP080/071: Total Petroleum Hydrocarbons (QCLot: 910736)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	360 µg/L	76.5	67	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 910736)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	71.1	65	125
EP080: BTEXN (QCLot: 910736)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	111	76	120
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	92.2	76	124
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	90.2	72	124
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	86.0	72	130
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	89.8	78	128

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080: BTEXN (QCLot: 910736) - continued								
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	95.5	71	129

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG005T: Total Metals by ICP-AES (QCLot: 911417)							
EM1706713-018	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	97.5	78	124
		EG005T: Cadmium	7440-43-9	50 mg/kg	92.6	84	116
		EG005T: Copper	7440-50-8	50 mg/kg	# Not Determined	82	124
		EG005T: Lead	7439-92-1	50 mg/kg	# Not Determined	76	124
		EG005T: Molybdenum	7439-98-7	50 mg/kg	91.2	79	117
		EG005T: Nickel	7440-02-0	50 mg/kg	# Not Determined	78	120
		EG005T: Selenium	7782-49-2	50 mg/kg	82.4	71	125
		EG005T: Zinc	7440-66-6	50 mg/kg	# Not Determined	74	128
EG035T: Total Recoverable Mercury by FIMS (QCLot: 911418)							
EM1706713-018	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	83.3	76	116
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 911267)							
EM1706578-003	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	40 mg/kg	85.7	58	114
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 911268)							
EM1706717-013	TP17-26-37/0.4	EG048G: Hexavalent Chromium	18540-29-9	40 mg/kg	70.7	58	114
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 913898)							
EM1706717-002	TP17-26-16/0.7	EK026SF: Total Cyanide	57-12-5	20 mg/kg	93.0	77	113
EK040T: Fluoride Total (QCLot: 910256)							
EM1706717-014	TP17-26-41/0.8	EK040T: Fluoride	16984-48-8	400 mg/kg	114	70	130
EK040T: Fluoride Total (QCLot: 911070)							
EM1706717-002	TP17-26-16/0.7	EK040T: Fluoride	16984-48-8	400 mg/kg	97.0	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 910610)							
EM1706717-014	TP17-26-41/0.8	EP066-EM: Total Polychlorinated biphenyls	----	1 mg/kg	63.7	36	152

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 911212)							
EM1706717-002	TP17-26-16/0.7	EP066-EM: Total Polychlorinated biphenyls	----	1 mg/kg	98.0	36	152
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 910607)							
EM1706717-015	TP17-26-70/0.1	EP074-UT: Benzene	71-43-2	2 mg/kg	126	50	138
		EP074-UT: Toluene	108-88-3	2 mg/kg	118	56	134
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 910889)							
EM1706717-002	TP17-26-16/0.7	EP074-UT: Benzene	71-43-2	2 mg/kg	88.7	50	138
		EP074-UT: Toluene	108-88-3	2 mg/kg	92.2	56	134
EP074I: Volatile Halogenated Compounds (QCLot: 910607)							
EM1706717-015	TP17-26-70/0.1	EP074-UT: 1.1-Dichloroethene	75-35-4	2 mg/kg	140	26	141
		EP074-UT: Trichloroethene	79-01-6	2 mg/kg	122	50	134
		EP074-UT: Chlorobenzene	108-90-7	2 mg/kg	120	28	134
EP074I: Volatile Halogenated Compounds (QCLot: 910889)							
EM1706717-002	TP17-26-16/0.7	EP074-UT: 1.1-Dichloroethene	75-35-4	2 mg/kg	92.7	26	141
		EP074-UT: Trichloroethene	79-01-6	2 mg/kg	85.4	50	134
		EP074-UT: Chlorobenzene	108-90-7	2 mg/kg	87.2	28	134
EP075A: Phenolic Compounds (Halogenated) (QCLot: 910608)							
EM1706713-010	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	0.5 mg/kg	94.2	34	118
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.5 mg/kg	88.7	41	139
		EP075-EM: Pentachlorophenol	87-86-5	0.5 mg/kg	75.5	10	144
EP075A: Phenolic Compounds (Halogenated) (QCLot: 911210)							
EM1706717-003	TP17-26-29/0.4	EP075-EM: 2-Chlorophenol	95-57-8	0.5 mg/kg	83.7	34	118
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.5 mg/kg	77.9	41	139
		EP075-EM: Pentachlorophenol	87-86-5	0.5 mg/kg	50.8	10	144
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 910608)							
EM1706713-010	Anonymous	EP075-EM: Phenol	108-95-2	0.5 mg/kg	99.5	32	134
		EP075-EM: 2-Nitrophenol	88-75-5	0.5 mg/kg	85.1	13	129
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 911210)							
EM1706717-003	TP17-26-29/0.4	EP075-EM: Phenol	108-95-2	0.5 mg/kg	83.7	32	134
		EP075-EM: 2-Nitrophenol	88-75-5	0.5 mg/kg	74.1	13	129
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 910608)							
EM1706713-010	Anonymous	EP075-EM: Acenaphthene	83-32-9	0.5 mg/kg	67.8	46	138
		EP075-EM: Pyrene	129-00-0	0.5 mg/kg	# Not Determined	27	169
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 911210)							
EM1706717-003	TP17-26-29/0.4	EP075-EM: Acenaphthene	83-32-9	0.5 mg/kg	77.3	46	138
		EP075-EM: Pyrene	129-00-0	0.5 mg/kg	82.2	27	169

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 910607)							
EM1706717-015	TP17-26-70/0.1	EP074-UT: C6 - C9 Fraction	----	28 mg/kg	107	43	111
EP080/071: Total Petroleum Hydrocarbons (QCLot: 910609)							
EM1706713-018	Anonymous	EP071-EM: C10 - C14 Fraction	----	734 mg/kg	104	53	123
		EP071-EM: C15 - C28 Fraction	----	3091 mg/kg	103	70	124
		EP071-EM: C29 - C36 Fraction	----	1507 mg/kg	96.2	64	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 910889)							
EM1706717-002	TP17-26-16/0.7	EP074-UT: C6 - C9 Fraction	----	28 mg/kg	71.9	43	111
EP080/071: Total Petroleum Hydrocarbons (QCLot: 911211)							
EM1706717-004	TP17-26-31/1.0	EP071-EM: C10 - C14 Fraction	----	734 mg/kg	108	53	123
		EP071-EM: C15 - C28 Fraction	----	3091 mg/kg	92.1	70	124
		EP071-EM: C29 - C36 Fraction	----	1507 mg/kg	97.8	64	118
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 910607)							
EM1706717-015	TP17-26-70/0.1	EP074-UT: C6 - C10 Fraction	C6_C10	33 mg/kg	106	42	106
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 910609)							
EM1706713-018	Anonymous	EP071-EM: >C10 - C16 Fraction	----	1101 mg/kg	105	65	123
		EP071-EM: >C16 - C34 Fraction	----	3914 mg/kg	98.7	67	121
		EP071-EM: >C34 - C40 Fraction	----	283 mg/kg	88.4	44	126
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 910889)							
EM1706717-002	TP17-26-16/0.7	EP074-UT: C6 - C10 Fraction	C6_C10	33 mg/kg	69.5	42	106
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 911211)							
EM1706717-004	TP17-26-31/1.0	EP071-EM: >C10 - C16 Fraction	----	1101 mg/kg	108	65	123
		EP071-EM: >C16 - C34 Fraction	----	3914 mg/kg	94.5	67	121
		EP071-EM: >C34 - C40 Fraction	----	283 mg/kg	98.5	44	126

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 910288)							
EM1706700-002	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	106	82	118
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	100	75	129
		EG020A-T: Copper	7440-50-8	1 mg/L	95.0	81	115
		EG020A-T: Lead	7439-92-1	1 mg/L	106	83	121
		EG020A-T: Nickel	7440-02-0	1 mg/L	95.6	80	118
		EG020A-T: Zinc	7440-66-6	1 mg/L	98.5	74	116
EG035T: Total Recoverable Mercury by FIMS (QCLot: 915869)							
EM1706551-008	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	88.0	70	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP080/071: Total Petroleum Hydrocarbons (QCLot: 910736)							
EM1706730-052	Anonymous	EP080: C6 - C9 Fraction	----	280 µg/L	71.8	43	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 910736)							
EM1706730-052	Anonymous	EP080: C6 - C10 Fraction	C6_C10	330 µg/L	61.4	44	122
EP080: BTEXN (QCLot: 910736)							
EM1706730-052	Anonymous	EP080: Benzene	71-43-2	20 µg/L	119	68	130
		EP080: Toluene	108-88-3	20 µg/L	83.5	72	132

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM1706717**	Page	: 1 of 15
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLFA NAZARIO	Telephone	: +61-3-8549 9600
Project	: 2135645A	Date Samples Received	: 25-May-2017
Site	: Site 26	Issue Date	: 31-May-2017
Sampler	: ----	No. of samples received	: 23
Order number	: ----	No. of samples analysed	: 21

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **Duplicate outliers exist - please see following pages for full details.**
- **Laboratory Control outliers exist - please see following pages for full details.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Duplicate (DUP) RPDs							
EP075B: Polynuclear Aromatic Hydrocarbons	EM1706713--002	Anonymous	**Phenanthrene**	85-01-8	51.0 %	0% - 50%	**RPD exceeds LOR based limits**
EP075B: Polynuclear Aromatic Hydrocarbons	EM1706713--002	Anonymous	**Benzo(b+j) & Benzo(k)fluoranthene**	205-99-2 207-08-9	32.2 %	0% - 20%	**RPD exceeds LOR based limits**
Laboratory Control Spike (LCS) Recoveries							
EP075A: Phenolic Compounds (Non-halogenated)	QC-910608-001	----	**Phenol**	108-95-2	126 %	41-120%	**Recovery greater than upper control limit**
EP075A: Phenolic Compounds (Non-halogenated)	QC-911210-001	----	**Phenol**	108-95-2	132 %	41-120%	**Recovery greater than upper control limit**
Matrix Spike (MS) Recoveries							
EG005T: Total Metals by ICP-AES	EM1706713--018	Anonymous	**Copper**	7440-50-8	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EG005T: Total Metals by ICP-AES	EM1706713--018	Anonymous	**Lead**	7439-92-1	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EG005T: Total Metals by ICP-AES	EM1706713--018	Anonymous	**Nickel**	7440-02-0	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EG005T: Total Metals by ICP-AES	EM1706713--018	Anonymous	**Zinc**	7440-66-6	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP075B: Polynuclear Aromatic Hydrocarbons	EM1706713--010	Anonymous	**Pyrene**	129-00-0	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Outliers : Frequency of Quality Control Samples

Matrix: **SOIL**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
Laboratory Control Samples (LCS)					
Hexavalent Chromium by Alkaline Digestion and DA Finish	3	40	7.50	10.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA001: pH in soil using 0.01M CaCl extract							
Soil Glass Jar - Unpreserved (EA001) TP17-26-14/0.8, TP17-26-16/0.7, TP17-26-29/0.4	**22-May-2017**	**29-May-2017**	29-May-2017	✓	**29-May-2017**	29-May-2017	✓
Soil Glass Jar - Unpreserved (EA001) TP17-26-31/1.0, TP17-26-27/0.8, TP17-26-25/0.7, TP17-26-24/0.8	**23-May-2017**	**30-May-2017**	30-May-2017	✓	**30-May-2017**	30-May-2017	✓
Soil Glass Jar - Unpreserved (EA001) TP17-26-33/0.5-0.6, TP17-26-35/0.5-0.6, TP17-26-64/0.5, DUPA TP17-26-64/0.5, TP17-26-37/0.4	**24-May-2017**	**30-May-2017**	31-May-2017	✓	**30-May-2017**	30-May-2017	✓
Soil Glass Jar - Unpreserved (EA001) TP17-26-41/0.8, TP17-26-70/0.1, DUPA TP17-26-70/0.1, TP17-26-43/0.7	**25-May-2017**	**30-May-2017**	01-Jun-2017	✓	**30-May-2017**	30-May-2017	✓
EA055: Moisture Content							
Soil Glass Jar - Unpreserved (EA055-103) TP17-26-14/0.8, TP17-26-16/0.7, TP17-26-29/0.4	**22-May-2017**	**----**	----	----	**26-May-2017**	05-Jun-2017	✓
Soil Glass Jar - Unpreserved (EA055-103) TP17-26-31/1.0, TP17-26-27/0.8, TP17-26-25/0.7, TP17-26-24/0.8	**23-May-2017**	**----**	----	----	**26-May-2017**	06-Jun-2017	✓
Soil Glass Jar - Unpreserved (EA055-103) TP17-26-33/0.5-0.6, TP17-26-35/0.5-0.6, TP17-26-64/0.5, DUPA TP17-26-64/0.5, TP17-26-37/0.4	**24-May-2017**	**----**	----	----	**26-May-2017**	07-Jun-2017	✓
Soil Glass Jar - Unpreserved (EA055-103) TP17-26-41/0.8, TP17-26-70/0.1, DUPA TP17-26-70/0.1, TP17-26-43/0.7	**25-May-2017**	**----**	----	----	**26-May-2017**	08-Jun-2017	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T) TP17-26-14/0.8, TP17-26-16/0.7, TP17-26-29/0.4	**22-May-2017**	**29-May-2017**	18-Nov-2017	✓	**30-May-2017**	18-Nov-2017	✓
Soil Glass Jar - Unpreserved (EG005T) TP17-26-31/1.0, TP17-26-27/0.8, TP17-26-25/0.7, TP17-26-24/0.8	**23-May-2017**	**29-May-2017**	19-Nov-2017	✓	**30-May-2017**	19-Nov-2017	✓
Soil Glass Jar - Unpreserved (EG005T) TP17-26-33/0.5-0.6, TP17-26-35/0.5-0.6, TP17-26-64/0.5, DUPA TP17-26-64/0.5, TP17-26-37/0.4	**24-May-2017**	**29-May-2017**	20-Nov-2017	✓	**30-May-2017**	20-Nov-2017	✓
Soil Glass Jar - Unpreserved (EG005T) TP17-26-41/0.8, TP17-26-70/0.1, DUPA TP17-26-70/0.1, TP17-26-43/0.7	**25-May-2017**	**29-May-2017**	21-Nov-2017	✓	**30-May-2017**	21-Nov-2017	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T) TP17-26-14/0.8, TP17-26-16/0.7, TP17-26-29/0.4	**22-May-2017**	**29-May-2017**	19-Jun-2017	✓	**31-May-2017**	19-Jun-2017	✓
Soil Glass Jar - Unpreserved (EG035T) TP17-26-31/1.0, TP17-26-27/0.8, TP17-26-25/0.7, TP17-26-24/0.8	**23-May-2017**	**29-May-2017**	20-Jun-2017	✓	**31-May-2017**	20-Jun-2017	✓
Soil Glass Jar - Unpreserved (EG035T) TP17-26-33/0.5-0.6, TP17-26-35/0.5-0.6, TP17-26-64/0.5, DUPA TP17-26-64/0.5, TP17-26-37/0.4	**24-May-2017**	**29-May-2017**	21-Jun-2017	✓	**31-May-2017**	21-Jun-2017	✓
Soil Glass Jar - Unpreserved (EG035T) TP17-26-41/0.8, TP17-26-70/0.1, DUPA TP17-26-70/0.1, TP17-26-43/0.7	**25-May-2017**	**29-May-2017**	22-Jun-2017	✓	**31-May-2017**	22-Jun-2017	✓
EG048: Hexavalent Chromium (Alkaline Digest)							
Soil Glass Jar - Unpreserved (EG048G) TP17-26-14/0.8, TP17-26-16/0.7, TP17-26-29/0.4	**22-May-2017**	**29-May-2017**	19-Jun-2017	✓	**29-May-2017**	05-Jun-2017	✓
Soil Glass Jar - Unpreserved (EG048G) TP17-26-31/1.0, TP17-26-27/0.8, TP17-26-25/0.7, TP17-26-24/0.8	**23-May-2017**	**29-May-2017**	20-Jun-2017	✓	**29-May-2017**	05-Jun-2017	✓
Soil Glass Jar - Unpreserved (EG048G) TP17-26-33/0.5-0.6, TP17-26-35/0.5-0.6, TP17-26-64/0.5, DUPA TP17-26-64/0.5, TP17-26-37/0.4	**24-May-2017**	**29-May-2017**	21-Jun-2017	✓	**29-May-2017**	05-Jun-2017	✓
Soil Glass Jar - Unpreserved (EG048G) TP17-26-41/0.8, TP17-26-70/0.1, DUPA TP17-26-70/0.1, TP17-26-43/0.7	**25-May-2017**	**29-May-2017**	22-Jun-2017	✓	**29-May-2017**	05-Jun-2017	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EK026SF: Total CN by Segmented Flow Analyser							
Soil Glass Jar - Unpreserved (EK026SF)							
TP17-26-14/0.8, TP17-26-16/0.7, TP17-26-29/0.4	**22-May-2017**	**29-May-2017**	05-Jun-2017	✓	**30-May-2017**	12-Jun-2017	✓
Soil Glass Jar - Unpreserved (EK026SF)							
TP17-26-31/1.0, TP17-26-27/0.8, TP17-26-25/0.7, TP17-26-24/0.8	**23-May-2017**	**29-May-2017**	06-Jun-2017	✓	**30-May-2017**	12-Jun-2017	✓
Soil Glass Jar - Unpreserved (EK026SF)							
TP17-26-33/0.5-0.6, TP17-26-35/0.5-0.6, TP17-26-64/0.5, DUPA TP17-26-64/0.5, TP17-26-37/0.4	**24-May-2017**	**29-May-2017**	07-Jun-2017	✓	**30-May-2017**	12-Jun-2017	✓
Soil Glass Jar - Unpreserved (EK026SF)							
TP17-26-41/0.8, TP17-26-70/0.1, DUPA TP17-26-70/0.1, TP17-26-43/0.7	**25-May-2017**	**29-May-2017**	08-Jun-2017	✓	**30-May-2017**	12-Jun-2017	✓
EK040T: Fluoride Total							
Soil Glass Jar - Unpreserved (EK040T)							
TP17-26-14/0.8, TP17-26-16/0.7, TP17-26-29/0.4	**22-May-2017**	**26-May-2017**	19-Jun-2017	✓	**31-May-2017**	19-Jun-2017	✓
Soil Glass Jar - Unpreserved (EK040T)							
TP17-26-31/1.0, TP17-26-27/0.8, TP17-26-25/0.7, TP17-26-24/0.8	**23-May-2017**	**26-May-2017**	20-Jun-2017	✓	**31-May-2017**	20-Jun-2017	✓
Soil Glass Jar - Unpreserved (EK040T)							
TP17-26-33/0.5-0.6, TP17-26-35/0.5-0.6, TP17-26-64/0.5, DUPA TP17-26-64/0.5, TP17-26-37/0.4	**24-May-2017**	**26-May-2017**	21-Jun-2017	✓	**31-May-2017**	21-Jun-2017	✓
Soil Glass Jar - Unpreserved (EK040T)							
TP17-26-41/0.8, TP17-26-70/0.1, DUPA TP17-26-70/0.1, TP17-26-43/0.7	**25-May-2017**	**26-May-2017**	22-Jun-2017	✓	**30-May-2017**	22-Jun-2017	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066-EM)							
TP17-26-14/0.8, TP17-26-16/0.7, TP17-26-29/0.4	**22-May-2017**	**26-May-2017**	05-Jun-2017	✓	**29-May-2017**	05-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP066-EM)							
TP17-26-31/1.0, TP17-26-27/0.8, TP17-26-25/0.7, TP17-26-24/0.8	**23-May-2017**	**26-May-2017**	06-Jun-2017	✓	**29-May-2017**	05-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP066-EM)							
TP17-26-33/0.5-0.6, TP17-26-35/0.5-0.6, TP17-26-64/0.5, DUPA TP17-26-64/0.5, TP17-26-37/0.4	**24-May-2017**	**26-May-2017**	07-Jun-2017	✓	**29-May-2017**	05-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP066-EM)							
TP17-26-41/0.8, TP17-26-70/0.1, DUPA TP17-26-70/0.1, TP17-26-43/0.7	**25-May-2017**	**26-May-2017**	08-Jun-2017	✓	**26-May-2017**	05-Jul-2017	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074A: Monocyclic Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074-UT) TP17-26-14/0.8, TP17-26-16/0.7, TP17-26-29/0.4	**22-May-2017**	**26-May-2017**	29-May-2017	✓	**27-May-2017**	29-May-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT) TP17-26-31/1.0, TP17-26-27/0.8, TP17-26-25/0.7, TP17-26-24/0.8	**23-May-2017**	**26-May-2017**	30-May-2017	✓	**27-May-2017**	30-May-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT) TP17-26-33/0.5-0.6, TP17-26-35/0.5-0.6, TP17-26-64/0.5, DUPA TP17-26-64/0.5, TP17-26-37/0.4	**24-May-2017**	**26-May-2017**	31-May-2017	✓	**27-May-2017**	31-May-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT) TP17-26-41/0.8, TP17-26-70/0.1, DUPA TP17-26-70/0.1, TP17-26-43/0.7	**25-May-2017**	**26-May-2017**	01-Jun-2017	✓	**26-May-2017**	01-Jun-2017	✓
EP074H: Naphthalene							
Soil Glass Jar - Unpreserved (EP074-UT) TP17-26-14/0.8, TP17-26-16/0.7, TP17-26-29/0.4	**22-May-2017**	**26-May-2017**	29-May-2017	✓	**27-May-2017**	29-May-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT) TP17-26-31/1.0, TP17-26-27/0.8, TP17-26-25/0.7, TP17-26-24/0.8	**23-May-2017**	**26-May-2017**	30-May-2017	✓	**27-May-2017**	30-May-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT) TP17-26-33/0.5-0.6, TP17-26-35/0.5-0.6, TP17-26-64/0.5, DUPA TP17-26-64/0.5, TP17-26-37/0.4	**24-May-2017**	**26-May-2017**	31-May-2017	✓	**27-May-2017**	31-May-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT) TP17-26-41/0.8, TP17-26-70/0.1, DUPA TP17-26-70/0.1, TP17-26-43/0.7	**25-May-2017**	**26-May-2017**	01-Jun-2017	✓	**26-May-2017**	01-Jun-2017	✓
EP074I: Volatile Halogenated Compounds							
Soil Glass Jar - Unpreserved (EP074-UT) TP17-26-14/0.8, TP17-26-16/0.7, TP17-26-29/0.4	**22-May-2017**	**26-May-2017**	29-May-2017	✓	**27-May-2017**	29-May-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT) TP17-26-31/1.0, TP17-26-27/0.8, TP17-26-25/0.7, TP17-26-24/0.8	**23-May-2017**	**26-May-2017**	30-May-2017	✓	**27-May-2017**	30-May-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT) TP17-26-33/0.5-0.6, TP17-26-35/0.5-0.6, TP17-26-64/0.5, DUPA TP17-26-64/0.5, TP17-26-37/0.4	**24-May-2017**	**26-May-2017**	31-May-2017	✓	**27-May-2017**	31-May-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT) TP17-26-41/0.8, TP17-26-70/0.1, DUPA TP17-26-70/0.1, TP17-26-43/0.7	**25-May-2017**	**26-May-2017**	01-Jun-2017	✓	**26-May-2017**	01-Jun-2017	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075A: Phenolic Compounds (Halogenated)							
Soil Glass Jar - Unpreserved (EP075-EM) TP17-26-14/0.8, TP17-26-16/0.7, TP17-26-29/0.4	**22-May-2017**	**26-May-2017**	05-Jun-2017	✓	**30-May-2017**	05-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP075-EM) TP17-26-31/1.0, TP17-26-27/0.8, TP17-26-25/0.7, TP17-26-24/0.8	**23-May-2017**	**26-May-2017**	06-Jun-2017	✓	**30-May-2017**	05-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP075-EM) TP17-26-33/0.5-0.6, TP17-26-35/0.5-0.6, TP17-26-64/0.5, DUPA TP17-26-64/0.5, TP17-26-37/0.4	**24-May-2017**	**26-May-2017**	07-Jun-2017	✓	**30-May-2017**	05-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP075-EM) TP17-26-41/0.8, TP17-26-70/0.1, DUPA TP17-26-70/0.1, TP17-26-43/0.7	**25-May-2017**	**26-May-2017**	08-Jun-2017	✓	**26-May-2017**	05-Jul-2017	✓
EP075A: Phenolic Compounds (Non-halogenated)							
Soil Glass Jar - Unpreserved (EP075-EM) TP17-26-14/0.8, TP17-26-16/0.7, TP17-26-29/0.4	**22-May-2017**	**26-May-2017**	05-Jun-2017	✓	**30-May-2017**	05-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP075-EM) TP17-26-31/1.0, TP17-26-27/0.8, TP17-26-25/0.7, TP17-26-24/0.8	**23-May-2017**	**26-May-2017**	06-Jun-2017	✓	**30-May-2017**	05-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP075-EM) TP17-26-33/0.5-0.6, TP17-26-35/0.5-0.6, TP17-26-64/0.5, DUPA TP17-26-64/0.5, TP17-26-37/0.4	**24-May-2017**	**26-May-2017**	07-Jun-2017	✓	**30-May-2017**	05-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP075-EM) TP17-26-41/0.8, TP17-26-70/0.1, DUPA TP17-26-70/0.1, TP17-26-43/0.7	**25-May-2017**	**26-May-2017**	08-Jun-2017	✓	**26-May-2017**	05-Jul-2017	✓
EP075B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075-EM) TP17-26-14/0.8, TP17-26-16/0.7, TP17-26-29/0.4	**22-May-2017**	**26-May-2017**	05-Jun-2017	✓	**30-May-2017**	05-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP075-EM) TP17-26-31/1.0, TP17-26-27/0.8, TP17-26-25/0.7, TP17-26-24/0.8	**23-May-2017**	**26-May-2017**	06-Jun-2017	✓	**30-May-2017**	05-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP075-EM) TP17-26-33/0.5-0.6, TP17-26-35/0.5-0.6, TP17-26-64/0.5, DUPA TP17-26-64/0.5, TP17-26-37/0.4	**24-May-2017**	**26-May-2017**	07-Jun-2017	✓	**30-May-2017**	05-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP075-EM) TP17-26-41/0.8, TP17-26-70/0.1, DUPA TP17-26-70/0.1, TP17-26-43/0.7	**25-May-2017**	**26-May-2017**	08-Jun-2017	✓	**26-May-2017**	05-Jul-2017	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075l: Organochlorine Pesticides								
Soil Glass Jar - Unpreserved (EP075-EM)								
TP17-26-14/0.8,	TP17-26-16/0.7,	**22-May-2017**	**26-May-2017**	05-Jun-2017	✓	**30-May-2017**	05-Jul-2017	✓
TP17-26-29/0.4								
Soil Glass Jar - Unpreserved (EP075-EM)								
TP17-26-31/1.0,	TP17-26-27/0.8,	**23-May-2017**	**26-May-2017**	06-Jun-2017	✓	**30-May-2017**	05-Jul-2017	✓
TP17-26-25/0.7,	TP17-26-24/0.8							
Soil Glass Jar - Unpreserved (EP075-EM)								
TP17-26-33/0.5-0.6,	TP17-26-35/0.5-0.6,	**24-May-2017**	**26-May-2017**	07-Jun-2017	✓	**30-May-2017**	05-Jul-2017	✓
TP17-26-64/0.5,	DUPA TP17-26-64/0.5,							
TP17-26-37/0.4								
Soil Glass Jar - Unpreserved (EP075-EM)								
TP17-26-41/0.8,	TP17-26-70/0.1,	**25-May-2017**	**26-May-2017**	08-Jun-2017	✓	**26-May-2017**	05-Jul-2017	✓
DUPA TP17-26-70/0.1,	TP17-26-43/0.7							
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP074-UT)								
TP17-26-14/0.8,	TP17-26-16/0.7,	**22-May-2017**	**26-May-2017**	29-May-2017	✓	**27-May-2017**	29-May-2017	✓
TP17-26-29/0.4								
Soil Glass Jar - Unpreserved (EP071-EM)								
TP17-26-14/0.8,	TP17-26-16/0.7,	**22-May-2017**	**26-May-2017**	05-Jun-2017	✓	**29-May-2017**	05-Jul-2017	✓
TP17-26-29/0.4								
Soil Glass Jar - Unpreserved (EP074-UT)								
TP17-26-31/1.0,	TP17-26-27/0.8,	**23-May-2017**	**26-May-2017**	30-May-2017	✓	**27-May-2017**	30-May-2017	✓
TP17-26-25/0.7,	TP17-26-24/0.8							
Soil Glass Jar - Unpreserved (EP071-EM)								
TP17-26-31/1.0,	TP17-26-27/0.8,	**23-May-2017**	**26-May-2017**	06-Jun-2017	✓	**29-May-2017**	05-Jul-2017	✓
TP17-26-25/0.7,	TP17-26-24/0.8							
Soil Glass Jar - Unpreserved (EP074-UT)								
TP17-26-33/0.5-0.6,	TP17-26-35/0.5-0.6,	**24-May-2017**	**26-May-2017**	31-May-2017	✓	**27-May-2017**	31-May-2017	✓
TP17-26-64/0.5,	DUPA TP17-26-64/0.5,							
TP17-26-37/0.4								
Soil Glass Jar - Unpreserved (EP071-EM)								
TP17-26-33/0.5-0.6,	TP17-26-35/0.5-0.6,	**24-May-2017**	**26-May-2017**	07-Jun-2017	✓	**29-May-2017**	05-Jul-2017	✓
TP17-26-64/0.5,	DUPA TP17-26-64/0.5,							
TP17-26-37/0.4								
Soil Glass Jar - Unpreserved (EP071-EM)								
TP17-26-41/0.8,	TP17-26-70/0.1,	**25-May-2017**	**26-May-2017**	08-Jun-2017	✓	**26-May-2017**	05-Jul-2017	✓
DUPA TP17-26-70/0.1,	TP17-26-43/0.7							

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP074-UT) TP17-26-14/0.8, TP17-26-16/0.7, TP17-26-29/0.4	**22-May-2017**	**26-May-2017**	29-May-2017	✓	**27-May-2017**	29-May-2017	✓
Soil Glass Jar - Unpreserved (EP071-EM) TP17-26-14/0.8, TP17-26-16/0.7, TP17-26-29/0.4	**22-May-2017**	**26-May-2017**	05-Jun-2017	✓	**29-May-2017**	05-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT) TP17-26-31/1.0, TP17-26-27/0.8, TP17-26-25/0.7, TP17-26-24/0.8	**23-May-2017**	**26-May-2017**	30-May-2017	✓	**27-May-2017**	30-May-2017	✓
Soil Glass Jar - Unpreserved (EP071-EM) TP17-26-31/1.0, TP17-26-27/0.8, TP17-26-25/0.7, TP17-26-24/0.8	**23-May-2017**	**26-May-2017**	06-Jun-2017	✓	**29-May-2017**	05-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT) TP17-26-33/0.5-0.6, TP17-26-35/0.5-0.6, TP17-26-64/0.5, DUPA TP17-26-64/0.5, TP17-26-37/0.4	**24-May-2017**	**26-May-2017**	31-May-2017	✓	**27-May-2017**	31-May-2017	✓
Soil Glass Jar - Unpreserved (EP071-EM) TP17-26-33/0.5-0.6, TP17-26-35/0.5-0.6, TP17-26-64/0.5, DUPA TP17-26-64/0.5, TP17-26-37/0.4	**24-May-2017**	**26-May-2017**	07-Jun-2017	✓	**29-May-2017**	05-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP071-EM) TP17-26-41/0.8, TP17-26-70/0.1, DUPA TP17-26-70/0.1, TP17-26-43/0.7	**25-May-2017**	**26-May-2017**	08-Jun-2017	✓	**26-May-2017**	05-Jul-2017	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unspecified (EG020B-T) RB 260417	**22-May-2017**	**26-May-2017**	18-Nov-2017	✓	**26-May-2017**	18-Nov-2017	✓
Clear Plastic Bottle - Nitric Acid; Unspecified (EG020B-T) RB 260417	**23-May-2017**	**26-May-2017**	19-Nov-2017	✓	**26-May-2017**	19-Nov-2017	✓
Clear Plastic Bottle - Nitric Acid; Unspecified (EG020B-T) RB 260417	**24-May-2017**	**26-May-2017**	20-Nov-2017	✓	**26-May-2017**	20-Nov-2017	✓
Clear Plastic Bottle - Nitric Acid; Unspecified (EG020B-T) RB 260417	**25-May-2017**	**26-May-2017**	21-Nov-2017	✓	**26-May-2017**	21-Nov-2017	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unspecified (EG035T) RB 260417	**22-May-2017**	**----**	----	----	**31-May-2017**	19-Jun-2017	✓
Clear Plastic Bottle - Nitric Acid; Unspecified (EG035T) RB 260417	**23-May-2017**	**----**	----	----	**31-May-2017**	20-Jun-2017	✓
Clear Plastic Bottle - Nitric Acid; Unspecified (EG035T) RB 260417	**24-May-2017**	**----**	----	----	**31-May-2017**	21-Jun-2017	✓
Clear Plastic Bottle - Nitric Acid; Unspecified (EG035T) RB 260417	**25-May-2017**	**----**	----	----	**31-May-2017**	22-Jun-2017	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP080) TB/260417	**23-May-2017**	**26-May-2017**	06-Jun-2017	✓	**30-May-2017**	06-Jun-2017	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber VOC Vial - Sulfuric Acid (EP080) TB/260417	**23-May-2017**	**26-May-2017**	06-Jun-2017	✓	**30-May-2017**	06-Jun-2017	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) TB/260417	**23-May-2017**	**26-May-2017**	06-Jun-2017	✓	**30-May-2017**	06-Jun-2017	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055-103	6	52	**11.54**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	4	33	**12.12**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	4	33	**12.12**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	4	34	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	4	33	**12.12**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	3	21	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	3	40	**7.50**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	2	33	**6.06**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	2	33	**6.06**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	2	34	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	2	33	**6.06**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	2	21	**9.52**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	2	33	**6.06**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	2	33	**6.06**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	2	34	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	2	33	**6.06**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	2	21	**9.52**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	2	33	**6.06**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	2	33	**6.06**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Matrix Spikes (MS) - Continued							
Total Fluoride	EK040T	2	34	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	2	33	**6.06**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	2	21	**9.52**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	11	**18.18**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite B	EG020B-T	2	6	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite B	EG020B-T	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite B	EG020B-T	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH in soil using a 0.01M CaCl2 extract	EA001	SOIL	In house: Referenced to Rayment and Higginson 4B1 (mod.) 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Moisture Content	EA055-103	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	SOIL	In house: Referenced to USEPA SW846, Method 3060A. Hexavalent chromium is extracted by alkaline digestion. The digest is determined by photometrically by automatic discrete analyser, following pH adjustment. The instrument uses colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Cyanide by Segmented Flow Analyser	EK026SF	SOIL	In house: Referenced to APHA 4500-CN C / ASTM D7511. Caustic leachates of soil samples are introduced into an automated segmented flow analyser. Complex bound cyanide is decomposed in a continuously flowing stream, at a pH of 3.8, by the effect of UV light. A UV-B lamp (312 nm) and a decomposition spiral of borosilicate glass are used to filter out UV light with a wavelength of less than 290 nm thus preventing the conversion of thiocyanate into cyanide. The hydrogen cyanide present at a pH of 3.8 is separated by gas dialysis. The hydrogen cyanide is then determined photometrically, based on the reaction of cyanide with chloramine-T to form cyanogen chloride. This then reacts with 4-pyridine carboxylic acid and 1,3-dimethylbarbituric acid to give a red colour which is measured at 600 nm. This method is compliant with NEPM (2013) Schedule B(3)
Total Fluoride	EK040T	SOIL	(In-house) Total fluoride is determined by ion specific electrode (ISE) in a solution obtained after a Sodium Carbonate / Potassium Carbonate fusion dissolution.
PCB - VIC EPA 448.3 Screen	EP066-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
TRH - Semivolatile Fraction	EP071-EM	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40.
Volatile Organic Compounds - Ultra-trace	EP074-UT	SOIL	In house: Referenced to USEPA SW 846 - 8260B Extracts are analysed by Purge and Trap, Capillary GC/MS in partial SIM/Scan mode. Quantification is by comparison against an established multi-point calibration curves. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)

Analytical Methods	Method	Matrix	Method Descriptions
Volatile Organic Compounds - Ultra-trace - Summations	EP074-UT-SUM	SOIL	Summation of MAHs and VHCs
Semivolatile Organic Compounds - Waste Classification	EP075-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (2013) Schedule B(3) (Method 502)
SVOC - Waste Classification (Sums)	EP075-EM-SUM	SOIL	Summations for EP075 (EM variation)
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite B	EG020B-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
NaOH leach for CN in Soils	CN-PR	SOIL	In house: APHA 4500 CN. Samples are extracted by end-over-end tumbling with NaOH.
pH in soil using a 0.01M CaCl2 extract	EA001-PR	SOIL	In house: Referenced to Rayment and Higginson 4B1, 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Alkaline digestion for Hexavalent Chromium	EG048PR	SOIL	In house: Referenced to USEPA SW846, Method 3060A.
Total Fluoride	EK040T-PR	SOIL	In house: Samples are fused with Sodium Carbonate / Potassium Carbonate flux.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils - Ultra-trace.	ORG16-UT	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids - VIC EPA Screen	ORG17-EM	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

Preparation Methods	Method	Matrix	Method Descriptions
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EM1706717**

Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLFA NAZARIO	Contact	: Steven McGrath
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: onazario@pb.com.au	E-mail	: steven.mcgrath@alsglobal.com
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9600
Facsimile	: +61 03 9861 1144	Facsimile	: +61-3-8549 9601
Project	: 2135645A	Page	: 1 of 3
Order number	: ----	Quote number	: EM2016PARBRIVIC0006 (ME-525-16)
C-O-C number	: 72866-72867	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Site 26		
Sampler	:		

Dates

Date Samples Received	: 25-May-2017 16:00	Issue Date	: 26-May-2017
Client Requested Due Date	: 31-May-2017	Scheduled Reporting Date	: **31-May-2017**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 4.7°C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 23 / 21

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.
- **Analytical work for this work order will be conducted at ALS Springvale.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - P-16 WRG 621
EM1706717-001	22-May-2017 00:00	TP17-26-14/0.8		✓	✓
EM1706717-002	22-May-2017 00:00	TP17-26-16/0.7		✓	✓
EM1706717-003	22-May-2017 00:00	TP17-26-29/0.4		✓	✓
EM1706717-004	23-May-2017 00:00	TP17-26-31/1.0		✓	✓
EM1706717-005	23-May-2017 00:00	TP17-26-27/0.8		✓	✓
EM1706717-006	23-May-2017 00:00	TP17-26-25/0.7		✓	✓
EM1706717-007	23-May-2017 00:00	TP17-26-24/0.8		✓	✓
EM1706717-008	24-May-2017 00:00	TP17-26-33/0.5-0.6		✓	✓
EM1706717-009	24-May-2017 00:00	TP17-26-35/0.5-0.6		✓	✓
EM1706717-010	24-May-2017 00:00	TP17-26-64/0.5		✓	✓
EM1706717-011	24-May-2017 00:00	DUPA TP17-26-64/0.5		✓	✓
EM1706717-013	24-May-2017 00:00	TP17-26-37/0.4		✓	✓
EM1706717-014	25-May-2017 00:00	TP17-26-41/0.8		✓	✓
EM1706717-015	25-May-2017 00:00	TP17-26-70/0.1		✓	✓
EM1706717-016	25-May-2017 00:00	DUPA TP17-26-70/0.1		✓	✓
EM1706717-018	25-May-2017 00:00	TP17-26-43/0.7		✓	✓
EM1706717-024	23-May-2017 00:00	DUPA 26-24/0.8	✓		

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG020T Total Recoverable Metals by ICPMS (including	WATER - EG035T Total Mercury by FIMS	WATER - W-18 TRH(C6 - C9)/BTEXN
EM1706717-019	22-May-2017 00:00	RB 260417	✓	✓	
EM1706717-020	23-May-2017 00:00	RB 260417	✓	✓	
EM1706717-021	24-May-2017 00:00	RB 260417	✓	✓	
EM1706717-022	25-May-2017 00:00	RB 260417	✓	✓	
EM1706717-023	23-May-2017 00:00	TB/260417			✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ALL INVOICES		
- A4 - AU Tax Invoice (INV)	Email	apinvoices@pb.com.au
OLFA NAZARIO		
- *AU Certificate of Analysis - NATA (COA)	Email	onazario@pb.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	onazario@pb.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	onazario@pb.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	onazario@pb.com.au
- A4 - AU Tax Invoice (INV)	Email	onazario@pb.com.au
- AU IWRG 621 2009 Guideline Report (COA_GL_IWRG_621)	Email	onazario@pb.com.au
- Chain of Custody (CoC) (COC)	Email	onazario@pb.com.au
- EDI Format - ENMRG (ENMRG)	Email	onazario@pb.com.au
- EDI Format - ESDAT (ESDAT)	Email	onazario@pb.com.au
OLIVIA HENDERSON		
- *AU Certificate of Analysis - NATA (COA)	Email	ohenderson@pb.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	ohenderson@pb.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	ohenderson@pb.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	ohenderson@pb.com.au
- AU IWRG 621 2009 Guideline Report (COA_GL_IWRG_621)	Email	ohenderson@pb.com.au
- Chain of Custody (CoC) (COC)	Email	ohenderson@pb.com.au
- EDI Format - ENMRG (ENMRG)	Email	ohenderson@pb.com.au
- EDI Format - ESDAT (ESDAT)	Email	ohenderson@pb.com.au

PARSONS BRINCKERHOFF

ABN 80 078 004 798

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Adelaide
Level 16, 1 King William Street,
GPO Box 398 Adelaide SA 5001
Tel: (08) 8405 4300 Fax: (08) 8405 4301

Perth
Level 5, 503 Murray Street,
PO Box 7181 Cloisters Square WA 6850
Tel: (08) 9489 9700 Fax: (08) 9489 9777

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GPO Box 2907 Brisbane QLD 4001
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188 John Street,
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Melbourne
Level 15, 28 Freshwater Place,
PO Box 19016 Southbank VIC 3006
Tel: (03) 9861 1111 Fax: (03) 9861 1144

Newcastle
Level 3, 51-55 Bolton Street,
PO Box 1162 Newcastle NSW, 2300
Tel: (02) 4929 8300 Fax: (02) 4929 8382

Sydney
Level 27, Ernst & Young Centre
680 George Street,
GPO Box 5394, Sydney NSW 2001
Tel: (02) 9272 5100 Fax: (02) 9272 5101

Chain of Custody

Order No: 72866

Job Title: OSAR

PB Job Number: 2135645A

Job Location: Site 26

Project Manager: Olga Nazario

Laboratory Name: ALS

Address: ALS Springvale

Results Expected by/on: ONazario@pb.com.au

Fax Results to:

Fax Number:

Phone Number: 8549 9600

Spreadsheet of Results Required: (Y) / N

Contact Name: Graeme Jablonkas

Format:

Delivery Method: Courier

Turnaround Time Required:

Quote Number: MP 525 -16

Invoice to: Olga Nazario

Comments:

Terms of Business	PB	Other	Checked
✓			

Date Sampled	Time Id's	Sample I.D.	Container Size	Sample Location	Medium*	Preservative Type	Filtered (X)	TPH	BTEX	PAH's	OC/OP/PCB's	Metals** IWRG621//Suite// IWRG metals					Initials	Comments/Additional Information and/or Analysis Required
22/05/17	1	TP17-26-14/0.8	250ml	Site 26	S													
"	2	TP17-26-16/0.7																
"	3	TP17-26-29/0.4																
23/05/17	4	TP17-26-31/1.0																
"	5	TP17-26-27/0.8																
	6	TP17-26-25/0.7																
	7	TP17-26-24/0.8																
24/5/17	8	TP17-26-33/0.5-0.6																
"	9	TP17-26-35/0.5-0.6																
	10	TP17-26-64/0.5																
	11	DUP A TP17-26-64/0.5																
	12	DUP B "																
	13	TP17-26-32/0.4																

Environmental Division
Melbourne
Work Order Reference
EM1706717

Telephone : +61-3-8549 9600

Relinquished by:	Relinquished by:	Relinquished by:
Rory MacKay		
Date & Time: 25/05/17	Date & Time:	Date & Time:
Company: WSP	Company:	Company:
Signature:	Signature:	Signature:
Received in Good Order & Condition by (Name): Marcia	Received in Good Order & Condition by (Name):	Received in Good Order & Condition by (Name):
Date & Time: 25/5 16.00	Date & Time:	Date & Time:
Company: ALS	Company:	Company:
Signature:	Signature:	Signature:

Medium*: S = Soil, W = Water, V = Vapour

Legend**: (circle the following to be tested)

Metals: Al As Be Cd Co Cr Cu Fe Hg Li Mg Mn Ni Pb Se Sn V Zn

Samples on Ice: ☐ Yes ☐ No

Please fax back a signed copy when samples are received at the laboratory

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ABN 60 078 004 798

Adelaide Level 16, 1 King William Street, GPO Box 398 Adelaide SA 5001 Tel: (08) 8405 4300 Fax: (08) 8405 4301
Brisbane Level 4, Northbank Plaza 69 Ann Street, GPO Box 2907 Brisbane QLD 4001 Tel: (07) 3854 6200 Fax: (07) 3854 6500
Melbourne Level 15, 28 Freshwater Place, PO Box 19016 Southbank VIC 3006 Tel: (03) 9861 1111 Fax: (03) 9861 1144
Sydney Level 27, Ernst & Young Centre 680 George Street, GPO Box 5394, Sydney NSW 2001 Tel: (02) 9272 5100 Fax: (02) 9272 5101
Perth Level 5, 503 Murray Street, PO Box 7181 Cloisters Square WA 6850 Tel: (08) 9489 9700 Fax: (08) 9489 9777
Singleton 188 John Street, PO Box 115 Singleton NSW 2330 Tel: (02) 6572 3377 Fax: (02) 6572 4080
Newcastle Level 3, 51-55 Bolton Street, PO Box 1162 Newcastle NSW, 2300 Tel: (02) 4929 8300 Fax: (02) 4929 8382

Chain of Custody

Order No: 72867

Job Title: OSAR - 2135645
PB Job Number: 2135645A
Job Location: Site 26
Project Manager: Olfa Nazario

Laboratory Name: ALS
Address: ALS Springvale
Fax Number:
Phone Number: 8549 - 9606
Contact Name: Graeme Jablonkas
Delivery Method: Courier
Quote Number: YMF525-16

Terms of Business: PB / Other / Checked

Results Expected by/on:
Fax Results to: Onazario@pb.com.au
Fax Number:
Phone Number:
Spreadsheet of Results Required: (Y) / N
Format:
Turnaround Time Required:
Invoice to: Olfa Nazario
Comments:

Date Sampled	Time / Id's	Sample I.D.	Container Size	Sample Location	Medium*	Preservative Type	Filtered (X)	TPH	BTEX	PAH's	OC/OP/PCB's	Metals** IWRG 621 // Suite // IWRG Metals					Initials	Comments/Additional Information and/or Analysis Required
25/05	14	TP17-26-41/0.8	250	Site 26	S							X						
"	15	TP17-26-70/0.7										X						
"	16	DUP A TP17-26-70/0.7										XX						
"	17	DUP B "																
"	18	TP17-26-43/0.7										X						
22/05/17 23/05/17	19	RB260417											XX					
24/05/17 25/05/17	20 21 22	"											XX					
25/05/17	23	TB/260417						X	X									
		Extra sample																
23/05/17	24	DUPA 26-24/0.8		Soil	-													TB - To be analysed for TRH/BTEX

Relinquished by:	Relinquished by:	Relinquished by:
Date & Time:	Date & Time:	Date & Time:
Company:	Company:	Company:
Signature:	Signature:	Signature:
Received in Good Order & Condition by (Name):	Received in Good Order & Condition by (Name):	Received in Good Order & Condition by (Name):
Date & Time: 25/5 16.00	Date & Time:	Date & Time:
Company: ALS	Company:	Company:
Signature:	Signature:	Signature:

Medium*: S = Soil, W = Water, V = Vapour

Legend**: (circle the following to be tested)

Metals: Al As Be Cd Co Cr Cu Fe Hg Li Mg Mn Ni Pb Se Sn V Zn

Samples on Ice: ☐ Yes ☐ No

Please fax back a signed copy when samples are received at the laboratory

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ABN 80 078 004 798

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❑ **Melbourne** Level 15, 28 Freshwater Place, PO Box 19016 Southbank VIC 3006 Tel: (03) 9861 1111 Fax: (03) 9861 1144

❑ **Sydney** Level 27, Ernst & Young Centre 680 George Street, GPO Box 5394, Sydney NSW 2001 Tel: (02) 9272 5100 Fax: (02) 9272 5101

❑ **Perth** Level 5, 503 Murray Street, PO Box 7181 Cloisters Square WA 6850 Tel: (08) 9489 9700 Fax: (08) 9489 9777

❑ **Singleton** 188 John Street, PO Box 115 Singleton NSW 2330 Tel: (02) 6572 3377 Fax: (02) 6572 4080

❑ **Newcastle** Level 3, 51-55 Bolton Street, PO Box 1162 Newcastle NSW, 2300 Tel: (02) 4929 8300 Fax: (02) 4929 8382

Chain of Custody

Order No: 72866

Job Title: OSAR

PB Job Number: 213564 5A

Job Location: Site 26

Project Manager: Olga Nazario

Laboratory Name: ALS

Address: ALS Springvale

Fax Number:

Phone Number: 8549-9600

Contact Name: Graeme Jablonkas

Delivery Method: Courier

Quote Number: ME525-16

Terms of Business	PB	Other	Checked
✓			

Results Expected by/on: ONazario@pb.com.au

Fax Results to:

Fax Number:

Phone Number:

Spreadsheet of Results Required: (Y) / N

Format:

Turnaround Time Required:

Invoice to: Olga Nazario

Comments:

Date Sampled	Time Id's	Sample I.D.	Container Size	Sample Location	Medium*	Preservative Type	Filtered (X)	TPH	BTEX	PAH's	OC/OP/PCB's	Metals**	IWRG62//Suite// *	EWRA metals	Initials	Comments/Additional Information and/or Analysis Required
22/05/17	1	TP17-26-14/0.8	250ml	Site 26	S								X			* analysis as per client's request - BN 26/5
"	2	TP17-26-16/0.7											X			
"	3	TP17-26-29/0.4											X			
23/05/17	4	TP17-26-31/1.0											X			
"	5	TP17-26-27/0.8											X			
	6	TP17-26-25/0.7											X			
	7	TP17-26-24/0.8											X			
24/5/17	8	TP17-26-33/0.5-0.6											X			
"	9	TP17-26-35/0.5-0.6											X			
	10	TP17-26-64/0.5											X			
	11	DUP A TP17-26-64/0.5											X			
	12	DUP B "											→			Fwd to Eurofins BN 26/5
	13	TP17-26-37/0.4											X			

Environmental Division
Melbourne
Work Order Reference
EM1706717

Telephone : +61-3-8549 9600

Relinquished by:	Relinquished by:	Relinquished by:
Rory MacKay		Forwarded to Secondary Lab
Date & Time: 25/05/17	Date & Time:	Date & Time:
Company: WSP	Company:	Company:
Signature:	Signature:	Signature:
Received in Good Order & Condition by (Name): Marcia	Received in Good Order & Condition by (Name):	Initials BN Date 26/5 Received in Good Order & Condition by (Name):
Date & Time: 25/5 16:00	Date & Time:	Date & Time:
Company: ALS	Company:	Company:
Signature:	Signature:	Signature:

Medium*: S = Soil, W = Water, V = Vapour

Legend**: (circle the following to be tested)

Metals: Al As Be Cd Co Cr Cu Fe Hg Li Mg Mn Ni Pb Se Sn V Zn

Samples on Ice: ☐ Yes ☐ No

Please fax back a signed copy when samples are received at the laboratory BN 26/5

PARSONS BRINCKERHOFF

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Perth Level 5, 503 Murray Street, PO Box 7181 Cloisters Square WA 6850 Tel: (08) 9489 9700 Fax: (08) 9489 9777

Singleton 188 John Street, PO Box 115 Singleton NSW 2330 Tel: (02) 6572 3377 Fax: (02) 6572 4080

Newcastle Level 3, 51-55 Bolton Street, PO Box 1162 Newcastle NSW, 2300 Tel: (02) 4929 8300 Fax: (02) 4929 8382

Chain of Custody

Order No: 72867

Job Title: OSAR - 2135645

PB Job Number: 2135645A

Job Location: Site 26

Project Manager: Ofa Nazario

Laboratory Name: ALS

Results Expected by/on:

Address: ALS Springvale

Terms of Business: PB ✓ Other Checked

Fax Results to: Onazario@pb.com.au

Fax Number:

Phone Number: 854* - 9600

Spreadsheet of Results Required: (Y) / N

Contact Name: Graeme Jebbinks

Format:

Delivery Method: Courier

Turnaround Time Required:

Quote Number: MF525 - 16

Invoice to: Ofa Nazario

Comments:

Date Sampled	Time / Id's	Sample I.D.	Container Size	Sample Location	Medium*	Preservative Type	Filtered (X)	TPH	BTEX	PAH's	OC/OP/PCBs	Metals**	IWRG 621 // Site //	IWRG Metals	Initials	Comments/Additional Information and/or Analysis Required
25/05	14	TP17-26-41/0.8	250	Site 26	S								X			
"	15	TP17-26-70/0.7											X			
"	16	DUP A TP17-26-70/0.7											X			
	17	DUP B "											X			Fwd to Eurofins - BN 24/5
"	18	TP17-26-43/0.7											X			
22/05/17	19	RB260417												X		
23/05/17	20	"												X		
24/05/17	21	"												X		
25/05/17	22	"												X		
25/05/17	23	TB/260417						X	X							TB - To be analysed for TRH/BTEX
		Extra sample														
23/05/17	24	DUPA 26-24/0.8		soil	-		—	HOLD				— BD 26/5				

Relinquished by:	Relinquished by:	Relinquished by:
Date & Time:	Date & Time:	Date & Time:
Company:	Company:	Company:
Signature:	Signature:	Signature:
Received in Good Order & Condition by (Name):	Received in Good Order & Condition by (Name):	Received in Good Order & Condition by (Name):
Date & Time: 25/5 16:00	Date & Time:	Date & Time:
Company: ALS	Company:	Company:
Signature:	Signature:	Signature:

Medium*: S = Soil, W = Water, V = Vapour

Legend**: (circle the following to be tested)

Metals: Al As Be Cd Co Cr Cu Fe Hg Li Mg Mn Ni Pb Se Sn V Zn

Samples on Ice: ☐ Yes ☐ No

Please fax back a signed copy when samples are received at the laboratory

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1706803**	Page	: 1 of 9
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLFA NAZARIO	Contact	: Steven McGrath
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9600
Project	: 2135645A	Date Samples Received	: 26-May-2017 15:40
Order number	: ----	Date Analysis Commenced	: 29-May-2017
C-O-C number	: 72868	Issue Date	: 02-Jun-2017 12:21
Sampler	: RM		
Site	: Site 26		
Quote number	: ME-525-16		
No. of samples received	: 6		
No. of samples analysed	: 6		

ilac-MRA NATA
Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	Senior Semivolatile Instrument Chemist	Melbourne Organics, Springvale, VIC
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TP17-26-45/0.6	TP17-26-45/2.0	TP17-26-68/0.6	----	----
			Client sampling date / time	26-May-2017 00:00	26-May-2017 00:00	26-May-2017 00:00	----	----
Compound	CAS Number	LOR	Unit	EM1706803-001	EM1706803-002	EM1706803-003	--------	--------
				Result	Result	Result	----	----
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	**7.6**	**7.2**	**7.0**	----	----
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1	%	**9.0**	**10.9**	**5.9**	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	----	----
Copper	7440-50-8	5	mg/kg	**17**	<5	<5	----	----
Lead	7439-92-1	5	mg/kg	**46**	<5	<5	----	----
Molybdenum	7439-98-7	2	mg/kg	<2	<2	<2	----	----
Nickel	7440-02-0	2	mg/kg	**10**	**2**	<2	----	----
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	----	----
Silver	7440-22-4	2	mg/kg	<2	<2	<2	----	----
Tin	7440-31-5	5	mg/kg	<5	<5	<5	----	----
Zinc	7440-66-6	5	mg/kg	**80**	<5	<5	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	----	----
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
EK026SF: Total CN by Segmented Flow Analyser								
Total Cyanide	57-12-5	1	mg/kg	<1	<1	<1	----	----
EK040T: Fluoride Total								
Fluoride	16984-48-8	40	mg/kg	**90**	**80**	**60**	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	<0.1	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Sum of monocyclic aromatic hydrocarbons	----	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP17-26-45/0.6	TP17-26-45/2.0	TP17-26-68/0.6	----	----
				Client sampling date / time	26-May-2017 00:00	26-May-2017 00:00	26-May-2017 00:00	----	----
Compound	CAS Number	LOR	Unit		EM1706803-001	EM1706803-002	EM1706803-003	--------	--------
					Result	Result	Result	----	----
EP074H: Naphthalene									
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	----	----
EP074I: Volatile Halogenated Compounds									
Vinyl chloride	75-01-4	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
1.1-Dichloroethene	75-35-4	0.01	mg/kg		<0.01	<0.01	<0.01	----	----
Methylene chloride	75-09-2	0.4	mg/kg		<0.4	<0.4	<0.4	----	----
trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg		<0.01	<0.01	<0.01	----	----
Chloroform	67-66-3	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
1.1.1-Trichloroethane	71-55-6	0.01	mg/kg		<0.01	<0.01	<0.01	----	----
Carbon Tetrachloride	56-23-5	0.01	mg/kg		<0.01	<0.01	<0.01	----	----
1.2-Dichloroethane	107-06-2	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
Trichloroethene	79-01-6	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
1.1.2-Trichloroethane	79-00-5	0.04	mg/kg		<0.04	<0.04	<0.04	----	----
Tetrachloroethene	127-18-4	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg		<0.01	<0.01	<0.01	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
Hexachlorobutadiene	87-68-3	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
Chlorobenzene	108-90-7	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
1.4-Dichlorobenzene	106-46-7	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
1.2-Dichlorobenzene	95-50-1	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg		<0.01	<0.01	<0.01	----	----
^ Sum of volatile chlorinated hydrocarbons	----	0.01	mg/kg		<0.01	<0.01	<0.01	----	----
^ Sum of other chlorinated hydrocarbons	----	0.01	mg/kg		<0.01	<0.01	<0.01	----	----
EP075A: Phenolic Compounds (Halogenated)									
2-Chlorophenol	95-57-8	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
2.4-Dichlorophenol	120-83-2	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
2.6-Dichlorophenol	87-65-0	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Pentachlorophenol	87-86-5	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
^ Sum of Phenols (halogenated)	----	0.03	mg/kg		<0.03	<0.03	<0.03	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP17-26-45/0.6	TP17-26-45/2.0	TP17-26-68/0.6	----	----
				Client sampling date / time	26-May-2017 00:00	26-May-2017 00:00	26-May-2017 00:00	----	----
Compound	CAS Number	LOR	Unit		EM1706803-001	EM1706803-002	EM1706803-003	--------	--------
					Result	Result	Result	----	----
EP075A: Phenolic Compounds (Halogenated) - Continued									
EP075A: Phenolic Compounds (Non-halogenated)									
Phenol	108-95-2	1	mg/kg		<1	<1	<1	----	----
2-Methylphenol	95-48-7	1	mg/kg		<1	<1	<1	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	<1	----	----
2-Nitrophenol	88-75-5	1	mg/kg		<1	<1	<1	----	----
2.4-Dimethylphenol	105-67-9	1	mg/kg		<1	<1	<1	----	----
2.4-Dinitrophenol	51-28-5	5	mg/kg		<5	<5	<5	----	----
4-Nitrophenol	100-02-7	5	mg/kg		<5	<5	<5	----	----
2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg		<5	<5	<5	----	----
Dinoseb	88-85-7	5	mg/kg		<5	<5	<5	----	----
2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg		<5	<5	<5	----	----
^ Sum of Phenols (non-halogenated)	----	1	mg/kg		<1	<1	<1	----	----
EP075B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		0.6	0.6	0.6	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		1.2	1.2	1.2	----	----
EP075I: Organochlorine Pesticides									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP17-26-45/0.6	TP17-26-45/2.0	TP17-26-68/0.6	----	----
				Client sampling date / time	26-May-2017 00:00	26-May-2017 00:00	26-May-2017 00:00	----	----
Compound	CAS Number	LOR	Unit		EM1706803-001	EM1706803-002	EM1706803-003	--------	--------
					Result	Result	Result	----	----
EP075l: Organochlorine Pesticides - Continued									
alpha-BHC	319-84-6	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
beta-BHC	319-85-7	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
gamma-BHC	58-89-9	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
delta-BHC	319-86-8	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Heptachlor	76-44-8	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Aldrin	309-00-2	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Heptachlor epoxide	1024-57-3	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
cis-Chlordane	5103-71-9	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
trans-Chlordane	5103-74-2	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Endosulfan 1	959-98-8	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Dieldrin	60-57-1	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Endrin aldehyde	7421-93-4	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Endrin	72-20-8	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Endosulfan 2	33213-65-9	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Endosulfan sulfate	1031-07-8	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
4.4`-DDT	50-29-3	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Methoxychlor	72-43-5	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
^ Sum of organochlorine pesticides	----	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
^ Chlordane	57-74-9	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
^ Sum of other organochlorine pesticides	----	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	----	----
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP17-26-45/0.6	TP17-26-45/2.0	TP17-26-68/0.6	----	----
				Client sampling date / time	26-May-2017 00:00	26-May-2017 00:00	26-May-2017 00:00	----	----
Compound	CAS Number	LOR	Unit		EM1706803-001	EM1706803-002	EM1706803-003	--------	--------
					Result	Result	Result	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	----	----
>C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	----	----
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		110	89.2	102	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		92.3	81.2	83.7	----	----
Toluene-D8	2037-26-5	0.1	%		89.8	75.7	82.1	----	----
4-Bromofluorobenzene	460-00-4	0.1	%		99.9	95.9	88.6	----	----
EP075S: Acid Extractable Surrogates									
Phenol-d6	13127-88-3	0.025	%		96.0	80.6	85.7	----	----
2-Chlorophenol-D4	93951-73-6	0.025	%		87.3	69.0	73.1	----	----
2.4.6-Tribromophenol	118-79-6	0.025	%		92.0	69.9	73.8	----	----
EP075T: Base/Neutral Extractable Surrogates									
Nitrobenzene-D5	4165-60-0	0.025	%		93.4	72.4	73.2	----	----
1.2-Dichlorobenzene-D4	2199-69-1	0.025	%		97.5	67.6	76.2	----	----
2-Fluorobiphenyl	321-60-8	0.025	%		95.6	74.3	80.7	----	----
Anthracene-d10	1719-06-8	0.025	%		96.3	78.4	85.6	----	----
4-Terphenyl-d14	1718-51-0	0.025	%		97.4	79.1	88.8	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	RB260417	RB260417	TB/260417	----	----
				Client sampling date / time	25-May-2017 00:00	26-May-2017 00:00	26-May-2017 00:00	----	----
Compound	CAS Number	LOR	Unit		EM1706803-004	EM1706803-005	EM1706803-006	--------	--------
					Result	Result	Result	----	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	<0.001	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	<0.0001	----	----	----
Copper	7440-50-8	0.001	mg/L		<0.001	<0.001	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	<0.001	----	----	----
Molybdenum	7439-98-7	0.001	mg/L		<0.001	<0.001	----	----	----
Nickel	7440-02-0	0.001	mg/L		<0.001	<0.001	----	----	----
Selenium	7782-49-2	0.01	mg/L		<0.01	<0.01	----	----	----
Silver	7440-22-4	0.001	mg/L		<0.001	<0.001	----	----	----
Tin	7440-31-5	0.001	mg/L		<0.001	<0.001	----	----	----
Zinc	7440-66-6	0.005	mg/L		<0.005	<0.005	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		----	----	<20	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		----	----	<20	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		----	----	<20	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		----	----	<1	----	----
Toluene	108-88-3	2	µg/L		----	----	<2	----	----
Ethylbenzene	100-41-4	2	µg/L		----	----	<2	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		----	----	<2	----	----
ortho-Xylene	95-47-6	2	µg/L		----	----	<2	----	----
^ Total Xylenes	1330-20-7	2	µg/L		----	----	<2	----	----
^ Sum of BTEX	----	1	µg/L		----	----	<1	----	----
Naphthalene	91-20-3	5	µg/L		----	----	<5	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		----	----	**100.0**	----	----
Toluene-D8	2037-26-5	2	%		----	----	**94.7**	----	----
4-Bromofluorobenzene	460-00-4	2	%		----	----	**96.6**	----	----

Surrogate Control Limits

Sub-Matrix: **SOIL**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	41	122
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	59	119
Toluene-D8	2037-26-5	55	117
4-Bromofluorobenzene	460-00-4	59	123
EP075S: Acid Extractable Surrogates			
Phenol-d6	13127-88-3	28	134
2-Chlorophenol-D4	93951-73-6	27	123
2.4.6-Tribromophenol	118-79-6	25	149
EP075T: Base/Neutral Extractable Surrogates			
Nitrobenzene-D5	4165-60-0	29	125
1.2-Dichlorobenzene-D4	2199-69-1	31	117
2-Fluorobiphenyl	321-60-8	44	136
Anthracene-d10	1719-06-8	53	133
4-Terphenyl-d14	1718-51-0	59	141

Sub-Matrix: **WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	129
Toluene-D8	2037-26-5	70	125
4-Bromofluorobenzene	460-00-4	71	129

ALS Environmental

Automated Guideline Comparison Report

EPA Victoria Publication IWRG 621 (2009) - Table 2: Soil Hazard Categorisation

Work Order	: **EM1706803**	Page	: 1 of 8
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLFA NAZARIO		
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: onazario@pb.com.au	E-mail	: steven.mcgrath@alsglobal.com
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9600
Facsimile	: +61 03 9861 1144	Facsimile	: +61-3-8549 9601
Project	: 2135645A	Date Received	: 26-May-2017 15:40
Order number	: ----	Date Analysed	: 29-May-2017
C-O-C number	: 72868	Date Issued	: 02-Jun-2017 12:21
No. of samples received	: 6		
No. of samples analysed	: 6	Quote number	: ME-525-16

General Comments

This guideline comparison report **only** provides evaluation of total concentration data against upper limit thresholds for the 'Fill Material', 'C', 'B' Categories in Table 2 of EPA Publication IWRG621.

This guideline comparison report is **NOT** a soil classification report. Classification of soils as Fill Material, Category C, Category B or Category A requires consideration of a number of other factors including preliminary site investigation, sampling density and statistical calculations, as set out in EPA Publication IWRG 702.
Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

This guideline comparison report only provides evaluation data where chemical parameters specifically listed within the IWRG621 (2009) guideline are analysed by ALS using the **P-16 package in full**.

Red shading is applied where the result is equal to or greater than the guideline upper limit and/or equal to or lower than the guideline lower limit. Red shading is not applied to the 'Summary of Thresholds Reached or Exceeded'.

For the 'Summary of Thresholds Reached or Exceeded' to accurately function, all samples must be analysed and included in the 'Analytical Results' section of the following report. Please verify that all required IDs are listed and analysed.

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Summary of Thresholds Reached or Exceeded

Results for all samples detailed in this report are below the upper threshold limits for Fill Material.

Analytical Results

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Client sample ID: TP17-26-45/0.6	TP17-26-45/2.0	TP17-26-68/0.6	----	----
			Sampling date/time			26-May-2017	26-May-2017	26-May-2017	----	----
						EM1706803-001	EM1706803-002	EM1706803-003	--------	--------
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	2	12.5	**7.6**	**7.2**	**7.0**	----	----
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	2000	<5	<5	<5	----	----
Cadmium	EG005T	1	mg/kg	----	400	<1	<1	<1	----	----
Copper	EG005T	5	mg/kg	----	20000	**17**	<5	<5	----	----
Lead	EG005T	5	mg/kg	----	6000	**46**	<5	<5	----	----
Molybdenum	EG005T	2	mg/kg	----	4000	<2	<2	<2	----	----
Nickel	EG005T	2	mg/kg	----	12000	**10**	**2**	<2	----	----
Selenium	EG005T	5	mg/kg	----	200	<5	<5	<5	----	----
Silver	EG005T	2	mg/kg	----	720	<2	<2	<2	----	----
Zinc	EG005T	5	mg/kg	----	140000	**80**	<5	<5	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	300	<0.1	<0.1	<0.1	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	2000	<0.5	<0.5	<0.5	----	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	10000	<1	<1	<1	----	----
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	40000	**90**	**80**	**60**	----	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	16	<0.2	<0.2	<0.2	----	----
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	240	<0.2	<0.2	<0.2	----	----
EP074I: Volatile Halogenated Compounds										
Vinyl chloride	EP074-UT	0.02	mg/kg	----	4.8	<0.02	<0.02	<0.02	----	----
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	11	<0.02	<0.02	<0.02	----	----
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	50	<0.01	<0.01	<0.01	----	----
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	320	<0.03	<0.03	<0.03	----	----
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	2200	<1	<1	<1	----	----
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	20	<0.5	<0.5	<0.5	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Client sample ID: TP17-26-45/0.6	TP17-26-45/2.0	TP17-26-68/0.6	----	----
						Sampling date/time: 26-May-2017	26-May-2017	26-May-2017	----	----
						EM1706803-001	EM1706803-002	EM1706803-003	--------	--------
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	400	<0.5	<0.5	<0.5	----	----
EP075I: Organochlorine Pesticides										
Heptachlor	EP075-EM	0.03	mg/kg	----	4.8	<0.03	<0.03	<0.03	----	----
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	4.8	<0.03	<0.03	<0.03	----	----
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50	<0.05	<0.05	<0.05	----	----
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	16	<0.03	<0.03	<0.03	----	----
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	50	<0.03	<0.03	<0.03	----	----
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	2600	<10	<10	<10	----	----
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	40000	<50	<50	<50	----	----

Soil Hazard Categorisation and Management
Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Client sample ID: TP17-26-45/0.6	TP17-26-45/2.0	TP17-26-68/0.6	----	----
			Sampling date/time			26-May-2017	26-May-2017	26-May-2017	----	----
						EM1706803-001	EM1706803-002	EM1706803-003	--------	--------
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	4	9	**7.6**	**7.2**	**7.0**	----	----
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	500	<5	<5	<5	----	----
Cadmium	EG005T	1	mg/kg	----	100	<1	<1	<1	----	----
Copper	EG005T	5	mg/kg	----	5000	**17**	<5	<5	----	----
Lead	EG005T	5	mg/kg	----	1500	**46**	<5	<5	----	----
Molybdenum	EG005T	2	mg/kg	----	1000	<2	<2	<2	----	----
Nickel	EG005T	2	mg/kg	----	3000	**10**	**2**	<2	----	----
Selenium	EG005T	5	mg/kg	----	50	<5	<5	<5	----	----
Silver	EG005T	2	mg/kg	----	180	<2	<2	<2	----	----
Tin	EG005T	5	mg/kg	----	500	<5	<5	<5	----	----
Zinc	EG005T	5	mg/kg	----	35000	**80**	<5	<5	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	75	<0.1	<0.1	<0.1	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	500	<0.5	<0.5	<0.5	----	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	2500	<1	<1	<1	----	----
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	10000	**90**	**80**	**60**	----	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	4	<0.2	<0.2	<0.2	----	----
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	70	<0.2	<0.2	<0.2	----	----
EP074I: Volatile Halogenated Compounds										
Vinyl chloride	EP074-UT	0.02	mg/kg	----	1.2	<0.02	<0.02	<0.02	----	----
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	2.8	<0.02	<0.02	<0.02	----	----
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	10	<0.01	<0.01	<0.01	----	----
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	10	<0.03	<0.03	<0.03	----	----
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	560	<1	<1	<1	----	----
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	5	<0.5	<0.5	<0.5	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Client sample ID: TP17-26-45/0.6	TP17-26-45/2.0	TP17-26-68/0.6	----	----
						Sampling date/time: 26-May-2017	26-May-2017	26-May-2017	----	----
						EM1706803-001	EM1706803-002	EM1706803-003	--------	--------
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	100	<0.5	<0.5	<0.5	----	----
EP075I: Organochlorine Pesticides										
Heptachlor	EP075-EM	0.03	mg/kg	----	1.2	<0.03	<0.03	<0.03	----	----
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	1.2	<0.03	<0.03	<0.03	----	----
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50	<0.05	<0.05	<0.05	----	----
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	4	<0.03	<0.03	<0.03	----	----
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	10	<0.03	<0.03	<0.03	----	----
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	650	<10	<10	<10	----	----
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	10000	<50	<50	<50	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

				Client sample ID		TP17-26-45/0.6	TP17-26-45/2.0	TP17-26-68/0.6	----	----
				Sampling date/time		26-May-2017	26-May-2017	26-May-2017	----	----
Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	EM1706803-001	EM1706803-002	EM1706803-003	--------	--------
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	4	9	**7.6**	**7.2**	**7.0**	----	----
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	20	<5	<5	<5	----	----
Cadmium	EG005T	1	mg/kg	----	3	<1	<1	<1	----	----
Copper	EG005T	5	mg/kg	----	100	**17**	<5	<5	----	----
Lead	EG005T	5	mg/kg	----	300	**46**	<5	<5	----	----
Molybdenum	EG005T	2	mg/kg	----	40	<2	<2	<2	----	----
Nickel	EG005T	2	mg/kg	----	60	**10**	**2**	<2	----	----
Selenium	EG005T	5	mg/kg	----	10	<5	<5	<5	----	----
Silver	EG005T	2	mg/kg	----	10	<2	<2	<2	----	----
Tin	EG005T	5	mg/kg	----	50	<5	<5	<5	----	----
Zinc	EG005T	5	mg/kg	----	200	**80**	<5	<5	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	1	<0.1	<0.1	<0.1	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	1	<0.5	<0.5	<0.5	----	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	50	<1	<1	<1	----	----
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	450	**90**	**80**	**60**	----	----
EP066: Polychlorinated Biphenyls (PCB)										
Total Polychlorinated biphenyls	EP066-EM	0.1	mg/kg	----	2	<0.1	<0.1	<0.1	----	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	1	<0.2	<0.2	<0.2	----	----
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	7	<0.2	<0.2	<0.2	----	----
EP074I: Volatile Halogenated Compounds										
Sum of volatile chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	1	<0.01	<0.01	<0.01	----	----
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	1	<0.03	<0.03	<0.03	----	----
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	60	<1	<1	<1	----	----
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	1	<0.5	<0.5	<0.5	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

				Client sample ID	Guideline Lower Limit	Guideline Upper Limit	TP17-26-45/0.6	TP17-26-45/2.0	TP17-26-68/0.6	----	----
				Sampling date/time			26-May-2017	26-May-2017	26-May-2017	----	----
Compound	*Method*	*LOR*	*Unit*				EM1706803-001	EM1706803-002	EM1706803-003	--------	--------
EP075B: Polynuclear Aromatic Hydrocarbons - Continued											
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	20		<0.5	<0.5	<0.5	----	----
EP075I: Organochlorine Pesticides											
Sum of organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	1		<0.03	<0.03	<0.03	----	----
EP080/071: Total Petroleum Hydrocarbons											
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	100		<10	<10	<10	----	----
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	1000		<50	<50	<50	----	----

Note: Red shading is applied where the result is equal to or greater than the guideline upper limit and/or equal to or lower than the guideline lower limit.

QUALITY CONTROL REPORT

Work Order	: **EM1706803**	Page	: 1 of 14
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLFA NAZARIO	Contact	: Steven McGrath
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9600
Project	: 2135645A	Date Samples Received	: 26-May-2017
Order number	: ----	Date Analysis Commenced	: 29-May-2017
C-O-C number	: 72868	Issue Date	: 02-Jun-2017
Sampler	: RM		
Site	: Site 26		
Quote number	: ME-525-16		
No. of samples received	: 6		
No. of samples analysed	: 6		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	Senior Semivolatile Instrument Chemist	Melbourne Organics, Springvale, VIC
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA001: pH in soil using 0.01M CaCl extract (QC Lot: 919215)									
EM1706803-001	TP17-26-45/0.6	EA001: pH (CaCl2)	----	0.1	pH Unit	7.6	7.5	1.32	0% - 20%
EM1706808-017	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	6.0	6.0	0.00	0% - 20%
EA055: Moisture Content (QC Lot: 918480)									
EM1706793-019	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	12.4	14.5	15.9	0% - 50%
EM1706803-001	TP17-26-45/0.6	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	9.0	9.7	7.75	No Limit
EG005T: Total Metals by ICP-AES (QC Lot: 918101)									
EM1706793-004	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	19	17	11.0	No Limit
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	6	6	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	70	71	1.51	0% - 50%
		EG005T: Lead	7439-92-1	5	mg/kg	62	42	38.8	0% - 50%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Tin	7440-31-5	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	146	143	1.97	0% - 20%
EM1706793-019	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	16	13	17.8	No Limit
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	7	<5	32.8	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	19	20	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	84	64	26.8	0% - 50%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG005T: Total Metals by ICP-AES (QC Lot: 918101) - continued									
EM1706793-019	Anonymous	EG005T: Tin	7440-31-5	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	59	57	3.59	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 918100)									
EM1706760-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	0.1	0.1	0.00	No Limit
EM1706760-020	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.4	116	No Limit
EG048: Hexavalent Chromium (Alkaline Digest) (QC Lot: 918326)									
EM1706730-004	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1706804-005	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EK026SF: Total CN by Segmented Flow Analyser (QC Lot: 918661)									
EM1706793-016	Anonymous	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.00	No Limit
EM1706793-033	Anonymous	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.00	No Limit
EK040T: Fluoride Total (QC Lot: 913706)									
EM1706791-001	Anonymous	EK040T: Fluoride	16984-48-8	40	mg/kg	500	470	7.41	0% - 50%
EM1706807-001	Anonymous	EK040T: Fluoride	16984-48-8	40	mg/kg	140	130	0.00	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 915604)									
EM1706803-001	TP17-26-45/0.6	EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 913186)									
EM1706775-003	Anonymous	EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1706807-001	Anonymous	EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074H: Naphthalene (QC Lot: 913186)									
EM1706775-003	Anonymous	EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EM1706807-001	Anonymous	EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EP074I: Volatile Halogenated Compounds (QC Lot: 913186)									
EM1706775-003	Anonymous	EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	<0.01	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074I: Volatile Halogenated Compounds (QC Lot: 913186) - continued									
EM1706775-003	Anonymous	EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	<0.04	0.00	No Limit
		EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	<0.4	0.00	No Limit
EM1706807-001	Anonymous	EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	<0.04	0.00	No Limit
		EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	<0.4	0.00	No Limit
EP075A: Phenolic Compounds (Halogenated) (QC Lot: 915602)									
EM1706803-001	TP17-26-45/0.6	EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075A: Phenolic Compounds (Halogenated) (QC Lot: 915602) - continued									
EM1706803-001	TP17-26-45/0.6	EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP075A: Phenolic Compounds (Non-halogenated) (QC Lot: 915602)									
EM1706803-001	TP17-26-45/0.6	EP075-EM: Phenol	108-95-2	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	0.00	No Limit
EP075B: Polynuclear Aromatic Hydrocarbons (QC Lot: 915602)									
EM1706803-001	TP17-26-45/0.6	EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP075I: Organochlorine Pesticides (QC Lot: 915602)									
EM1706803-001	TP17-26-45/0.6	EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075I: Organochlorine Pesticides (QC Lot: 915602) - continued									
EM1706803-001	TP17-26-45/0.6	EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 913186)									
EM1706775-003	Anonymous	EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EM1706807-001	Anonymous	EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 915603)									
EM1706803-001	TP17-26-45/0.6	EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 913186)									
EM1706775-003	Anonymous	EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
		EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	0.00	No Limit
EM1706807-001	Anonymous	EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
		EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 915603)									
EM1706803-001	TP17-26-45/0.6	EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG020T: Total Metals by ICP-MS (QC Lot: 913488)									
EM1706759-002	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	0.0013	0.0013	0.00	0% - 50%
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.010	0.011	0.00	0% - 50%
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.133	0.146	9.42	0% - 20%
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.194	0.205	5.72	0% - 20%
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	0.018	0.020	12.1	0% - 50%
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.030	0.032	4.06	0% - 20%

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG020T: Total Metals by ICP-MS (QC Lot: 913488) - continued									
EM1706759-002	Anonymous	EG020A-T: Tin	7440-31-5	0.001	mg/L	0.002	0.003	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.697	0.761	8.89	0% - 20%
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EM1706803-004	RB260417	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Tin	7440-31-5	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.00	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EG020T: Total Metals by ICP-MS (QC Lot: 913489)									
EM1706787-005	Anonymous	EG020B-T: Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 915870)									
EM1706721-004	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EM1706742-006	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 912931)									
EM1706798-008	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EM1706798-018	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 912931)									
EM1706798-008	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EM1706798-018	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 912931)									
EM1706798-008	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
EM1706798-018	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 918101)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	90.1	79	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	99.1	85	109
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	90.3	84	116
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	87.0	85	107
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	7.9 mg/kg	103	86	112
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	99.5	89	111
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	98.8	93	109
EG005T: Silver	7440-22-4	2	mg/kg	<2	2.1 mg/kg	94.5	80	108
EG005T: Tin	7440-31-5	5	mg/kg	<5	5.2 mg/kg	106	92	114
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	99.8	89	111
EG035T: Total Recoverable Mercury by FIMS (QCLot: 918100)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	86.5	85	103
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 918326)								
EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	40 mg/kg	83.8	80	120
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 918661)								
EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	20 mg/kg	90.6	80	110
EK040T: Fluoride Total (QCLot: 913706)								
EK040T: Fluoride	16984-48-8	40	mg/kg	<40	950 mg/kg	96.0	76	108
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 915604)								
EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	78.7	63	133
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 913186)								
EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	2.1 mg/kg	108	74	118
EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	2.1 mg/kg	106	70	118
EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2.1 mg/kg	107	69	117
EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4.2 mg/kg	105	68	116
EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	2.1 mg/kg	108	71	117
EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2.1 mg/kg	106	70	116
EP074H: Naphthalene (QCLot: 913186)								
EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	0.6 mg/kg	99.2	74	116
EP074I: Volatile Halogenated Compounds (QCLot: 913186)								
EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	0.1 mg/kg	121	49	133
EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	0.1 mg/kg	104	62	127

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP074I: Volatile Halogenated Compounds (QCLot: 913186) - continued								
EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	2.1 mg/kg	97.6	65	131
EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	0.1 mg/kg	106	68	124
EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	0.1 mg/kg	105	74	118
EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	0.1 mg/kg	105	72	118
EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	0.1 mg/kg	109	67	119
EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	0.1 mg/kg	108	65	119
EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	0.1 mg/kg	106	70	122
EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	0.1 mg/kg	108	72	124
EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	0.1 mg/kg	108	74	122
EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	0.1 mg/kg	105	58	120
EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	0.1 mg/kg	100	70	119
EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	0.1 mg/kg	102	71	125
EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	0.1 mg/kg	103	61	125
EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	0.1 mg/kg	109	70	122
EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	0.1 mg/kg	108	61	118
EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	0.1 mg/kg	108	67	117
EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	0.1 mg/kg	108	53	127
EP075A: Phenolic Compounds (Halogenated) (QCLot: 915602)								
EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	0.5 mg/kg	115	43	119
EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	0.5 mg/kg	129	44	131
EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	0.5 mg/kg	109	43	122
EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	0.5 mg/kg	120	50	129
EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	0.5 mg/kg	107	44	128
EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	0.5 mg/kg	124	44	126
EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	0.5 mg/kg	105	46	126
EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/5 8-90-2	0.05	mg/kg	<0.05	1 mg/kg	102	44	124
EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	1 mg/kg	116	36	124
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 915602)								
EP075-EM: Phenol	108-95-2	1	mg/kg	<1	0.5 mg/kg	# 139	41	120
EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	0.5 mg/kg	104	41	131
EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	1 mg/kg	118	43	130
EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	0.5 mg/kg	128	49	130
EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	0.5 mg/kg	93.5	37	119
EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	3 mg/kg	57.0	23	125
EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	3 mg/kg	90.8	49	133
EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	3 mg/kg	84.9	47	125
EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	3 mg/kg	113	48	123
EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	2.5 mg/kg	68.7	12	132

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 915602)								
EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	0.5 mg/kg	108	44	122
EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	0.5 mg/kg	120	54	126
EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	0.5 mg/kg	107	46	126
EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	0.5 mg/kg	110	51	125
EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	0.5 mg/kg	107	57	127
EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	0.5 mg/kg	76.3	55	127
EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	0.5 mg/kg	105	57	131
EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	0.5 mg/kg	106	57	131
EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	0.5 mg/kg	104	56	132
EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	0.5 mg/kg	110	58	134
EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	1 mg/kg	106	55	133
EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	0.5 mg/kg	102	51	135
EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	0.5 mg/kg	120	55	137
EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	0.5 mg/kg	121	54	136
EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	0.5 mg/kg	120	55	137
EP075I: Organochlorine Pesticides (QCLot: 915602)								
EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	0.5 mg/kg	107	54	130
EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	0.5 mg/kg	110	54	130
EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	0.5 mg/kg	104	54	134
EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	0.5 mg/kg	107	54	132
EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	0.5 mg/kg	108	55	131
EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	0.5 mg/kg	105	54	128
EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	0.5 mg/kg	105	54	128
EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	0.5 mg/kg	102	56	130
EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	0.5 mg/kg	102	56	130
EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	0.5 mg/kg	102	55	131
EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	0.5 mg/kg	103	53	133
EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	98.8	54	130
EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	0.5 mg/kg	103	57	133
EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	0.5 mg/kg	111	28	174
EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	0.5 mg/kg	103	40	148
EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	0.5 mg/kg	103	56	138
EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	105	57	135
EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	0.5 mg/kg	99.9	51	133
EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	0.5 mg/kg	101	51	133
EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	0.5 mg/kg	102	48	136
EP080/071: Total Petroleum Hydrocarbons (QCLot: 913186)								
EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	39.6 mg/kg	92.7	69	114

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 915603)								
EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	734 mg/kg	102	72	130
EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	3091 mg/kg	87.0	77	126
EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	1507 mg/kg	88.8	75	119
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 913186)								
EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	48.9 mg/kg	92.8	69	112
EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 915603)								
EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	1101 mg/kg	102	75	123
EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	3914 mg/kg	86.4	77	127
EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	283 mg/kg	84.6	43	123

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 913488)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	106	94	113
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	97.1	88	110
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	93.6	87	112
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	99.2	88	113
EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	98.5	89	114
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	95.1	91	111
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	93.7	86	110
EG020A-T: Tin	7440-31-5	0.001	mg/L	<0.001	0.1 mg/L	96.1	88	113
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	96.0	88	112
EG020T: Total Metals by ICP-MS (QCLot: 913489)								
EG020B-T: Silver	7440-22-4	0.001	mg/L	<0.001	0.02 mg/L	116	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 915870)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	94.2	87	113
EP080/071: Total Petroleum Hydrocarbons (QCLot: 912931)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	360 µg/L	102	67	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 912931)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	102	65	125
EP080: BTEXN (QCLot: 912931)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	105	76	120
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	101	76	124
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	99.3	72	124

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080: BTEXN (QCLot: 912931) - continued								
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	102	72	130
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	106	78	128
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	95.7	71	129

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG005T: Total Metals by ICP-AES (QCLot: 918101)							
EM1706793-007	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	80.4	78	124
		EG005T: Cadmium	7440-43-9	50 mg/kg	97.9	84	116
		EG005T: Copper	7440-50-8	50 mg/kg	115	82	124
		EG005T: Lead	7439-92-1	50 mg/kg	102	76	124
		EG005T: Molybdenum	7439-98-7	50 mg/kg	96.6	79	117
		EG005T: Nickel	7440-02-0	50 mg/kg	119	78	120
		EG005T: Selenium	7782-49-2	50 mg/kg	72.4	71	125
		EG005T: Zinc	7440-66-6	50 mg/kg	112	74	128
EG035T: Total Recoverable Mercury by FIMS (QCLot: 918100)							
EM1706760-003	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	82.6	76	116
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 918326)							
EM1706730-038	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	40 mg/kg	92.2	58	114
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 918661)							
EM1706793-018	Anonymous	EK026SF: Total Cyanide	57-12-5	20 mg/kg	93.0	77	113
EK040T: Fluoride Total (QCLot: 913706)							
EM1706791-002	Anonymous	EK040T: Fluoride	16984-48-8	400 mg/kg	79.0	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 915604)							
EM1706808-021	Anonymous	EP066-EM: Total Polychlorinated biphenyls	----	1 mg/kg	87.3	36	152
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 913186)							
EM1706791-001	Anonymous	EP074-UT: Benzene	71-43-2	2 mg/kg	68.6	50	138
		EP074-UT: Toluene	108-88-3	2 mg/kg	74.5	56	134
EP074I: Volatile Halogenated Compounds (QCLot: 913186)							
EM1706791-001	Anonymous	EP074-UT: 1.1-Dichloroethene	75-35-4	2 mg/kg	57.6	26	141

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP074I: Volatile Halogenated Compounds (QCLot: 913186) - continued							
EM1706791-001	Anonymous	EP074-UT: Trichloroethene	79-01-6	2 mg/kg	68.5	50	134
		EP074-UT: Chlorobenzene	108-90-7	2 mg/kg	83.6	28	134
EP075A: Phenolic Compounds (Halogenated) (QCLot: 915602)							
EM1706803-002	TP17-26-45/2.0	EP075-EM: 2-Chlorophenol	95-57-8	0.5 mg/kg	89.8	34	118
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.5 mg/kg	87.5	41	139
		EP075-EM: Pentachlorophenol	87-86-5	0.5 mg/kg	53.2	10	144
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 915602)							
EM1706803-002	TP17-26-45/2.0	EP075-EM: Phenol	108-95-2	0.5 mg/kg	90.5	32	134
		EP075-EM: 2-Nitrophenol	88-75-5	0.5 mg/kg	80.0	13	129
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 915602)							
EM1706803-002	TP17-26-45/2.0	EP075-EM: Acenaphthene	83-32-9	0.5 mg/kg	83.8	46	138
		EP075-EM: Pyrene	129-00-0	0.5 mg/kg	93.2	27	169
EP080/071: Total Petroleum Hydrocarbons (QCLot: 913186)							
EM1706791-001	Anonymous	EP074-UT: C6 - C9 Fraction	----	28 mg/kg	67.8	43	111
EP080/071: Total Petroleum Hydrocarbons (QCLot: 915603)							
EM1706803-003	TP17-26-68/0.6	EP071-EM: C10 - C14 Fraction	----	734 mg/kg	109	53	123
		EP071-EM: C15 - C28 Fraction	----	3091 mg/kg	92.3	70	124
		EP071-EM: C29 - C36 Fraction	----	1507 mg/kg	94.0	64	118
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 913186)							
EM1706791-001	Anonymous	EP074-UT: C6 - C10 Fraction	C6_C10	33 mg/kg	66.9	42	106
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 915603)							
EM1706803-003	TP17-26-68/0.6	EP071-EM: >C10 - C16 Fraction	----	1101 mg/kg	109	65	123
		EP071-EM: >C16 - C34 Fraction	----	3914 mg/kg	91.6	67	121
		EP071-EM: >C34 - C40 Fraction	----	283 mg/kg	90.0	44	126

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 913488)							
EM1706759-002	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	95.7	82	118
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	103	75	129
		EG020A-T: Copper	7440-50-8	1 mg/L	95.1	81	115
		EG020A-T: Lead	7439-92-1	1 mg/L	106	83	121
		EG020A-T: Nickel	7440-02-0	1 mg/L	96.4	80	118
		EG020A-T: Zinc	7440-66-6	1 mg/L	106	74	116
EG035T: Total Recoverable Mercury by FIMS (QCLot: 915870)							
EM1706721-011	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	72.7	70	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP080/071: Total Petroleum Hydrocarbons (QCLot: 912931)							
EM1706798-009	Anonymous	EP080: C6 - C9 Fraction	----	280 µg/L	82.3	43	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 912931)							
EM1706798-009	Anonymous	EP080: C6 - C10 Fraction	C6_C10	330 µg/L	79.0	44	122
EP080: BTEXN (QCLot: 912931)							
EM1706798-009	Anonymous	EP080: Benzene	71-43-2	20 µg/L	107	68	130
		EP080: Toluene	108-88-3	20 µg/L	99.5	72	132

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM1706803**	Page	: 1 of 9
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLFA NAZARIO	Telephone	: +61-3-8549 9600
Project	: 2135645A	Date Samples Received	: 26-May-2017
Site	: Site 26	Issue Date	: 02-Jun-2017
Sampler	: RM	No. of samples received	: 6
Order number	: ----	No. of samples analysed	: 6

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Matrix Spike outliers occur.**
- **Laboratory Control outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Laboratory Control Spike (LCS) Recoveries							
EP075A: Phenolic Compounds (Non-halogenated)	QC-915602-001	----	**Phenol**	108-95-2	139 %	41-120%	**Recovery greater than upper control limit**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA001: pH in soil using 0.01M CaCl extract								
Soil Glass Jar - Unpreserved (EA001)								
TP17-26-45/0.6, TP17-26-68/0.6	TP17-26-45/2.0,	**26-May-2017**	**01-Jun-2017**	02-Jun-2017	✓	**01-Jun-2017**	01-Jun-2017	✓
EA055: Moisture Content								
Soil Glass Jar - Unpreserved (EA055-103)								
TP17-26-45/0.6, TP17-26-68/0.6	TP17-26-45/2.0,	**26-May-2017**	**----**	----	----	**31-May-2017**	09-Jun-2017	✓
EG005T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T)								
TP17-26-45/0.6, TP17-26-68/0.6	TP17-26-45/2.0,	**26-May-2017**	**31-May-2017**	22-Nov-2017	✓	**31-May-2017**	22-Nov-2017	✓
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T)								
TP17-26-45/0.6, TP17-26-68/0.6	TP17-26-45/2.0,	**26-May-2017**	**31-May-2017**	23-Jun-2017	✓	**01-Jun-2017**	23-Jun-2017	✓
EG048: Hexavalent Chromium (Alkaline Digest)								
Soil Glass Jar - Unpreserved (EG048G)								
TP17-26-45/0.6, TP17-26-68/0.6	TP17-26-45/2.0,	**26-May-2017**	**31-May-2017**	23-Jun-2017	✓	**31-May-2017**	07-Jun-2017	✓
EK026SF: Total CN by Segmented Flow Analyser								
Soil Glass Jar - Unpreserved (EK026SF)								
TP17-26-45/0.6, TP17-26-68/0.6	TP17-26-45/2.0,	**26-May-2017**	**31-May-2017**	09-Jun-2017	✓	**01-Jun-2017**	14-Jun-2017	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EK040T: Fluoride Total								
Soil Glass Jar - Unpreserved (EK040T)								
TP17-26-45/0.6, TP17-26-68/0.6	TP17-26-45/2.0,	**26-May-2017**	**30-May-2017**	23-Jun-2017	✓	**01-Jun-2017**	23-Jun-2017	✓
EP066: Polychlorinated Biphenyls (PCB)								
Soil Glass Jar - Unpreserved (EP066-EM)								
TP17-26-45/0.6, TP17-26-68/0.6	TP17-26-45/2.0,	**26-May-2017**	**30-May-2017**	09-Jun-2017	✓	**31-May-2017**	09-Jul-2017	✓
EP074A: Monocyclic Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP074-UT)								
TP17-26-45/0.6, TP17-26-68/0.6	TP17-26-45/2.0,	**26-May-2017**	**29-May-2017**	02-Jun-2017	✓	**29-May-2017**	02-Jun-2017	✓
EP074H: Naphthalene								
Soil Glass Jar - Unpreserved (EP074-UT)								
TP17-26-45/0.6, TP17-26-68/0.6	TP17-26-45/2.0,	**26-May-2017**	**29-May-2017**	02-Jun-2017	✓	**29-May-2017**	02-Jun-2017	✓
EP074I: Volatile Halogenated Compounds								
Soil Glass Jar - Unpreserved (EP074-UT)								
TP17-26-45/0.6, TP17-26-68/0.6	TP17-26-45/2.0,	**26-May-2017**	**29-May-2017**	02-Jun-2017	✓	**29-May-2017**	02-Jun-2017	✓
EP075A: Phenolic Compounds (Halogenated)								
Soil Glass Jar - Unpreserved (EP075-EM)								
TP17-26-45/0.6, TP17-26-68/0.6	TP17-26-45/2.0,	**26-May-2017**	**30-May-2017**	09-Jun-2017	✓	**31-May-2017**	09-Jul-2017	✓
EP075A: Phenolic Compounds (Non-halogenated)								
Soil Glass Jar - Unpreserved (EP075-EM)								
TP17-26-45/0.6, TP17-26-68/0.6	TP17-26-45/2.0,	**26-May-2017**	**30-May-2017**	09-Jun-2017	✓	**31-May-2017**	09-Jul-2017	✓
EP075B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075-EM)								
TP17-26-45/0.6, TP17-26-68/0.6	TP17-26-45/2.0,	**26-May-2017**	**30-May-2017**	09-Jun-2017	✓	**31-May-2017**	09-Jul-2017	✓
EP075I: Organochlorine Pesticides								
Soil Glass Jar - Unpreserved (EP075-EM)								
TP17-26-45/0.6, TP17-26-68/0.6	TP17-26-45/2.0,	**26-May-2017**	**30-May-2017**	09-Jun-2017	✓	**31-May-2017**	09-Jul-2017	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074-UT) TP17-26-45/0.6, TP17-26-45/2.0, TP17-26-68/0.6	**26-May-2017**	**29-May-2017**	02-Jun-2017	✓	**29-May-2017**	02-Jun-2017	✓
Soil Glass Jar - Unpreserved (EP071-EM) TP17-26-45/0.6, TP17-26-45/2.0, TP17-26-68/0.6	**26-May-2017**	**30-May-2017**	09-Jun-2017	✓	**31-May-2017**	09-Jul-2017	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP074-UT) TP17-26-45/0.6, TP17-26-45/2.0, TP17-26-68/0.6	**26-May-2017**	**29-May-2017**	02-Jun-2017	✓	**29-May-2017**	02-Jun-2017	✓
Soil Glass Jar - Unpreserved (EP071-EM) TP17-26-45/0.6, TP17-26-45/2.0, TP17-26-68/0.6	**26-May-2017**	**30-May-2017**	09-Jun-2017	✓	**31-May-2017**	09-Jul-2017	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unspecified (EG020B-T) RB260417	**25-May-2017**	**29-May-2017**	21-Nov-2017	✓	**30-May-2017**	21-Nov-2017	✓
Clear Plastic Bottle - Nitric Acid; Unspecified (EG020B-T) RB260417	**26-May-2017**	**29-May-2017**	22-Nov-2017	✓	**30-May-2017**	22-Nov-2017	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unspecified (EG035T) RB260417	**25-May-2017**	**----**	----	----	**31-May-2017**	22-Jun-2017	✓
Clear Plastic Bottle - Nitric Acid; Unspecified (EG035T) RB260417	**26-May-2017**	**----**	----	----	**31-May-2017**	23-Jun-2017	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP080) TB/260417	**26-May-2017**	**29-May-2017**	09-Jun-2017	✓	**29-May-2017**	09-Jun-2017	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber VOC Vial - Sulfuric Acid (EP080) TB/260417	**26-May-2017**	**29-May-2017**	09-Jun-2017	✓	**29-May-2017**	09-Jun-2017	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) TB/260417	**26-May-2017**	**29-May-2017**	09-Jun-2017	✓	**29-May-2017**	09-Jun-2017	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055-103	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	10	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	10	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	10	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Matrix Spikes (MS) - Continued							
Total Fluoride	EK040T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite B	EG020B-T	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite B	EG020B-T	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite B	EG020B-T	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH in soil using a 0.01M CaCl2 extract	EA001	SOIL	In house: Referenced to Rayment and Higginson 4B1 (mod.) 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Moisture Content	EA055-103	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	SOIL	In house: Referenced to USEPA SW846, Method 3060A. Hexavalent chromium is extracted by alkaline digestion. The digest is determined by photometrically by automatic discrete analyser, following pH adjustment. The instrument uses colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Cyanide by Segmented Flow Analyser	EK026SF	SOIL	In house: Referenced to APHA 4500-CN C / ASTM D7511. Caustic leachates of soil samples are introduced into an automated segmented flow analyser. Complex bound cyanide is decomposed in a continuously flowing stream, at a pH of 3.8, by the effect of UV light. A UV-B lamp (312 nm) and a decomposition spiral of borosilicate glass are used to filter out UV light with a wavelength of less than 290 nm thus preventing the conversion of thiocyanate into cyanide. The hydrogen cyanide present at a pH of 3.8 is separated by gas dialysis. The hydrogen cyanide is then determined photometrically, based on the reaction of cyanide with chloramine-T to form cyanogen chloride. This then reacts with 4-pyridine carboxylic acid and 1,3-dimethylbarbituric acid to give a red colour which is measured at 600 nm. This method is compliant with NEPM (2013) Schedule B(3)
Total Fluoride	EK040T	SOIL	(In-house) Total fluoride is determined by ion specific electrode (ISE) in a solution obtained after a Sodium Carbonate / Potassium Carbonate fusion dissolution.
PCB - VIC EPA 448.3 Screen	EP066-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
TRH - Semivolatile Fraction	EP071-EM	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40.
Volatile Organic Compounds - Ultra-trace	EP074-UT	SOIL	In house: Referenced to USEPA SW 846 - 8260B Extracts are analysed by Purge and Trap, Capillary GC/MS in partial SIM/Scan mode. Quantification is by comparison against an established multi-point calibration curves. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)

Analytical Methods	Method	Matrix	Method Descriptions
Volatile Organic Compounds - Ultra-trace - Summations	EP074-UT-SUM	SOIL	Summation of MAHs and VHCs
Semivolatile Organic Compounds - Waste Classification	EP075-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (2013) Schedule B(3) (Method 502)
SVOC - Waste Classification (Sums)	EP075-EM-SUM	SOIL	Summations for EP075 (EM variation)
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite B	EG020B-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
NaOH leach for CN in Soils	CN-PR	SOIL	In house: APHA 4500 CN. Samples are extracted by end-over-end tumbling with NaOH.
pH in soil using a 0.01M CaCl2 extract	EA001-PR	SOIL	In house: Referenced to Rayment and Higginson 4B1, 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Alkaline digestion for Hexavalent Chromium	EG048PR	SOIL	In house: Referenced to USEPA SW846, Method 3060A.
Total Fluoride	EK040T-PR	SOIL	In house: Samples are fused with Sodium Carbonate / Potassium Carbonate flux.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils - Ultra-trace.	ORG16-UT	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids - VIC EPA Screen	ORG17-EM	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

Preparation Methods	Method	Matrix	Method Descriptions
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

RSONS RINCKERHOFF

White Page - Laboratory Copy
Yellow Page - Project File Copy
Pink Page - Remains in Book

ABN 80 078 004 798

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Level 16, 1 King William Street,
GPO Box 398 Adelaide SA 5001
Tel: (08) 8405 4300 Fax: (08) 8405 4301

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Tel: (07) 3854 6200 Fax: (07) 3854 6500

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Level 15, 28 Freshwater Place,
PO Box 19016 Southbank VIC 3006
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PO Box 115 Singleton NSW 2330
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Newcastle
Level 3, 51-55 Bolton Street,
PO Box 1162 Newcastle NSW, 2300
Tel: (02) 4929 8300 Fax: (02) 4929 8382

Chain of Custody

Order No: 72868

Job Title: OSAR

PB Job Number: 21356451A

Job Location: Site 26

Project Manager: Oli Nazario

Laboratory Name: ALS

Address: ALS Springvale

Terms of Business: PB ✓

Other:

Checked:

Results Expected by/on: ONazario@pb.com.au

Fax Results to:

Fax Number:

Phone Number: 8549 9600

Phone Number:

Contact Name: Graeme Jablonka

Spreadsheet of Results Required: (Y) / N

Delivery Method: Courier

Format:

Quote Number: MF 525-14

Turnaround Time Required:

Invoice to:

Comments:

	Date Sampled	Time	Sample I.D.	Container Size	Sample Location	Medium*	Preservative Type	Filtered (X)	TPH	BTEX	PAH's	OC/OP/PCB's	Metals**	1WA621 Soil	1WA621 Water	Initials	Comments/Additional Information and/or Analysis Required
1	26/05/17		TP17-26-45/0.6	250ml	Site 26	S								X			
2	"		TP17-26-45/2.0											X			
3	"		TP17-26-68/0.6											X			
4			RB260417												X		
5			"												X		
6			TB/260417						X	X							

Environmental Division
Melbourne
Work Order Reference
EM1706803

Telephone : + 61-3-8549 9600

Relinquished by: Rory McKay	Relinquished by:	Relinquished by:
Date & Time: 26/05/17	Date & Time:	Date & Time:
Company:	Company:	Company:
Signature:	Signature:	Signature:
Received in Good Order & Condition by (Name): Rhonn	Received in Good Order & Condition by (Name):	Received in Good Order & Condition by (Name):
Date & Time: 26/5 15:40	Date & Time:	Date & Time:
Company: ALS	Company:	Company:
Signature:	Signature:	Signature:

Medium*: S = Soil, W = Water, V = Vapour

Legend**: (circle the following to be tested)

Metals: Al As Be Cd Co Cr Cu Fe Hg Li Mg Mn Ni Pb Se Sn V Zn

Samples on Ice: ☐ Yes ☐ No

Please fax back a signed copy when samples are received at the laboratory

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1707124**	Page	: 1 of 3
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLFA NAZARIO	Contact	: Steven McGrath
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9600
Project	: 2135645A OSAR	Date Samples Received	: 02-Jun-2017 11:15
Order number	: ----	Date Analysis Commenced	: 05-Jun-2017
C-O-C number	: ----	Issue Date	: 07-Jun-2017 15:09
Sampler	: ----		
Site	: Site 26		
Quote number	: ME-525-16		
No. of samples received	: 1		
No. of samples analysed	: 1		

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Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Emily Daos	Approved Asbestos Identifier	Melbourne Asbestos, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: Negative results for vinyl tiles should be confirmed by an independent analytical technique.
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.

Analytical Results

Sub-Matrix: **SOIL** (Matrix: **SOIL**)			Client sample ID	**B17-68327@0.8**	----	----	----	----
			Client sampling date / time	01-Jun-2017 00:00	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**EM1707124-001**	--------	--------	--------	--------
				Result	----	----	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	**Yes**	----	----	----	----
Asbestos Type	1332-21-4	-	--	**Ch**	----	----	----	----
Sample weight (dry)	----	0.01	g	**26.9**	----	----	----	----
APPROVED IDENTIFIER:	----	-	--	**E.DAOS**	----	----	----	----

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Client sample ID - Client sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	B17-68327@0.8 - 01-Jun-2017 00:00	Brown soil with multiple friable asbestos fragments approx 11 x 7 x 1.5mm and multiple asbestos fibre bundles approx 6 x 1 x 0.5mm.

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EM1707124**	Page	: 1 of 3
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLFA NAZARIO	Contact	: Steven McGrath
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9600
Project	: 2135645A OSAR	Date Samples Received	: 02-Jun-2017
Order number	: ----	Date Analysis Commenced	: 05-Jun-2017
C-O-C number	: ----	Issue Date	: 07-Jun-2017
Sampler	: ----		
Site	: Site 26		
Quote number	: ME-525-16		
No. of samples received	: 1		
No. of samples analysed	: 1		

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Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Emily Daos	Approved Asbestos Identifier	Melbourne Asbestos, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

- **No Laboratory Duplicate (DUP) Results are required to be reported.**

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

- **No Method Blank (MB) or Laboratory Control Spike (LCS) Results are required to be reported.**

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM1707124**	Page	: 1 of 4
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLFA NAZARIO	Telephone	: +61-3-8549 9600
Project	: 2135645A OSAR	Date Samples Received	: 02-Jun-2017
Site	: Site 26	Issue Date	: 07-Jun-2017
Sampler	: ----	No. of samples received	: 1
Order number	: ----	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA200: AS 4964 - 2004 Identification of Asbestos in Soils							
Snap Lock Bag: Separate bag received (EA200)							
B17-68327@0.8	**01-Jun-2017**	**----**	----	----	**05-Jun-2017**	28-Nov-2017	✓

Quality Control Parameter Frequency Compliance

- **No Quality Control data available for this section.**

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Asbestos Identification in Soils	EA200	SOIL	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EM1707124**

Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLFA NAZARIO	Contact	: Steven McGrath
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: onazario@pb.com.au	E-mail	: steven.mcgrath@alsglobal.com
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9600
Facsimile	: +61 03 9861 1144	Facsimile	: +61-3-8549 9601
Project	: 2135645A OSAR	Page	: 1 of 2
Order number	: ----	Quote number	: EM2016PARBRIVIC0006 (ME-525-16)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Site 26		
Sampler	:		

Dates

Date Samples Received	: 02-Jun-2017 11:15	Issue Date	: 02-Jun-2017
Client Requested Due Date	: 08-Jun-2017	Scheduled Reporting Date	: **08-Jun-2017**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 14.1°C
Receipt Detail	:	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Sample received in non-ALS container.**
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.
- **Analytical work for this work order will be conducted at ALS Springvale.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA200 Asbestos Identification in Soils -
EM1707124-001	01-Jun-2017 00:00	B17-68327@0.8	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ALL INVOICES		
- A4 - AU Tax Invoice (INV)	Email	apinvoices@pb.com.au
OLFA NAZARIO		
- *AU Certificate of Analysis - NATA (COA)	Email	onazario@pb.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	onazario@pb.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	onazario@pb.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	onazario@pb.com.au
- A4 - AU Tax Invoice (INV)	Email	onazario@pb.com.au
- Chain of Custody (CoC) (COC)	Email	onazario@pb.com.au
- EDI Format - ENMRG (ENMRG)	Email	onazario@pb.com.au
- EDI Format - ESDAT (ESDAT)	Email	onazario@pb.com.au
OLIVIA HENDERSON		
- *AU Certificate of Analysis - NATA (COA)	Email	ohenderson@pb.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	ohenderson@pb.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	ohenderson@pb.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	ohenderson@pb.com.au
- Chain of Custody (CoC) (COC)	Email	ohenderson@pb.com.au
- EDI Format - ENMRG (ENMRG)	Email	ohenderson@pb.com.au
- EDI Format - ESDAT (ESDAT)	Email	ohenderson@pb.com.au

Graeme Jablonskas

From: Graeme Jablonskas
Sent: Friday, 2 June 2017 12:20 PM
To: 'Nazario, Olfa'
Subject: Asbestos samples

Hi Olfa

So that I have some paperwork to associate with the sample.
Details as discussed....
Project Number 2135645A
Project Description OSAR
Site 26
Quote ME-525-16

ACM sample to be analysed for Asbestos (Pres/Abs)
Standard TAT.

Let me know if any different

Kind Regards

Graeme Jablonskas
Senior Project Manager – Springvale
Environmental

T +61 3 8549 9600 D +61 3 8549 9609
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graeme.jablonskas@alsglobal.com
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Australia

Environmental Division
Melbourne
Work Order Reference
EM1707124

Telephone : + 61 3-8549 9600

We are keen for your feedback! Please click here for your 1 question survey

EnviroMail™ 109 – PFOS Trace Analysis to Meet Trace Guideline Requirements
EnviroMail™ 110 – Identifying Hidden PFAS Chemicals in Environmental Samples and Firefighting Foams
EnviroMail™ 00 – Summary of all EnviroMails™ by Category

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ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1707148**	Page	: 1 of 19
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLFA NAZARIO	Contact	: Steven McGrath
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9600
Project	: 2135645A	Date Samples Received	: 02-Jun-2017 12:30
Order number	: ----	Date Analysis Commenced	: 05-Jun-2017
C-O-C number	: 72869, 72870	Issue Date	: 08-Jun-2017 16:03
Sampler	: RM		
Site	: Site 24 + 26		
Quote number	: ME-525-16		
No. of samples received	: 18		
No. of samples analysed	: 17		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Nancy Wang	Senior Semivolatile Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	Senior Semivolatile Instrument Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TP17-24-29/0.8	DUP A - TP17-24-29/0.8	TP17-24-25/0.7	TP17-24-34/0.3	TP17-24-31/0.7
			Client sampling date / time	29-May-2017 00:00	29-May-2017 00:00	29-May-2017 00:00	30-May-2017 00:00	30-May-2017 00:00
Compound	CAS Number	LOR	Unit	EM1707148-001	EM1707148-002	EM1707148-004	EM1707148-005	EM1707148-006
				Result	Result	Result	Result	Result
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	5.3	5.0	5.1	5.3	5.9
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1	%	24.8	20.3	32.5	20.1	27.2
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	27	66	9	6	6
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Copper	7440-50-8	5	mg/kg	19	23	11	<5	5
Lead	7439-92-1	5	mg/kg	7	11	6	33	29
Molybdenum	7439-98-7	2	mg/kg	<2	<2	<2	<2	<2
Nickel	7440-02-0	2	mg/kg	21	19	22	49	39
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Silver	7440-22-4	2	mg/kg	<2	<2	<2	<2	<2
Tin	7440-31-5	5	mg/kg	<5	<5	<5	<5	<5
Zinc	7440-66-6	5	mg/kg	10	5	6	9	14
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
EK026SF: Total CN by Segmented Flow Analyser								
Total Cyanide	57-12-5	1	mg/kg	<1	<1	<1	<1	<1
EK040T: Fluoride Total								
Fluoride	16984-48-8	40	mg/kg	90	80	200	50	150
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of monocyclic aromatic hydrocarbons	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TP17-24-29/0.8	DUP A - TP17-24-29/0.8	TP17-24-25/0.7	TP17-24-34/0.3	TP17-24-31/0.7
			Client sampling date / time	29-May-2017 00:00	29-May-2017 00:00	29-May-2017 00:00	30-May-2017 00:00	30-May-2017 00:00
Compound	CAS Number	LOR	Unit	EM1707148-001	EM1707148-002	EM1707148-004	EM1707148-005	EM1707148-006
				Result	Result	Result	Result	Result
EP074A: Monocyclic Aromatic Hydrocarbons - Continued								
EP074H: Naphthalene								
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP074I: Volatile Halogenated Compounds								
Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02
1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01
Methylene chloride	75-09-2	0.4	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02
cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01
Chloroform	67-66-3	0.02	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02
1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01
Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01
1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02
Trichloroethene	79-01-6	0.02	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02
1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	<0.04	<0.04	<0.04	<0.04
Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02
1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01
1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02
Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02
Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02
1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02
1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02
1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01
^ Sum of volatile chlorinated hydrocarbons	----	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01
^ Sum of other chlorinated hydrocarbons	----	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01
EP075A: Phenolic Compounds (Halogenated)								
2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03
2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03
2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03
4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03
2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03
2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP17-24-29/0.8	DUP A - TP17-24-29/0.8	TP17-24-25/0.7	TP17-24-34/0.3	TP17-24-31/0.7
				Client sampling date / time	29-May-2017 00:00	29-May-2017 00:00	29-May-2017 00:00	30-May-2017 00:00	30-May-2017 00:00
Compound	CAS Number	LOR	Unit		EM1707148-001	EM1707148-002	EM1707148-004	EM1707148-005	EM1707148-006
					Result	Result	Result	Result	Result
EP075A: Phenolic Compounds (Halogenated) - Continued									
Pentachlorophenol	87-86-5	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Sum of Phenols (halogenated)	----	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
EP075A: Phenolic Compounds (Non-halogenated)									
Phenol	108-95-2	1	mg/kg		<1	<1	<1	<1	<1
2-Methylphenol	95-48-7	1	mg/kg		<1	<1	<1	<1	<1
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	1	mg/kg		<1	<1	<1	<1	<1
2.4-Dimethylphenol	105-67-9	1	mg/kg		<1	<1	<1	<1	<1
2.4-Dinitrophenol	51-28-5	5	mg/kg		<5	<5	<5	<5	<5
4-Nitrophenol	100-02-7	5	mg/kg		<5	<5	<5	<5	<5
2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg		<5	<5	<5	<5	<5
Dinoseb	88-85-7	5	mg/kg		<5	<5	<5	<5	<5
2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg		<5	<5	<5	<5	<5
^ Sum of Phenols (non-halogenated)	----	1	mg/kg		<1	<1	<1	<1	<1
EP075B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	**0.6**	**0.6**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP17-24-29/0.8	DUP A - TP17-24-29/0.8	TP17-24-25/0.7	TP17-24-34/0.3	TP17-24-31/0.7
				Client sampling date / time	29-May-2017 00:00	29-May-2017 00:00	29-May-2017 00:00	30-May-2017 00:00	30-May-2017 00:00
Compound	CAS Number	LOR	Unit		EM1707148-001	EM1707148-002	EM1707148-004	EM1707148-005	EM1707148-006
					Result	Result	Result	Result	Result
EP075B: Polynuclear Aromatic Hydrocarbons - Continued									
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		1.2	1.2	1.2	1.2	1.2
EP075I: Organochlorine Pesticides									
alpha-BHC	319-84-6	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
beta-BHC	319-85-7	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
gamma-BHC	58-89-9	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
delta-BHC	319-86-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Heptachlor	76-44-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Aldrin	309-00-2	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Heptachlor epoxide	1024-57-3	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
cis-Chlordane	5103-71-9	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
trans-Chlordane	5103-74-2	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Endosulfan 1	959-98-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Endrin aldehyde	7421-93-4	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Endrin	72-20-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Endosulfan 2	33213-65-9	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
4.4`-DDT	50-29-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
^ Sum of organochlorine pesticides	----	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ Chlordane	57-74-9	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
^ Sum of other organochlorine pesticides	----	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP17-24-29/0.8	DUP A - TP17-24-29/0.8	TP17-24-25/0.7	TP17-24-34/0.3	TP17-24-31/0.7
				Client sampling date / time	29-May-2017 00:00	29-May-2017 00:00	29-May-2017 00:00	30-May-2017 00:00	30-May-2017 00:00
Compound	CAS Number	LOR	Unit		EM1707148-001	EM1707148-002	EM1707148-004	EM1707148-005	EM1707148-006
					Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued									
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
>C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	<50
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		95.6	99.7	111	105	108
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		68.2	86.4	83.0	82.4	70.4
Toluene-D8	2037-26-5	0.1	%		66.5	86.6	83.5	80.4	70.0
4-Bromofluorobenzene	460-00-4	0.1	%		66.9	87.2	85.0	82.1	70.2
EP075S: Acid Extractable Surrogates									
Phenol-d6	13127-88-3	0.025	%		79.2	85.5	93.1	77.9	89.7
2-Chlorophenol-D4	93951-73-6	0.025	%		72.2	84.0	83.1	69.3	80.5
2.4.6-Tribromophenol	118-79-6	0.025	%		86.6	93.8	96.4	87.1	93.1
EP075T: Base/Neutral Extractable Surrogates									
Nitrobenzene-D5	4165-60-0	0.025	%		83.9	89.5	96.5	81.3	92.7
1.2-Dichlorobenzene-D4	2199-69-1	0.025	%		77.4	83.2	92.5	74.4	86.1
2-Fluorobiphenyl	321-60-8	0.025	%		79.8	87.4	95.7	76.5	86.8
Anthracene-d10	1719-06-8	0.025	%		106	115	128	110	112
4-Terphenyl-d14	1718-51-0	0.025	%		107	117	127	118	118

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TP17-26-20/0.7	TP17-26-10/1.0	TP17-26-23/0.9	TP17-26-18/0.8	TP17-26-09/0.8
			Client sampling date / time	31-May-2017 00:00	31-May-2017 00:00	31-May-2017 00:00	31-May-2017 00:00	01-Jun-2017 00:00
Compound	CAS Number	LOR	Unit	EM1707148-007	EM1707148-008	EM1707148-009	EM1707148-010	EM1707148-011
				Result	Result	Result	Result	Result
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	7.2	6.7	6.8	4.7	6.9
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1	%	37.1	13.0	33.4	25.6	11.0
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	7	<5	7	<5	9
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Copper	7440-50-8	5	mg/kg	9	<5	8	<5	<5
Lead	7439-92-1	5	mg/kg	12	8	11	7	8
Molybdenum	7439-98-7	2	mg/kg	<2	<2	<2	4	<2
Nickel	7440-02-0	2	mg/kg	13	<2	14	4	4
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Silver	7440-22-4	2	mg/kg	<2	<2	<2	<2	<2
Tin	7440-31-5	5	mg/kg	<5	<5	<5	<5	<5
Zinc	7440-66-6	5	mg/kg	8	6	15	<5	<5
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
EK026SF: Total CN by Segmented Flow Analyser								
Total Cyanide	57-12-5	1	mg/kg	<1	<1	<1	<1	<1
EK040T: Fluoride Total								
Fluoride	16984-48-8	40	mg/kg	340	<40	200	130	70
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of monocyclic aromatic hydrocarbons	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP17-26-20/0.7	TP17-26-10/1.0	TP17-26-23/0.9	TP17-26-18/0.8	TP17-26-09/0.8
				Client sampling date / time	31-May-2017 00:00	31-May-2017 00:00	31-May-2017 00:00	31-May-2017 00:00	01-Jun-2017 00:00
Compound	CAS Number	LOR	Unit		EM1707148-007	EM1707148-008	EM1707148-009	EM1707148-010	EM1707148-011
					Result	Result	Result	Result	Result
EP074H: Naphthalene									
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP074I: Volatile Halogenated Compounds									
Vinyl chloride	75-01-4	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.1-Dichloroethene	75-35-4	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Methylene chloride	75-09-2	0.4	mg/kg		<0.4	<0.4	<0.4	<0.4	<0.4
trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Chloroform	67-66-3	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.1.1-Trichloroethane	71-55-6	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Carbon Tetrachloride	56-23-5	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
1.2-Dichloroethane	107-06-2	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Trichloroethene	79-01-6	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.1.2-Trichloroethane	79-00-5	0.04	mg/kg		<0.04	<0.04	<0.04	<0.04	<0.04
Tetrachloroethene	127-18-4	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Hexachlorobutadiene	87-68-3	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Chlorobenzene	108-90-7	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.4-Dichlorobenzene	106-46-7	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.2-Dichlorobenzene	95-50-1	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
^ Sum of volatile chlorinated hydrocarbons	----	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
^ Sum of other chlorinated hydrocarbons	----	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
EP075A: Phenolic Compounds (Halogenated)									
2-Chlorophenol	95-57-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
2.4-Dichlorophenol	120-83-2	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
2.6-Dichlorophenol	87-65-0	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Pentachlorophenol	87-86-5	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Sum of Phenols (halogenated)	----	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP17-26-20/0.7	TP17-26-10/1.0	TP17-26-23/0.9	TP17-26-18/0.8	TP17-26-09/0.8
				Client sampling date / time	31-May-2017 00:00	31-May-2017 00:00	31-May-2017 00:00	31-May-2017 00:00	01-Jun-2017 00:00
Compound	CAS Number	LOR	Unit		EM1707148-007	EM1707148-008	EM1707148-009	EM1707148-010	EM1707148-011
					Result	Result	Result	Result	Result
EP075A: Phenolic Compounds (Halogenated) - Continued									
EP075A: Phenolic Compounds (Non-halogenated)									
Phenol	108-95-2	1	mg/kg		<1	<1	<1	<1	<1
2-Methylphenol	95-48-7	1	mg/kg		<1	<1	<1	<1	<1
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	1	mg/kg		<1	<1	<1	<1	<1
2.4-Dimethylphenol	105-67-9	1	mg/kg		<1	<1	<1	<1	<1
2.4-Dinitrophenol	51-28-5	5	mg/kg		<5	<5	<5	<5	<5
4-Nitrophenol	100-02-7	5	mg/kg		<5	<5	<5	<5	<5
2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg		<5	<5	<5	<5	<5
Dinoseb	88-85-7	5	mg/kg		<5	<5	<5	<5	<5
2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg		<5	<5	<5	<5	<5
^ Sum of Phenols (non-halogenated)	----	1	mg/kg		<1	<1	<1	<1	<1
EP075B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP075I: Organochlorine Pesticides									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP17-26-20/0.7	TP17-26-10/1.0	TP17-26-23/0.9	TP17-26-18/0.8	TP17-26-09/0.8
				Client sampling date / time	31-May-2017 00:00	31-May-2017 00:00	31-May-2017 00:00	31-May-2017 00:00	01-Jun-2017 00:00
Compound	CAS Number	LOR	Unit		EM1707148-007	EM1707148-008	EM1707148-009	EM1707148-010	EM1707148-011
					Result	Result	Result	Result	Result
EP075l: Organochlorine Pesticides - Continued									
alpha-BHC	319-84-6	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
beta-BHC	319-85-7	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
gamma-BHC	58-89-9	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
delta-BHC	319-86-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Heptachlor	76-44-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Aldrin	309-00-2	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Heptachlor epoxide	1024-57-3	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
cis-Chlordane	5103-71-9	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
trans-Chlordane	5103-74-2	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Endosulfan 1	959-98-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Endrin aldehyde	7421-93-4	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Endrin	72-20-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Endosulfan 2	33213-65-9	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
4.4`-DDT	50-29-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
^ Sum of organochlorine pesticides	----	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ Chlordane	57-74-9	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
^ Sum of other organochlorine pesticides	----	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP17-26-20/0.7	TP17-26-10/1.0	TP17-26-23/0.9	TP17-26-18/0.8	TP17-26-09/0.8
				Client sampling date / time	31-May-2017 00:00	31-May-2017 00:00	31-May-2017 00:00	31-May-2017 00:00	01-Jun-2017 00:00
Compound	CAS Number	LOR	Unit		EM1707148-007	EM1707148-008	EM1707148-009	EM1707148-010	EM1707148-011
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
>C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	<50
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		96.6	101	109	106	94.1
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		89.9	83.8	86.1	83.5	83.6
Toluene-D8	2037-26-5	0.1	%		89.7	85.3	87.6	82.0	83.7
4-Bromofluorobenzene	460-00-4	0.1	%		87.8	83.8	87.0	83.9	82.0
EP075S: Acid Extractable Surrogates									
Phenol-d6	13127-88-3	0.025	%		86.1	88.2	96.3	91.3	93.7
2-Chlorophenol-D4	93951-73-6	0.025	%		79.6	80.8	85.2	87.5	82.9
2.4.6-Tribromophenol	118-79-6	0.025	%		90.1	90.1	96.8	95.2	91.1
EP075T: Base/Neutral Extractable Surrogates									
Nitrobenzene-D5	4165-60-0	0.025	%		91.8	92.8	98.5	96.4	95.2
1.2-Dichlorobenzene-D4	2199-69-1	0.025	%		86.8	86.8	96.0	88.0	89.5
2-Fluorobiphenyl	321-60-8	0.025	%		88.1	91.6	96.4	94.1	94.7
Anthracene-d10	1719-06-8	0.025	%		115	112	118	116	116
4-Terphenyl-d14	1718-51-0	0.025	%		118	114	124	121	118

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TP17-26-47/0.7	TP17-26-49/0.8	----	----	----
			Client sampling date / time	01-Jun-2017 00:00	01-Jun-2017 00:00	----	----	----
Compound	CAS Number	LOR	Unit	EM1707148-012	EM1707148-013	--------	--------	--------
				Result	Result	----	----	----
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	**5.2**	**5.1**	----	----	----
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1	%	**8.2**	**11.3**	----	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	----	----	----
Copper	7440-50-8	5	mg/kg	<5	<5	----	----	----
Lead	7439-92-1	5	mg/kg	<5	<5	----	----	----
Molybdenum	7439-98-7	2	mg/kg	<2	<2	----	----	----
Nickel	7440-02-0	2	mg/kg	<2	**75**	----	----	----
Selenium	7782-49-2	5	mg/kg	<5	<5	----	----	----
Silver	7440-22-4	2	mg/kg	<2	<2	----	----	----
Tin	7440-31-5	5	mg/kg	<5	<5	----	----	----
Zinc	7440-66-6	5	mg/kg	<5	<5	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	----	----	----
EK026SF: Total CN by Segmented Flow Analyser								
Total Cyanide	57-12-5	1	mg/kg	<1	<1	----	----	----
EK040T: Fluoride Total								
Fluoride	16984-48-8	40	mg/kg	<40	<40	----	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	----	----	----
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	----	----	----
^ Sum of monocyclic aromatic hydrocarbons	----	0.2	mg/kg	<0.2	<0.2	----	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP17-26-47/0.7	TP17-26-49/0.8	----	----	----
				Client sampling date / time	01-Jun-2017 00:00	01-Jun-2017 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EM1707148-012	EM1707148-013	--------	--------	--------
					Result	Result	----	----	----
EP074H: Naphthalene									
Naphthalene	91-20-3	1	mg/kg		<1	<1	----	----	----
EP074I: Volatile Halogenated Compounds									
Vinyl chloride	75-01-4	0.02	mg/kg		<0.02	<0.02	----	----	----
1.1-Dichloroethene	75-35-4	0.01	mg/kg		<0.01	<0.01	----	----	----
Methylene chloride	75-09-2	0.4	mg/kg		<0.4	<0.4	----	----	----
trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg		<0.02	<0.02	----	----	----
cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg		<0.01	<0.01	----	----	----
Chloroform	67-66-3	0.02	mg/kg		<0.02	<0.02	----	----	----
1.1.1-Trichloroethane	71-55-6	0.01	mg/kg		<0.01	<0.01	----	----	----
Carbon Tetrachloride	56-23-5	0.01	mg/kg		<0.01	<0.01	----	----	----
1.2-Dichloroethane	107-06-2	0.02	mg/kg		<0.02	<0.02	----	----	----
Trichloroethene	79-01-6	0.02	mg/kg		<0.02	<0.02	----	----	----
1.1.2-Trichloroethane	79-00-5	0.04	mg/kg		<0.04	<0.04	----	----	----
Tetrachloroethene	127-18-4	0.02	mg/kg		<0.02	<0.02	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg		<0.01	<0.01	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg		<0.02	<0.02	----	----	----
Hexachlorobutadiene	87-68-3	0.02	mg/kg		<0.02	<0.02	----	----	----
Chlorobenzene	108-90-7	0.02	mg/kg		<0.02	<0.02	----	----	----
1.4-Dichlorobenzene	106-46-7	0.02	mg/kg		<0.02	<0.02	----	----	----
1.2-Dichlorobenzene	95-50-1	0.02	mg/kg		<0.02	<0.02	----	----	----
1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg		<0.01	<0.01	----	----	----
^ Sum of volatile chlorinated hydrocarbons	----	0.01	mg/kg		<0.01	<0.01	----	----	----
^ Sum of other chlorinated hydrocarbons	----	0.01	mg/kg		<0.01	<0.01	----	----	----
EP075A: Phenolic Compounds (Halogenated)									
2-Chlorophenol	95-57-8	0.03	mg/kg		<0.03	<0.03	----	----	----
2.4-Dichlorophenol	120-83-2	0.03	mg/kg		<0.03	<0.03	----	----	----
2.6-Dichlorophenol	87-65-0	0.03	mg/kg		<0.03	<0.03	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg		<0.03	<0.03	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg		<0.05	<0.05	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg		<0.05	<0.05	----	----	----
2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg		<0.03	<0.03	----	----	----
2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg		<0.05	<0.05	----	----	----
Pentachlorophenol	87-86-5	0.2	mg/kg		<0.2	<0.2	----	----	----
^ Sum of Phenols (halogenated)	----	0.03	mg/kg		<0.03	<0.03	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TP17-26-47/0.7	TP17-26-49/0.8	----	----	----
			Client sampling date / time	01-Jun-2017 00:00	01-Jun-2017 00:00	----	----	----
Compound	CAS Number	LOR	Unit	EM1707148-012	EM1707148-013	--------	--------	--------
				Result	Result	----	----	----
EP075A: Phenolic Compounds (Halogenated) - Continued								
EP075A: Phenolic Compounds (Non-halogenated)								
Phenol	108-95-2	1	mg/kg	<1	<1	----	----	----
2-Methylphenol	95-48-7	1	mg/kg	<1	<1	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	----	----	----
2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	----	----	----
2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	----	----	----
2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	<5	----	----	----
4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	----	----	----
2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	----	----	----
Dinoseb	88-85-7	5	mg/kg	<5	<5	----	----	----
2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	----	----	----
^ Sum of Phenols (non-halogenated)	----	1	mg/kg	<1	<1	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	----	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	----	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	----	----	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	----	----	----
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	<0.5	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	**0.6**	**0.6**	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	**1.2**	**1.2**	----	----	----
EP075I: Organochlorine Pesticides								

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP17-26-47/0.7	TP17-26-49/0.8	----	----	----
				Client sampling date / time	01-Jun-2017 00:00	01-Jun-2017 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EM1707148-012	EM1707148-013	--------	--------	--------
					Result	Result	----	----	----
EP075l: Organochlorine Pesticides - Continued									
alpha-BHC	319-84-6	0.03	mg/kg		<0.03	<0.03	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg		<0.03	<0.03	----	----	----
beta-BHC	319-85-7	0.03	mg/kg		<0.03	<0.03	----	----	----
gamma-BHC	58-89-9	0.03	mg/kg		<0.03	<0.03	----	----	----
delta-BHC	319-86-8	0.03	mg/kg		<0.03	<0.03	----	----	----
Heptachlor	76-44-8	0.03	mg/kg		<0.03	<0.03	----	----	----
Aldrin	309-00-2	0.03	mg/kg		<0.03	<0.03	----	----	----
Heptachlor epoxide	1024-57-3	0.03	mg/kg		<0.03	<0.03	----	----	----
cis-Chlordane	5103-71-9	0.03	mg/kg		<0.03	<0.03	----	----	----
trans-Chlordane	5103-74-2	0.03	mg/kg		<0.03	<0.03	----	----	----
Endosulfan 1	959-98-8	0.03	mg/kg		<0.03	<0.03	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	----	----	----
Dieldrin	60-57-1	0.03	mg/kg		<0.03	<0.03	----	----	----
Endrin aldehyde	7421-93-4	0.03	mg/kg		<0.03	<0.03	----	----	----
Endrin	72-20-8	0.03	mg/kg		<0.03	<0.03	----	----	----
Endosulfan 2	33213-65-9	0.03	mg/kg		<0.03	<0.03	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	----	----	----
Endosulfan sulfate	1031-07-8	0.03	mg/kg		<0.03	<0.03	----	----	----
4.4`-DDT	50-29-3	0.05	mg/kg		<0.05	<0.05	----	----	----
Methoxychlor	72-43-5	0.03	mg/kg		<0.03	<0.03	----	----	----
^ Sum of organochlorine pesticides	----	0.03	mg/kg		<0.03	<0.03	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.03	mg/kg		<0.03	<0.03	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	----	----	----
^ Chlordane	57-74-9	0.03	mg/kg		<0.03	<0.03	----	----	----
^ Sum of other organochlorine pesticides	----	0.03	mg/kg		<0.03	<0.03	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	----	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	<50	----	----	----
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	----	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	<100	----	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	<100	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP17-26-47/0.7	TP17-26-49/0.8	----	----	----
				Client sampling date / time	01-Jun-2017 00:00	01-Jun-2017 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EM1707148-012	EM1707148-013	--------	--------	--------
					Result	Result	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		<50	<50	----	----	----
>C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	----	----	----
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	----	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**85.1**	**111**	----	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		**88.6**	**69.9**	----	----	----
Toluene-D8	2037-26-5	0.1	%		**86.0**	**63.6**	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%		**85.7**	**66.0**	----	----	----
EP075S: Acid Extractable Surrogates									
Phenol-d6	13127-88-3	0.025	%		**81.0**	**90.6**	----	----	----
2-Chlorophenol-D4	93951-73-6	0.025	%		**73.2**	**79.1**	----	----	----
2.4.6-Tribromophenol	118-79-6	0.025	%		**82.1**	**93.5**	----	----	----
EP075T: Base/Neutral Extractable Surrogates									
Nitrobenzene-D5	4165-60-0	0.025	%		**86.0**	**93.4**	----	----	----
1.2-Dichlorobenzene-D4	2199-69-1	0.025	%		**79.7**	**87.2**	----	----	----
2-Fluorobiphenyl	321-60-8	0.025	%		**82.9**	**87.2**	----	----	----
Anthracene-d10	1719-06-8	0.025	%		**102**	**123**	----	----	----
4-Terphenyl-d14	1718-51-0	0.025	%		**105**	**129**	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	RB260417	RB260417	RB260417	RB260417	TB260417
				Client sampling date / time	29-May-2017 00:00	30-May-2017 00:00	31-May-2017 00:00	01-Jun-2017 00:00	[02-Jun-2017]
Compound	CAS Number	LOR	Unit		EM1707148-014	EM1707148-015	EM1707148-016	EM1707148-017	EM1707148-018
					Result	Result	Result	Result	Result
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	----
Cobalt	7440-48-4	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	----
Lead	7439-92-1	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	----
Molybdenum	7439-98-7	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	----
Nickel	7440-02-0	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	----
Selenium	7782-49-2	0.01	mg/L		<0.01	<0.01	<0.01	<0.01	----
Silver	7440-22-4	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	----
Tin	7440-31-5	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	----
Zinc	7440-66-6	0.005	mg/L		<0.005	<0.005	<0.005	<0.005	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		----	----	----	----	<20
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		----	----	----	----	<20
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L		----	----	----	----	<20
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		----	----	----	----	<1
Toluene	108-88-3	2	µg/L		----	----	----	----	<2
Ethylbenzene	100-41-4	2	µg/L		----	----	----	----	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		----	----	----	----	<2
ortho-Xylene	95-47-6	2	µg/L		----	----	----	----	<2
^ **Total Xylenes**	1330-20-7	2	µg/L		----	----	----	----	<2
^ **Sum of BTEX**	----	1	µg/L		----	----	----	----	<1
Naphthalene	91-20-3	5	µg/L		----	----	----	----	<5
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		----	----	----	----	**92.3**
Toluene-D8	2037-26-5	2	%		----	----	----	----	**87.3**
4-Bromofluorobenzene	460-00-4	2	%		----	----	----	----	**96.2**

Surrogate Control Limits

Sub-Matrix: **SOIL**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	41	122
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	59	119
Toluene-D8	2037-26-5	55	117
4-Bromofluorobenzene	460-00-4	59	123
EP075S: Acid Extractable Surrogates			
Phenol-d6	13127-88-3	28	134
2-Chlorophenol-D4	93951-73-6	27	123
2.4.6-Tribromophenol	118-79-6	25	149
EP075T: Base/Neutral Extractable Surrogates			
Nitrobenzene-D5	4165-60-0	29	125
1.2-Dichlorobenzene-D4	2199-69-1	31	117
2-Fluorobiphenyl	321-60-8	44	136
Anthracene-d10	1719-06-8	53	133
4-Terphenyl-d14	1718-51-0	59	141

Sub-Matrix: **WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	129
Toluene-D8	2037-26-5	70	125
4-Bromofluorobenzene	460-00-4	71	129

ALS Environmental

Automated Guideline Comparison Report

EPA Victoria Publication IWRG 621 (2009) - Table 2: Soil Hazard Categorisation

Work Order	: **EM1707148**	Page	: 1 of 20
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLFA NAZARIO		
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: onazario@pb.com.au	E-mail	: steven.mcgrath@alsglobal.com
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9600
Facsimile	: +61 03 9861 1144	Facsimile	: +61-3-8549 9601
Project	: 2135645A	Date Received	: 02-Jun-2017 12:30
Order number	: ----	Date Analysed	: 05-Jun-2017
C-O-C number	: 72869, 72870	Date Issued	: 08-Jun-2017 16:06
No. of samples received	: 18		
No. of samples analysed	: 17	Quote number	: ME-525-16

General Comments

This guideline comparison report **only** provides evaluation of total concentration data against upper limit thresholds for the 'Fill Material', 'C', 'B' Categories in Table 2 of EPA Publication IWRG621.

This guideline comparison report is **NOT** a soil classification report. Classification of soils as Fill Material, Category C, Category B or Category A requires consideration of a number of other factors including preliminary site investigation, sampling density and statistical calculations, as set out in EPA Publication IWRG 702.
Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

This guideline comparison report only provides evaluation data where chemical parameters specifically listed within the IWRG621 (2009) guideline are analysed by ALS using the **P-16 package in full**.

Red shading is applied where the result is equal to or greater than the guideline upper limit and/or equal to or lower than the guideline lower limit. Red shading is not applied to the 'Summary of Thresholds Reached or Exceeded'.

For the 'Summary of Thresholds Reached or Exceeded' to accurately function, all samples must be analysed and included in the 'Analytical Results' section of the following report. Please verify that all required IDs are listed and analysed.

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Summary of Thresholds Reached or Exceeded

EPA Victoria Publication IWRG 621 (2009)

Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Client Sample ID	*ALS Sample ID*	*Compound*	*Method*	*LOR*	*Limits*	*Result*
TP17-24-29/0.8	**EM1707148-001**	Arsenic	EG005T	5	*< 20 mg/kg*	**27 mg/kg**
DUP A - TP17-24-29/0.8	**EM1707148-002**	Arsenic	EG005T	5	*< 20 mg/kg*	**66 mg/kg**
TP17-26-49/0.8	**EM1707148-013**	Nickel	EG005T	2	*< 60 mg/kg*	**75 mg/kg**

Analytical Results

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Client sample ID: TP17-24-29/0.8	DUP A - TP17-24-29/0.8	TP17-24-25/0.7	TP17-24-34/0.3	TP17-24-31/0.7
			Sampling date/time			29-May-2017	29-May-2017	29-May-2017	30-May-2017	30-May-2017
						EM1707148-001	EM1707148-002	EM1707148-004	EM1707148-005	EM1707148-006
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	2	12.5	**5.3**	**5.0**	**5.1**	**5.3**	**5.9**
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	2000	**27**	**66**	**9**	**6**	**6**
Cadmium	EG005T	1	mg/kg	----	400	<1	<1	<1	<1	<1
Copper	EG005T	5	mg/kg	----	20000	**19**	**23**	**11**	<5	**5**
Lead	EG005T	5	mg/kg	----	6000	**7**	**11**	**6**	**33**	**29**
Molybdenum	EG005T	2	mg/kg	----	4000	<2	<2	<2	<2	<2
Nickel	EG005T	2	mg/kg	----	12000	**21**	**19**	**22**	**49**	**39**
Selenium	EG005T	5	mg/kg	----	200	<5	<5	<5	<5	<5
Silver	EG005T	2	mg/kg	----	720	<2	<2	<2	<2	<2
Zinc	EG005T	5	mg/kg	----	140000	**10**	**5**	**6**	**9**	**14**
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	300	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	2000	<0.5	<0.5	<0.5	<0.5	<0.5
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	10000	<1	<1	<1	<1	<1
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	40000	**90**	**80**	**200**	**50**	**150**
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	16	<0.2	<0.2	<0.2	<0.2	<0.2
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	240	<0.2	<0.2	<0.2	<0.2	<0.2
EP074I: Volatile Halogenated Compounds										
Vinyl chloride	EP074-UT	0.02	mg/kg	----	4.8	<0.02	<0.02	<0.02	<0.02	<0.02
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	11	<0.02	<0.02	<0.02	<0.02	<0.02
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	50	<0.01	<0.01	<0.01	<0.01	<0.01
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	320	<0.03	<0.03	<0.03	<0.03	<0.03
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	2200	<1	<1	<1	<1	<1
EP075B: Polynuclear Aromatic Hydrocarbons										

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

				Client sample ID		TP17-24-29/0.8	DUP A - TP17-24-29/0.8	TP17-24-25/0.7	TP17-24-34/0.3	TP17-24-31/0.7
				Sampling date/time		29-May-2017	29-May-2017	29-May-2017	30-May-2017	30-May-2017
Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	EM1707148-001	EM1707148-002	EM1707148-004	EM1707148-005	EM1707148-006
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	20	<0.5	<0.5	<0.5	<0.5	<0.5
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	400	<0.5	<0.5	<0.5	<0.5	<0.5
EP075I: Organochlorine Pesticides										
Heptachlor	EP075-EM	0.03	mg/kg	----	4.8	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	4.8	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50	<0.05	<0.05	<0.05	<0.05	<0.05
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	16	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	50	<0.03	<0.03	<0.03	<0.03	<0.03
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	2600	<10	<10	<10	<10	<10
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	40000	<50	<50	<50	<50	<50

Soil Hazard Categorisation and Management
Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	TP17-24-29/0.8	DUP A - TP17-24-29/0.8	TP17-24-25/0.7	TP17-24-34/0.3	TP17-24-31/0.7
Client sample ID										
Sampling date/time						29-May-2017	29-May-2017	29-May-2017	30-May-2017	30-May-2017
						EM1707148-001	EM1707148-002	EM1707148-004	EM1707148-005	EM1707148-006
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	4	9	**5.3**	**5.0**	**5.1**	**5.3**	**5.9**
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	500	**27**	**66**	**9**	**6**	**6**
Cadmium	EG005T	1	mg/kg	----	100	<1	<1	<1	<1	<1
Copper	EG005T	5	mg/kg	----	5000	**19**	**23**	**11**	<5	**5**
Lead	EG005T	5	mg/kg	----	1500	**7**	**11**	**6**	**33**	**29**
Molybdenum	EG005T	2	mg/kg	----	1000	<2	<2	<2	<2	<2
Nickel	EG005T	2	mg/kg	----	3000	**21**	**19**	**22**	**49**	**39**
Selenium	EG005T	5	mg/kg	----	50	<5	<5	<5	<5	<5
Silver	EG005T	2	mg/kg	----	180	<2	<2	<2	<2	<2
Tin	EG005T	5	mg/kg	----	500	<5	<5	<5	<5	<5
Zinc	EG005T	5	mg/kg	----	35000	**10**	**5**	**6**	**9**	**14**
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	75	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	500	<0.5	<0.5	<0.5	<0.5	<0.5
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	2500	<1	<1	<1	<1	<1
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	10000	**90**	**80**	**200**	**50**	**150**
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	4	<0.2	<0.2	<0.2	<0.2	<0.2
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	70	<0.2	<0.2	<0.2	<0.2	<0.2
EP074I: Volatile Halogenated Compounds										
Vinyl chloride	EP074-UT	0.02	mg/kg	----	1.2	<0.02	<0.02	<0.02	<0.02	<0.02
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	2.8	<0.02	<0.02	<0.02	<0.02	<0.02
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	10	<0.01	<0.01	<0.01	<0.01	<0.01
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	10	<0.03	<0.03	<0.03	<0.03	<0.03
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	560	<1	<1	<1	<1	<1
EP075B: Polynuclear Aromatic Hydrocarbons										

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	TP17-24-29/0.8	DUP A - TP17-24-29/0.8	TP17-24-25/0.7	TP17-24-34/0.3	TP17-24-31/0.7
Client sample ID										
Sampling date/time						29-May-2017	29-May-2017	29-May-2017	30-May-2017	30-May-2017
						EM1707148-001	EM1707148-002	EM1707148-004	EM1707148-005	EM1707148-006
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	5	<0.5	<0.5	<0.5	<0.5	<0.5
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	100	<0.5	<0.5	<0.5	<0.5	<0.5
EP075I: Organochlorine Pesticides										
Heptachlor	EP075-EM	0.03	mg/kg	----	1.2	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	1.2	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50	<0.05	<0.05	<0.05	<0.05	<0.05
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	4	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	10	<0.03	<0.03	<0.03	<0.03	<0.03
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	650	<10	<10	<10	<10	<10
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	10000	<50	<50	<50	<50	<50

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	TP17-24-29/0.8	DUP A - TP17-24-29/0.8	TP17-24-25/0.7	TP17-24-34/0.3	TP17-24-31/0.7
Client sample ID										
Sampling date/time						29-May-2017	29-May-2017	29-May-2017	30-May-2017	30-May-2017
						EM1707148-001	EM1707148-002	EM1707148-004	EM1707148-005	EM1707148-006
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	4	9	**5.3**	**5.0**	**5.1**	**5.3**	**5.9**
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	20	**27**	**66**	**9**	**6**	**6**
Cadmium	EG005T	1	mg/kg	----	3	<1	<1	<1	<1	<1
Copper	EG005T	5	mg/kg	----	100	**19**	**23**	**11**	<5	**5**
Lead	EG005T	5	mg/kg	----	300	**7**	**11**	**6**	**33**	**29**
Molybdenum	EG005T	2	mg/kg	----	40	<2	<2	<2	<2	<2
Nickel	EG005T	2	mg/kg	----	60	**21**	**19**	**22**	**49**	**39**
Selenium	EG005T	5	mg/kg	----	10	<5	<5	<5	<5	<5
Silver	EG005T	2	mg/kg	----	10	<2	<2	<2	<2	<2
Tin	EG005T	5	mg/kg	----	50	<5	<5	<5	<5	<5
Zinc	EG005T	5	mg/kg	----	200	**10**	**5**	**6**	**9**	**14**
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	1	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	1	<0.5	<0.5	<0.5	<0.5	<0.5
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	50	<1	<1	<1	<1	<1
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	450	**90**	**80**	**200**	**50**	**150**
EP066: Polychlorinated Biphenyls (PCB)										
Total Polychlorinated biphenyls	EP066-EM	0.1	mg/kg	----	2	<0.1	<0.1	<0.1	<0.1	<0.1
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	1	<0.2	<0.2	<0.2	<0.2	<0.2
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	7	<0.2	<0.2	<0.2	<0.2	<0.2
EP074I: Volatile Halogenated Compounds										
Sum of volatile chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	1	<0.01	<0.01	<0.01	<0.01	<0.01
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	1	<0.03	<0.03	<0.03	<0.03	<0.03
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	60	<1	<1	<1	<1	<1
EP075B: Polynuclear Aromatic Hydrocarbons										

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

				Client sample ID		TP17-24-29/0.8	DUP A - TP17-24-29/0.8	TP17-24-25/0.7	TP17-24-34/0.3	TP17-24-31/0.7
				Sampling date/time	Guideline Lower Limit	Guideline Upper Limit	29-May-2017	29-May-2017	29-May-2017	30-May-2017	30-May-2017
Compound	*Method*	*LOR*	*Unit*				EM1707148-001	EM1707148-002	EM1707148-004	EM1707148-005	EM1707148-006
EP075B: Polynuclear Aromatic Hydrocarbons - Continued											
Benzo(a)pyrene	EP075-EM	0.5	mg/kg		----	1	<0.5	<0.5	<0.5	<0.5	<0.5
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg		----	20	<0.5	<0.5	<0.5	<0.5	<0.5
EP075I: Organochlorine Pesticides											
Sum of organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg		----	1	<0.03	<0.03	<0.03	<0.03	<0.03
EP080/071: Total Petroleum Hydrocarbons											
C6 - C9 Fraction	EP074-UT	10	mg/kg		----	100	<10	<10	<10	<10	<10
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg		----	1000	<50	<50	<50	<50	<50

Soil Hazard Categorisation and Management
Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Client sample ID: TP17-26-20/0.7	TP17-26-10/1.0	TP17-26-23/0.9	TP17-26-18/0.8	TP17-26-09/0.8
			Sampling date/time			31-May-2017	31-May-2017	31-May-2017	31-May-2017	01-Jun-2017
						EM1707148-007	EM1707148-008	EM1707148-009	EM1707148-010	EM1707148-011
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	2	12.5	**7.2**	**6.7**	**6.8**	**4.7**	**6.9**
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	2000	**7**	<5	**7**	<5	**9**
Cadmium	EG005T	1	mg/kg	----	400	<1	<1	<1	<1	<1
Copper	EG005T	5	mg/kg	----	20000	**9**	<5	**8**	<5	<5
Lead	EG005T	5	mg/kg	----	6000	**12**	**8**	**11**	**7**	**8**
Molybdenum	EG005T	2	mg/kg	----	4000	<2	<2	<2	**4**	<2
Nickel	EG005T	2	mg/kg	----	12000	**13**	<2	**14**	**4**	**4**
Selenium	EG005T	5	mg/kg	----	200	<5	<5	<5	<5	<5
Silver	EG005T	2	mg/kg	----	720	<2	<2	<2	<2	<2
Zinc	EG005T	5	mg/kg	----	140000	**8**	**6**	**15**	<5	<5
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	300	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	2000	<0.5	<0.5	<0.5	<0.5	<0.5
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	10000	<1	<1	<1	<1	<1
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	40000	**340**	<40	**200**	**130**	**70**
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	16	<0.2	<0.2	<0.2	<0.2	<0.2
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	240	<0.2	<0.2	<0.2	<0.2	<0.2
EP074I: Volatile Halogenated Compounds										
Vinyl chloride	EP074-UT	0.02	mg/kg	----	4.8	<0.02	<0.02	<0.02	<0.02	<0.02
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	11	<0.02	<0.02	<0.02	<0.02	<0.02
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	50	<0.01	<0.01	<0.01	<0.01	<0.01
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	320	<0.03	<0.03	<0.03	<0.03	<0.03
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	2200	<1	<1	<1	<1	<1
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	20	<0.5	<0.5	<0.5	<0.5	<0.5
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	400	<0.5	<0.5	<0.5	<0.5	<0.5

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	TP17-26-20/0.7	TP17-26-10/1.0	TP17-26-23/0.9	TP17-26-18/0.8	TP17-26-09/0.8
Client sample ID										
Sampling date/time						31-May-2017	31-May-2017	31-May-2017	31-May-2017	01-Jun-2017
						EM1707148-007	EM1707148-008	EM1707148-009	EM1707148-010	EM1707148-011
EP075I: Organochlorine Pesticides										
Heptachlor	EP075-EM	0.03	mg/kg	----	4.8	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	4.8	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50	<0.05	<0.05	<0.05	<0.05	<0.05
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	16	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	50	<0.03	<0.03	<0.03	<0.03	<0.03
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	2600	<10	<10	<10	<10	<10
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	40000	<50	<50	<50	<50	<50

Soil Hazard Categorisation and Management
Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Client sample ID: TP17-26-20/0.7	TP17-26-10/1.0	TP17-26-23/0.9	TP17-26-18/0.8	TP17-26-09/0.8
			Sampling date/time			31-May-2017	31-May-2017	31-May-2017	31-May-2017	01-Jun-2017
						EM1707148-007	EM1707148-008	EM1707148-009	EM1707148-010	EM1707148-011
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	4	9	**7.2**	**6.7**	**6.8**	**4.7**	**6.9**
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	500	**7**	<5	**7**	<5	**9**
Cadmium	EG005T	1	mg/kg	----	100	<1	<1	<1	<1	<1
Copper	EG005T	5	mg/kg	----	5000	**9**	<5	**8**	<5	<5
Lead	EG005T	5	mg/kg	----	1500	**12**	**8**	**11**	**7**	**8**
Molybdenum	EG005T	2	mg/kg	----	1000	<2	<2	<2	**4**	<2
Nickel	EG005T	2	mg/kg	----	3000	**13**	<2	**14**	**4**	**4**
Selenium	EG005T	5	mg/kg	----	50	<5	<5	<5	<5	<5
Silver	EG005T	2	mg/kg	----	180	<2	<2	<2	<2	<2
Tin	EG005T	5	mg/kg	----	500	<5	<5	<5	<5	<5
Zinc	EG005T	5	mg/kg	----	35000	**8**	**6**	**15**	<5	<5
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	75	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	500	<0.5	<0.5	<0.5	<0.5	<0.5
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	2500	<1	<1	<1	<1	<1
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	10000	**340**	<40	**200**	**130**	**70**
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	4	<0.2	<0.2	<0.2	<0.2	<0.2
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	70	<0.2	<0.2	<0.2	<0.2	<0.2
EP074I: Volatile Halogenated Compounds										
Vinyl chloride	EP074-UT	0.02	mg/kg	----	1.2	<0.02	<0.02	<0.02	<0.02	<0.02
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	2.8	<0.02	<0.02	<0.02	<0.02	<0.02
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	10	<0.01	<0.01	<0.01	<0.01	<0.01
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	10	<0.03	<0.03	<0.03	<0.03	<0.03
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	560	<1	<1	<1	<1	<1
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	5	<0.5	<0.5	<0.5	<0.5	<0.5

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	TP17-26-20/0.7	TP17-26-10/1.0	TP17-26-23/0.9	TP17-26-18/0.8	TP17-26-09/0.8
Client sample ID										
Sampling date/time						31-May-2017	31-May-2017	31-May-2017	31-May-2017	01-Jun-2017
						EM1707148-007	EM1707148-008	EM1707148-009	EM1707148-010	EM1707148-011
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	100	<0.5	<0.5	<0.5	<0.5	<0.5
EP075I: Organochlorine Pesticides										
Heptachlor	EP075-EM	0.03	mg/kg	----	1.2	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	1.2	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50	<0.05	<0.05	<0.05	<0.05	<0.05
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	4	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	10	<0.03	<0.03	<0.03	<0.03	<0.03
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	650	<10	<10	<10	<10	<10
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	10000	<50	<50	<50	<50	<50

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Client sample ID: TP17-26-20/0.7	TP17-26-10/1.0	TP17-26-23/0.9	TP17-26-18/0.8	TP17-26-09/0.8
			Sampling date/time			31-May-2017	31-May-2017	31-May-2017	31-May-2017	01-Jun-2017
						EM1707148-007	EM1707148-008	EM1707148-009	EM1707148-010	EM1707148-011
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	4	9	**7.2**	**6.7**	**6.8**	**4.7**	**6.9**
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	20	**7**	<5	**7**	<5	**9**
Cadmium	EG005T	1	mg/kg	----	3	<1	<1	<1	<1	<1
Copper	EG005T	5	mg/kg	----	100	**9**	<5	**8**	<5	<5
Lead	EG005T	5	mg/kg	----	300	**12**	**8**	**11**	**7**	**8**
Molybdenum	EG005T	2	mg/kg	----	40	<2	<2	<2	**4**	<2
Nickel	EG005T	2	mg/kg	----	60	**13**	<2	**14**	**4**	**4**
Selenium	EG005T	5	mg/kg	----	10	<5	<5	<5	<5	<5
Silver	EG005T	2	mg/kg	----	10	<2	<2	<2	<2	<2
Tin	EG005T	5	mg/kg	----	50	<5	<5	<5	<5	<5
Zinc	EG005T	5	mg/kg	----	200	**8**	**6**	**15**	<5	<5
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	1	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	1	<0.5	<0.5	<0.5	<0.5	<0.5
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	50	<1	<1	<1	<1	<1
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	450	**340**	<40	**200**	**130**	**70**
EP066: Polychlorinated Biphenyls (PCB)										
Total Polychlorinated biphenyls	EP066-EM	0.1	mg/kg	----	2	<0.1	<0.1	<0.1	<0.1	<0.1
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	1	<0.2	<0.2	<0.2	<0.2	<0.2
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	7	<0.2	<0.2	<0.2	<0.2	<0.2
EP074I: Volatile Halogenated Compounds										
Sum of volatile chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	1	<0.01	<0.01	<0.01	<0.01	<0.01
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	1	<0.03	<0.03	<0.03	<0.03	<0.03
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	60	<1	<1	<1	<1	<1
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	1	<0.5	<0.5	<0.5	<0.5	<0.5

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Client sample ID: TP17-26-20/0.7	TP17-26-10/1.0	TP17-26-23/0.9	TP17-26-18/0.8	TP17-26-09/0.8
						Sampling date/time: 31-May-2017	31-May-2017	31-May-2017	31-May-2017	01-Jun-2017
						EM1707148-007	EM1707148-008	EM1707148-009	EM1707148-010	EM1707148-011
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	20	<0.5	<0.5	<0.5	<0.5	<0.5
EP075I: Organochlorine Pesticides										
Sum of organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	1	<0.03	<0.03	<0.03	<0.03	<0.03
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	100	<10	<10	<10	<10	<10
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	1000	<50	<50	<50	<50	<50

Soil Hazard Categorisation and Management
Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Client sample ID: TP17-26-47/0.7	Client sample ID: TP17-26-49/0.8	Client sample ID: ----	Client sample ID: ----	Client sample ID: ----
			Sampling date/time			01-Jun-2017	01-Jun-2017	----	----	----
						EM1707148-012	EM1707148-013	--------	--------	--------
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	2	12.5	**5.2**	**5.1**	----	----	----
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	2000	<5	<5	----	----	----
Cadmium	EG005T	1	mg/kg	----	400	<1	<1	----	----	----
Copper	EG005T	5	mg/kg	----	20000	<5	<5	----	----	----
Lead	EG005T	5	mg/kg	----	6000	<5	<5	----	----	----
Molybdenum	EG005T	2	mg/kg	----	4000	<2	<2	----	----	----
Nickel	EG005T	2	mg/kg	----	12000	<2	**75**	----	----	----
Selenium	EG005T	5	mg/kg	----	200	<5	<5	----	----	----
Silver	EG005T	2	mg/kg	----	720	<2	<2	----	----	----
Zinc	EG005T	5	mg/kg	----	140000	<5	<5	----	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	300	<0.1	<0.1	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	2000	<0.5	<0.5	----	----	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	10000	<1	<1	----	----	----
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	40000	<40	<40	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	16	<0.2	<0.2	----	----	----
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	240	<0.2	<0.2	----	----	----
EP074I: Volatile Halogenated Compounds										
Vinyl chloride	EP074-UT	0.02	mg/kg	----	4.8	<0.02	<0.02	----	----	----
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	11	<0.02	<0.02	----	----	----
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	50	<0.01	<0.01	----	----	----
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	320	<0.03	<0.03	----	----	----
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	2200	<1	<1	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	20	<0.5	<0.5	----	----	----
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	400	<0.5	<0.5	----	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Client sample ID				
						TP17-26-47/0.7	TP17-26-49/0.8	----	----	----
						Sampling date/time				
						01-Jun-2017	01-Jun-2017	----	----	----
						EM1707148-012	EM1707148-013	--------	--------	--------
EP075I: Organochlorine Pesticides										
Heptachlor	EP075-EM	0.03	mg/kg	----	4.8	<0.03	<0.03	----	----	----
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	4.8	<0.03	<0.03	----	----	----
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50	<0.05	<0.05	----	----	----
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	16	<0.03	<0.03	----	----	----
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	50	<0.03	<0.03	----	----	----
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	2600	<10	<10	----	----	----
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	40000	<50	<50	----	----	----

Soil Hazard Categorisation and Management
Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Client sample ID: TP17-26-47/0.7	TP17-26-49/0.8	----	----	----
						Sampling date/time: 01-Jun-2017	01-Jun-2017	----	----	----
						EM1707148-012	EM1707148-013	--------	--------	--------
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	4	9	**5.2**	**5.1**	----	----	----
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	500	<5	<5	----	----	----
Cadmium	EG005T	1	mg/kg	----	100	<1	<1	----	----	----
Copper	EG005T	5	mg/kg	----	5000	<5	<5	----	----	----
Lead	EG005T	5	mg/kg	----	1500	<5	<5	----	----	----
Molybdenum	EG005T	2	mg/kg	----	1000	<2	<2	----	----	----
Nickel	EG005T	2	mg/kg	----	3000	<2	**75**	----	----	----
Selenium	EG005T	5	mg/kg	----	50	<5	<5	----	----	----
Silver	EG005T	2	mg/kg	----	180	<2	<2	----	----	----
Tin	EG005T	5	mg/kg	----	500	<5	<5	----	----	----
Zinc	EG005T	5	mg/kg	----	35000	<5	<5	----	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	75	<0.1	<0.1	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	500	<0.5	<0.5	----	----	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	2500	<1	<1	----	----	----
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	10000	<40	<40	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	4	<0.2	<0.2	----	----	----
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	70	<0.2	<0.2	----	----	----
EP074I: Volatile Halogenated Compounds										
Vinyl chloride	EP074-UT	0.02	mg/kg	----	1.2	<0.02	<0.02	----	----	----
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	2.8	<0.02	<0.02	----	----	----
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	10	<0.01	<0.01	----	----	----
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	10	<0.03	<0.03	----	----	----
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	560	<1	<1	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	5	<0.5	<0.5	----	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

				Client sample ID	Guideline Lower Limit	Guideline Upper Limit	TP17-26-47/0.7	TP17-26-49/0.8	----	----	----
				Sampling date/time			01-Jun-2017	01-Jun-2017	----	----	----
Compound	*Method*	*LOR*	*Unit*				EM1707148-012	EM1707148-013	--------	--------	--------
EP075B: Polynuclear Aromatic Hydrocarbons - Continued											
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	100	<0.5	<0.5	----	----	----	
EP075I: Organochlorine Pesticides											
Heptachlor	EP075-EM	0.03	mg/kg	----	1.2	<0.03	<0.03	----	----	----	
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	1.2	<0.03	<0.03	----	----	----	
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50	<0.05	<0.05	----	----	----	
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	4	<0.03	<0.03	----	----	----	
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	10	<0.03	<0.03	----	----	----	
EP080/071: Total Petroleum Hydrocarbons											
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	650	<10	<10	----	----	----	
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	10000	<50	<50	----	----	----	

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

				Client sample ID		TP17-26-47/0.7	TP17-26-49/0.8	----	----	----
				Sampling date/time		01-Jun-2017	01-Jun-2017	----	----	----
Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	EM1707148-012	EM1707148-013	--------	--------	--------
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	4	9	**5.2**	**5.1**	----	----	----
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	20	<5	<5	----	----	----
Cadmium	EG005T	1	mg/kg	----	3	<1	<1	----	----	----
Copper	EG005T	5	mg/kg	----	100	<5	<5	----	----	----
Lead	EG005T	5	mg/kg	----	300	<5	<5	----	----	----
Molybdenum	EG005T	2	mg/kg	----	40	<2	<2	----	----	----
Nickel	EG005T	2	mg/kg	----	60	<2	**75**	----	----	----
Selenium	EG005T	5	mg/kg	----	10	<5	<5	----	----	----
Silver	EG005T	2	mg/kg	----	10	<2	<2	----	----	----
Tin	EG005T	5	mg/kg	----	50	<5	<5	----	----	----
Zinc	EG005T	5	mg/kg	----	200	<5	<5	----	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	1	<0.1	<0.1	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	1	<0.5	<0.5	----	----	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	50	<1	<1	----	----	----
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	450	<40	<40	----	----	----
EP066: Polychlorinated Biphenyls (PCB)										
Total Polychlorinated biphenyls	EP066-EM	0.1	mg/kg	----	2	<0.1	<0.1	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	1	<0.2	<0.2	----	----	----
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	7	<0.2	<0.2	----	----	----
EP074I: Volatile Halogenated Compounds										
Sum of volatile chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	1	<0.01	<0.01	----	----	----
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	1	<0.03	<0.03	----	----	----
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	60	<1	<1	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	1	<0.5	<0.5	----	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

			Client sample ID	Guideline Lower Limit	Guideline Upper Limit	**TP17-26-47/0.7**	**TP17-26-49/0.8**	**----**	**----**	**----**
			Sampling date/time			01-Jun-2017	01-Jun-2017	----	----	----
Compound	*Method*	*LOR*	*Unit*			**EM1707148-012**	**EM1707148-013**	--------	--------	--------
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	20	<0.5	<0.5	**----**	**----**	**----**
EP075I: Organochlorine Pesticides										
Sum of organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	1	<0.03	<0.03	**----**	**----**	**----**
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	100	<10	<10	**----**	**----**	**----**
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	1000	<50	<50	**----**	**----**	**----**

Note: Red shading is applied where the result is equal to or greater than the guideline upper limit and/or equal to or lower than the guideline lower limit.

QUALITY CONTROL REPORT

Work Order	: **EM1707148**	Page	: 1 of 25
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLFA NAZARIO	Contact	: Steven McGrath
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9600
Project	: 2135645A	Date Samples Received	: 02-Jun-2017
Order number	: ----	Date Analysis Commenced	: 05-Jun-2017
C-O-C number	: 72869, 72870	Issue Date	: 08-Jun-2017
Sampler	: RM		
Site	: Site 24 + 26		
Quote number	: ME-525-16		
No. of samples received	: 18		
No. of samples analysed	: 17		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Nancy Wang	Senior Semivolatile Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	Senior Semivolatile Instrument Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA001: pH in soil using 0.01M CaCl extract (QC Lot: 926003)									
EM1707081-001	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	6.9	7.0	1.44	0% - 20%
EA001: pH in soil using 0.01M CaCl extract (QC Lot: 926486)									
EM1707119-041	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	3.1	3.1	0.00	0% - 20%
EM1707119-053	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	7.1	7.0	1.42	0% - 20%
EA001: pH in soil using 0.01M CaCl extract (QC Lot: 926854)									
EM1707148-005	TP17-24-34/0.3	EA001: pH (CaCl2)	----	0.1	pH Unit	5.3	5.2	1.90	0% - 20%
EA055: Moisture Content (QC Lot: 926292)									
EM1707148-001	TP17-24-29/0.8	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	24.8	26.1	5.00	0% - 20%
EM1707157-001	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	13.8	14.2	2.71	0% - 50%
EA055: Moisture Content (QC Lot: 926910)									
EM1707146-001	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	2.0	2.9	37.8	No Limit
EM1707176-003	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	18.3	21.8	17.6	0% - 20%
EG005T: Total Metals by ICP-AES (QC Lot: 926122)									
EM1707148-009	TP17-26-23/0.9	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	14	13	0.00	No Limit
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	7	8	23.9	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	8	8	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	11	13	12.1	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Tin	7440-31-5	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	15	25	53.2	No Limit
EM1707148-001	TP17-24-29/0.8	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG005T: Total Metals by ICP-AES (QC Lot: 926122) - continued									
EM1707148-001	TP17-24-29/0.8	EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	21	19	7.99	0% - 50%
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	27	33	20.2	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	19	20	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	7	8	0.00	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Tin	7440-31-5	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	10	8	19.3	No Limit
EG005T: Total Metals by ICP-AES (QC Lot: 926623)									
EM1707083-021	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	84	89	5.78	0% - 20%
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	28	28	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Tin	7440-31-5	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	39	37	6.45	No Limit
EM1707083-038	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	116	99	15.2	0% - 20%
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	156	132	16.4	0% - 20%
		EG005T: Copper	7440-50-8	5	mg/kg	38	37	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	5	0.00	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Tin	7440-31-5	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	69	66	4.31	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 926123)									
EM1707148-009	TP17-26-23/0.9	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EM1707148-001	TP17-24-29/0.8	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 926624)									
EM1707083-021	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EM1707083-038	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EG048: Hexavalent Chromium (Alkaline Digest) (QC Lot: 927039)									
EM1707083-001	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1707083-052	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG048: Hexavalent Chromium (Alkaline Digest) (QC Lot: 927040)									
EM1707148-010	TP17-26-18/0.8	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1707158-005	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EK026SF: Total CN by Segmented Flow Analyser (QC Lot: 927044)									
EM1707083-037	Anonymous	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.00	No Limit
EM1707003-001	Anonymous	EK026SF: Total Cyanide	57-12-5	1	mg/kg	1	<1	0.00	No Limit
EK026SF: Total CN by Segmented Flow Analyser (QC Lot: 927047)									
EM1707148-008	TP17-26-10/1.0	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.00	No Limit
EM1707157-007	Anonymous	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.00	No Limit
EK040T: Fluoride Total (QC Lot: 926119)									
EM1707148-001	TP17-24-29/0.8	EK040T: Fluoride	16984-48-8	40	mg/kg	90	90	0.00	No Limit
EM1707157-001	Anonymous	EK040T: Fluoride	16984-48-8	40	mg/kg	50	60	0.00	No Limit
EK040T: Fluoride Total (QC Lot: 926855)									
EM1707148-005	TP17-24-34/0.3	EK040T: Fluoride	16984-48-8	40	mg/kg	50	50	0.00	No Limit
EM1707189-007	Anonymous	EK040T: Fluoride	16984-48-8	40	mg/kg	<40	<40	0.00	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 925970)									
EM1707083-001	Anonymous	EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EM1707148-007	TP17-26-20/0.7	EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 927063)									
EM1707148-005	TP17-24-34/0.3	EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EM1707189-013	Anonymous	EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 925932)									
EM1707148-001	TP17-24-29/0.8	EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1707157-005	Anonymous	EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 926852)									
EM1707148-005	TP17-24-34/0.3	EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 926852) - continued									
EM1707148-005	TP17-24-34/0.3	EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074H: Naphthalene (QC Lot: 925932)									
EM1707148-001	TP17-24-29/0.8	EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EM1707157-005	Anonymous	EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EP074H: Naphthalene (QC Lot: 926852)									
EM1707148-005	TP17-24-34/0.3	EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EP074I: Volatile Halogenated Compounds (QC Lot: 925932)									
EM1707148-001	TP17-24-29/0.8	EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	<0.04	0.00	No Limit
		EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	<0.4	0.00	No Limit
EM1707157-005	Anonymous	EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074I: Volatile Halogenated Compounds (QC Lot: 925932) - continued									
EM1707157-005	Anonymous	EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	<0.04	0.00	No Limit
		EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	<0.4	0.00	No Limit
EP074I: Volatile Halogenated Compounds (QC Lot: 926852)									
EM1707148-005	TP17-24-34/0.3	EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	<0.04	0.00	No Limit
		EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	<0.4	0.00	No Limit
EP075A: Phenolic Compounds (Halogenated) (QC Lot: 925968)									
EM1707083-001	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EM1707148-007	TP17-26-20/0.7	EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075A: Phenolic Compounds (Halogenated) (QC Lot: 925968) - continued									
EM1707148-007	TP17-26-20/0.7	EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP075A: Phenolic Compounds (Halogenated) (QC Lot: 927061)									
EM1707148-005	TP17-24-34/0.3	EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EM1707189-013	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP075A: Phenolic Compounds (Non-halogenated) (QC Lot: 925968)									
EM1707083-001	Anonymous	EP075-EM: Phenol	108-95-2	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	<5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075A: Phenolic Compounds (Non-halogenated) (QC Lot: 925968) - continued									
EM1707083-001	Anonymous	EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	0.00	No Limit
EM1707148-007	TP17-26-20/0.7	EP075-EM: Phenol	108-95-2	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	0.00	No Limit
EP075A: Phenolic Compounds (Non-halogenated) (QC Lot: 927061)									
EM1707148-005	TP17-24-34/0.3	EP075-EM: Phenol	108-95-2	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	0.00	No Limit
EM1707189-013	Anonymous	EP075-EM: Phenol	108-95-2	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	0.00	No Limit
EP075B: Polynuclear Aromatic Hydrocarbons (QC Lot: 925968)									
EM1707083-001	Anonymous	EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075B: Polynuclear Aromatic Hydrocarbons (QC Lot: 925968) - continued									
EM1707083-001	Anonymous	EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1707148-007	TP17-26-20/0.7	EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP075B: Polynuclear Aromatic Hydrocarbons (QC Lot: 927061)									
EM1707148-005	TP17-24-34/0.3	EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075B: Polynuclear Aromatic Hydrocarbons (QC Lot: 927061) - continued									
EM1707148-005	TP17-24-34/0.3	EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1707189-013	Anonymous	EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP075I: Organochlorine Pesticides (QC Lot: 925968)									
EM1707083-001	Anonymous	EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EM1707148-007	TP17-26-20/0.7	EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	<0.03	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075I: Organochlorine Pesticides (QC Lot: 925968) - continued									
EM1707148-007	TP17-26-20/0.7	EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EP075I: Organochlorine Pesticides (QC Lot: 927061)									
EM1707148-005	TP17-24-34/0.3	EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075I: Organochlorine Pesticides (QC Lot: 927061) - continued									
EM1707189-013	Anonymous	EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 925932)									
EM1707148-001	TP17-24-29/0.8	EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EM1707157-005	Anonymous	EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 925969)									
EM1707083-001	Anonymous	EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EM1707148-007	TP17-26-20/0.7	EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 926852)									
EM1707148-005	TP17-24-34/0.3	EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 927062)									
EM1707148-005	TP17-24-34/0.3	EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EM1707189-013	Anonymous	EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 925932)									
EM1707148-001	TP17-24-29/0.8	EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
		EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	0.00	No Limit
EM1707157-005	Anonymous	EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
		EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 925969)									
EM1707083-001	Anonymous	EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EM1707148-007	TP17-26-20/0.7	EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 926852)									
EM1707148-005	TP17-24-34/0.3	EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
		EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 927062)									
EM1707148-005	TP17-24-34/0.3	EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EM1707189-013	Anonymous	EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG020T: Total Metals by ICP-MS (QC Lot: 926587)									
EM1707085-011	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	0.002	0.001	0.00	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	0.002	0.002	0.00	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.007	0.007	0.00	No Limit
		EG020A-T: Tin	7440-31-5	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.00	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	0.01	0.01	0.00	No Limit
EM1707157-002	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG020T: Total Metals by ICP-MS (QC Lot: 926587) - continued									
EM1707157-002	Anonymous	EG020A-T: Tin	7440-31-5	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.00	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EG020T: Total Metals by ICP-MS (QC Lot: 926588)									
EM1707097-001	Anonymous	EG020B-T: Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	0.00	No Limit
EM1707161-003	Anonymous	EG020B-T: Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 928544)									
EM1706877-073	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EM1707148-015	RB260417	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 926354)									
EM1707127-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 926354)									
EM1707127-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 926354)									
EM1707127-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 926122)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	92.5	79	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	85.8	85	109
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	91.7	84	116
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	86.8	85	107
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	7.9 mg/kg	93.4	86	112
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	95.8	89	111
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	98.4	93	109
EG005T: Silver	7440-22-4	2	mg/kg	<2	2.1 mg/kg	81.5	80	108
EG005T: Tin	7440-31-5	5	mg/kg	<5	5.2 mg/kg	105	92	114
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	92.2	89	111
EG005T: Total Metals by ICP-AES (QCLot: 926623)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	89.5	79	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	86.1	85	109
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	104	84	116
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	89.8	85	107
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	7.9 mg/kg	103	86	112
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	104	89	111
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	102	93	109
EG005T: Silver	7440-22-4	2	mg/kg	<2	2.1 mg/kg	95.7	80	108
EG005T: Tin	7440-31-5	5	mg/kg	<5	5.2 mg/kg	106	92	114
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	101	89	111
EG035T: Total Recoverable Mercury by FIMS (QCLot: 926123)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	94.7	85	103
EG035T: Total Recoverable Mercury by FIMS (QCLot: 926624)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	89.4	85	103
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 927039)								
EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	40 mg/kg	92.6	80	120
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 927040)								
EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	40 mg/kg	88.8	80	120
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 927044)								
EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	20 mg/kg	90.3	80	110
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 927047)								
EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	20 mg/kg	92.8	80	110

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EK040T: Fluoride Total (QCLot: 926119)								
EK040T: Fluoride	16984-48-8	40	mg/kg	<40	950 mg/kg	95.2	76	108
EK040T: Fluoride Total (QCLot: 926855)								
EK040T: Fluoride	16984-48-8	40	mg/kg	<40	950 mg/kg	92.6	76	108
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 925970)								
EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	89.6	63	133
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 927063)								
EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	91.3	63	133
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 925932)								
EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	2.1 mg/kg	101	74	118
EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	2.1 mg/kg	97.9	70	118
EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2.1 mg/kg	103	69	117
EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4.2 mg/kg	100	68	116
EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	2.1 mg/kg	105	71	117
EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2.1 mg/kg	101	70	116
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 926852)								
EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	2.1 mg/kg	92.2	74	118
EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	2.1 mg/kg	90.6	70	118
EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2.1 mg/kg	92.7	69	117
EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4.2 mg/kg	90.2	68	116
EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	2.1 mg/kg	97.6	71	117
EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2.1 mg/kg	93.5	70	116
EP074H: Naphthalene (QCLot: 925932)								
EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	0.6 mg/kg	87.2	74	116
EP074H: Naphthalene (QCLot: 926852)								
EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	0.6 mg/kg	83.1	74	116
EP074I: Volatile Halogenated Compounds (QCLot: 925932)								
EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	0.1 mg/kg	101	49	133
EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	0.1 mg/kg	93.1	62	127
EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	2.1 mg/kg	86.3	65	131
EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	0.1 mg/kg	98.7	68	124
EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	0.1 mg/kg	94.1	74	118
EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	0.1 mg/kg	88.4	72	118
EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	0.1 mg/kg	98.5	67	119
EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	0.1 mg/kg	99.0	65	119
EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	0.1 mg/kg	80.8	70	122
EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	0.1 mg/kg	97.3	72	124

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP074I: Volatile Halogenated Compounds (QCLot: 925932) - continued								
EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	0.1 mg/kg	98.5	74	122
EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	0.1 mg/kg	107	58	120
EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	0.1 mg/kg	94.4	70	119
EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	0.1 mg/kg	102	71	125
EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	0.1 mg/kg	89.0	61	125
EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	0.1 mg/kg	99.2	70	122
EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	0.1 mg/kg	99.2	61	118
EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	0.1 mg/kg	98.8	67	117
EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	0.1 mg/kg	92.6	53	127
EP074I: Volatile Halogenated Compounds (QCLot: 926852)								
EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	0.1 mg/kg	91.7	49	133
EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	0.1 mg/kg	77.2	62	127
EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	2.1 mg/kg	81.5	65	131
EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	0.1 mg/kg	87.9	68	124
EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	0.1 mg/kg	87.7	74	118
EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	0.1 mg/kg	83.0	72	118
EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	0.1 mg/kg	79.2	67	119
EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	0.1 mg/kg	83.0	65	119
EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	0.1 mg/kg	86.7	70	122
EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	0.1 mg/kg	89.4	72	124
EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	0.1 mg/kg	95.9	74	122
EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	0.1 mg/kg	94.6	58	120
EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	0.1 mg/kg	91.4	70	119
EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	0.1 mg/kg	94.8	71	125
EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	0.1 mg/kg	74.3	61	125
EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	0.1 mg/kg	92.8	70	122
EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	0.1 mg/kg	90.5	61	118
EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	0.1 mg/kg	93.4	67	117
EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	0.1 mg/kg	82.3	53	127
EP075A: Phenolic Compounds (Halogenated) (QCLot: 925968)								
EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	0.5 mg/kg	88.8	43	119
EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	0.5 mg/kg	117	44	131
EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	0.5 mg/kg	84.5	43	122
EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	0.5 mg/kg	120	50	129
EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	0.5 mg/kg	57.7	44	128
EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	0.5 mg/kg	69.5	44	126
EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	0.5 mg/kg	89.4	46	126
EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/5 8-90-2	0.05	mg/kg	<0.05	1 mg/kg	110	44	124

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP075A: Phenolic Compounds (Halogenated) (QCLot: 925968) - continued								
EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	1 mg/kg	119	36	124
EP075A: Phenolic Compounds (Halogenated) (QCLot: 927061)								
EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	0.5 mg/kg	84.0	43	119
EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	0.5 mg/kg	103	44	131
EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	0.5 mg/kg	81.0	43	122
EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	0.5 mg/kg	105	50	129
EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	0.5 mg/kg	81.9	44	128
EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	0.5 mg/kg	101	44	126
EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	0.5 mg/kg	89.2	46	126
EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/5 8-90-2	0.05	mg/kg	<0.05	1 mg/kg	84.7	44	124
EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	1 mg/kg	# 127	36	124
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 925968)								
EP075-EM: Phenol	108-95-2	1	mg/kg	<1	0.5 mg/kg	107	41	120
EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	0.5 mg/kg	89.8	41	131
EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	1 mg/kg	103	43	130
EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	0.5 mg/kg	117	49	130
EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	0.5 mg/kg	83.9	37	119
EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	3 mg/kg	50.5	23	125
EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	3 mg/kg	80.0	49	133
EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	3 mg/kg	75.1	47	125
EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	3 mg/kg	114	48	123
EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	2.5 mg/kg	62.8	12	132
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 927061)								
EP075-EM: Phenol	108-95-2	1	mg/kg	<1	0.5 mg/kg	105	41	120
EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	0.5 mg/kg	78.7	41	131
EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	1 mg/kg	90.5	43	130
EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	0.5 mg/kg	99.4	49	130
EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	0.5 mg/kg	72.6	37	119
EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	3 mg/kg	59.7	23	125
EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	3 mg/kg	98.6	49	133
EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	3 mg/kg	68.9	47	125
EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	3 mg/kg	109	48	123
EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	2.5 mg/kg	73.6	12	132
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 925968)								
EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	0.5 mg/kg	85.9	44	122
EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	0.5 mg/kg	83.8	54	126
EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	0.5 mg/kg	58.5	46	126

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 925968) - continued								
EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	0.5 mg/kg	91.7	51	125
EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	0.5 mg/kg	92.3	57	127
EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	0.5 mg/kg	65.1	55	127
EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	0.5 mg/kg	98.0	57	131
EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	0.5 mg/kg	97.8	57	131
EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	0.5 mg/kg	100	56	132
EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	0.5 mg/kg	106	58	134
EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	1 mg/kg	95.3	55	133
EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	0.5 mg/kg	90.7	51	135
EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	0.5 mg/kg	110	55	137
EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	0.5 mg/kg	115	54	136
EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	0.5 mg/kg	121	55	137
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 927061)								
EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	0.5 mg/kg	81.1	44	122
EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	0.5 mg/kg	82.2	54	126
EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	0.5 mg/kg	81.1	46	126
EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	0.5 mg/kg	86.0	51	125
EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	0.5 mg/kg	110	57	127
EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	0.5 mg/kg	77.3	55	127
EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	0.5 mg/kg	118	57	131
EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	0.5 mg/kg	118	57	131
EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	0.5 mg/kg	111	56	132
EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	0.5 mg/kg	118	58	134
EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	1 mg/kg	112	55	133
EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	0.5 mg/kg	111	51	135
EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	0.5 mg/kg	113	55	137
EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	0.5 mg/kg	112	54	136
EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	0.5 mg/kg	120	55	137
EP075I: Organochlorine Pesticides (QCLot: 925968)								
EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	0.5 mg/kg	92.5	54	130
EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	0.5 mg/kg	103	54	130
EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	0.5 mg/kg	89.7	54	134
EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	0.5 mg/kg	95.3	54	132
EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	0.5 mg/kg	93.2	55	131
EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	0.5 mg/kg	96.7	54	128
EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	0.5 mg/kg	93.4	54	128
EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	0.5 mg/kg	100	56	130

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP075I: Organochlorine Pesticides (QCLot: 925968) - continued								
EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	0.5 mg/kg	101	56	130
EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	0.5 mg/kg	99.8	55	131
EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	0.5 mg/kg	90.7	53	133
EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	93.4	54	130
EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	0.5 mg/kg	95.6	57	133
EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	0.5 mg/kg	75.8	28	174
EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	0.5 mg/kg	140	40	148
EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	0.5 mg/kg	91.5	56	138
EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	98.5	57	135
EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	0.5 mg/kg	102	51	133
EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	0.5 mg/kg	97.7	51	133
EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	0.5 mg/kg	107	48	136
EP075I: Organochlorine Pesticides (QCLot: 927061)								
EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	0.5 mg/kg	92.4	54	130
EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	0.5 mg/kg	94.6	54	130
EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	0.5 mg/kg	103	54	134
EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	0.5 mg/kg	97.0	54	132
EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	0.5 mg/kg	116	55	131
EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	0.5 mg/kg	109	54	128
EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	0.5 mg/kg	111	54	128
EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	0.5 mg/kg	120	56	130
EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	0.5 mg/kg	118	56	130
EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	0.5 mg/kg	118	55	131
EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	0.5 mg/kg	124	53	133
EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	95.7	54	130
EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	0.5 mg/kg	123	57	133
EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	0.5 mg/kg	109	28	174
EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	0.5 mg/kg	144	40	148
EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	0.5 mg/kg	121	56	138
EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	113	57	135
EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	0.5 mg/kg	129	51	133
EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	0.5 mg/kg	117	51	133
EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	0.5 mg/kg	118	48	136
EP080/071: Total Petroleum Hydrocarbons (QCLot: 925932)								
EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	39.6 mg/kg	82.1	69	114
EP080/071: Total Petroleum Hydrocarbons (QCLot: 925969)								
EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	734 mg/kg	106	72	130
EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	3091 mg/kg	91.8	77	126

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 925969) - continued								
EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	1507 mg/kg	94.9	75	119
EP080/071: Total Petroleum Hydrocarbons (QCLot: 926852)								
EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	39.6 mg/kg	70.1	69	114
EP080/071: Total Petroleum Hydrocarbons (QCLot: 927062)								
EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	734 mg/kg	117	72	130
EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	3091 mg/kg	100	77	126
EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	1507 mg/kg	106	75	119
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 925932)								
EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	48.9 mg/kg	83.5	69	112
EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 925969)								
EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	1101 mg/kg	101	75	123
EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	3914 mg/kg	90.6	77	127
EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	283 mg/kg	104	43	123
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 926852)								
EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	48.9 mg/kg	71.3	69	112
EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 927062)								
EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	1101 mg/kg	110	75	123
EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	3914 mg/kg	100	77	127
EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	283 mg/kg	115	43	123

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 926587)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	102	94	113
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	96.0	88	110
EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	101	88	113
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	102	88	113
EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	104	89	114
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	98.2	91	111
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	98.3	86	110
EG020A-T: Tin	7440-31-5	0.001	mg/L	<0.001	0.1 mg/L	102	88	113
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	106	88	112
EG020T: Total Metals by ICP-MS (QCLot: 926588)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 926588) - continued								
EG020B-T: Silver	7440-22-4	0.001	mg/L	<0.001	0.02 mg/L	108	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 928544)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	96.4	87	113
EP080/071: Total Petroleum Hydrocarbons (QCLot: 926354)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	360 µg/L	96.6	67	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 926354)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	96.6	65	125
EP080: BTEXN (QCLot: 926354)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	97.0	76	120
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	98.6	76	124
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	97.2	72	124
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	100	72	130
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	105	78	128
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	103	71	129

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG005T: Total Metals by ICP-AES (QCLot: 926122)							
EM1707148-002	DUP A - TP17-24-29/0.8	EG005T: Arsenic	7440-38-2	50 mg/kg	93.7	78	124
		EG005T: Cadmium	7440-43-9	50 mg/kg	90.9	84	116
		EG005T: Copper	7440-50-8	50 mg/kg	83.4	82	124
		EG005T: Lead	7439-92-1	50 mg/kg	84.0	76	124
		EG005T: Molybdenum	7439-98-7	50 mg/kg	84.5	79	117
		EG005T: Nickel	7440-02-0	50 mg/kg	90.1	78	120
		EG005T: Selenium	7782-49-2	50 mg/kg	79.7	71	125
		EG005T: Zinc	7440-66-6	50 mg/kg	89.9	74	128
EG005T: Total Metals by ICP-AES (QCLot: 926623)							
EM1707083-022	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	# Not Determined	78	124
		EG005T: Cadmium	7440-43-9	50 mg/kg	94.8	84	116
		EG005T: Copper	7440-50-8	50 mg/kg	97.4	82	124
		EG005T: Lead	7439-92-1	50 mg/kg	89.9	76	124

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 926623) - continued							
EM1707083-022	Anonymous	EG005T: Molybdenum	7439-98-7	50 mg/kg	90.5	79	117
		EG005T: Nickel	7440-02-0	50 mg/kg	94.3	78	120
		EG005T: Selenium	7782-49-2	50 mg/kg	120	71	125
		EG005T: Zinc	7440-66-6	50 mg/kg	95.4	74	128
EG035T: Total Recoverable Mercury by FIMS (QCLot: 926123)							
EM1707148-002	DUP A - TP17-24-29/0.8	EG035T: Mercury	7439-97-6	5 mg/kg	94.0	76	116
EG035T: Total Recoverable Mercury by FIMS (QCLot: 926624)							
EM1707083-022	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	78.5	76	116
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 927039)							
EM1707083-006	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	40 mg/kg	92.8	58	114
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 927040)							
EM1707148-011	TP17-26-09/0.8	EG048G: Hexavalent Chromium	18540-29-9	40 mg/kg	63.8	58	114
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 927044)							
EM1707003-002	Anonymous	EK026SF: Total Cyanide	57-12-5	20 mg/kg	90.1	77	113
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 927047)							
EM1707148-009	TP17-26-23/0.9	EK026SF: Total Cyanide	57-12-5	20 mg/kg	94.9	77	113
EK040T: Fluoride Total (QCLot: 926119)							
EM1707148-002	DUP A - TP17-24-29/0.8	EK040T: Fluoride	16984-48-8	400 mg/kg	96.8	70	130
EK040T: Fluoride Total (QCLot: 926855)							
EM1707148-006	TP17-24-31/0.7	EK040T: Fluoride	16984-48-8	400 mg/kg	94.5	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 925970)							
EM1707083-006	Anonymous	EP066-EM: Total Polychlorinated biphenyls	----	1 mg/kg	86.1	36	152
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 927063)							
EM1707148-013	TP17-26-49/0.8	EP066-EM: Total Polychlorinated biphenyls	----	1 mg/kg	83.2	36	152
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 925932)							
EM1707148-002	DUP A - TP17-24-29/0.8	EP074-UT: Benzene	71-43-2	2 mg/kg	74.6	50	138
		EP074-UT: Toluene	108-88-3	2 mg/kg	84.9	56	134
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 926852)							
EM1707148-006	TP17-24-31/0.7	EP074-UT: Benzene	71-43-2	2 mg/kg	99.2	50	138
		EP074-UT: Toluene	108-88-3	2 mg/kg	93.2	56	134
EP074I: Volatile Halogenated Compounds (QCLot: 925932)							
EM1707148-002	DUP A - TP17-24-29/0.8	EP074-UT: 1.1-Dichloroethene	75-35-4	2 mg/kg	54.1	26	141
		EP074-UT: Trichloroethene	79-01-6	2 mg/kg	75.8	50	134
		EP074-UT: Chlorobenzene	108-90-7	2 mg/kg	99.4	28	134

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP074I: Volatile Halogenated Compounds (QCLot: 926852)							
EM1707148-006	TP17-24-31/0.7	EP074-UT: 1.1-Dichloroethene	75-35-4	2 mg/kg	104	26	141
		EP074-UT: Trichloroethene	79-01-6	2 mg/kg	91.2	50	134
		EP074-UT: Chlorobenzene	108-90-7	2 mg/kg	93.3	28	134
EP075A: Phenolic Compounds (Halogenated) (QCLot: 925968)							
EM1707083-018	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	0.5 mg/kg	89.2	34	118
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.5 mg/kg	88.5	41	139
		EP075-EM: Pentachlorophenol	87-86-5	0.5 mg/kg	56.3	10	144
EP075A: Phenolic Compounds (Halogenated) (QCLot: 927061)							
EM1707148-006	TP17-24-31/0.7	EP075-EM: 2-Chlorophenol	95-57-8	0.5 mg/kg	96.1	34	118
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.5 mg/kg	97.4	41	139
		EP075-EM: Pentachlorophenol	87-86-5	0.5 mg/kg	61.1	10	144
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 925968)							
EM1707083-018	Anonymous	EP075-EM: Phenol	108-95-2	0.5 mg/kg	92.8	32	134
		EP075-EM: 2-Nitrophenol	88-75-5	0.5 mg/kg	80.1	13	129
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 927061)							
EM1707148-006	TP17-24-31/0.7	EP075-EM: Phenol	108-95-2	0.5 mg/kg	101	32	134
		EP075-EM: 2-Nitrophenol	88-75-5	0.5 mg/kg	88.2	13	129
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 925968)							
EM1707083-018	Anonymous	EP075-EM: Acenaphthene	83-32-9	0.5 mg/kg	84.4	46	138
		EP075-EM: Pyrene	129-00-0	0.5 mg/kg	99.3	27	169
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 927061)							
EM1707148-006	TP17-24-31/0.7	EP075-EM: Acenaphthene	83-32-9	0.5 mg/kg	94.4	46	138
		EP075-EM: Pyrene	129-00-0	0.5 mg/kg	101	27	169
EP080/071: Total Petroleum Hydrocarbons (QCLot: 925932)							
EM1707148-002	DUP A - TP17-24-29/0.8	EP074-UT: C6 - C9 Fraction	----	28 mg/kg	60.4	43	111
EP080/071: Total Petroleum Hydrocarbons (QCLot: 925969)							
EM1707083-010	Anonymous	EP071-EM: C10 - C14 Fraction	----	734 mg/kg	111	53	123
		EP071-EM: C15 - C28 Fraction	----	3091 mg/kg	94.4	70	124
		EP071-EM: C29 - C36 Fraction	----	1507 mg/kg	96.4	64	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 926852)							
EM1707148-006	TP17-24-31/0.7	EP074-UT: C6 - C9 Fraction	----	28 mg/kg	69.6	43	111
EP080/071: Total Petroleum Hydrocarbons (QCLot: 927062)							
EM1707184-001	Anonymous	EP071-EM: C10 - C14 Fraction	----	734 mg/kg	121	53	123
		EP071-EM: C15 - C28 Fraction	----	3091 mg/kg	107	70	124
		EP071-EM: C29 - C36 Fraction	----	1507 mg/kg	114	64	118

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 925932)							
EM1707148-002	DUP A - TP17-24-29/0.8	EP074-UT: C6 - C10 Fraction	C6_C10	33 mg/kg	62.3	42	106
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 925969)							
EM1707083-010	Anonymous	EP071-EM: >C10 - C16 Fraction	----	1101 mg/kg	105	65	123
		EP071-EM: >C16 - C34 Fraction	----	3914 mg/kg	93.0	67	121
		EP071-EM: >C34 - C40 Fraction	----	283 mg/kg	101	44	126
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 926852)							
EM1707148-006	TP17-24-31/0.7	EP074-UT: C6 - C10 Fraction	C6_C10	33 mg/kg	67.2	42	106
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 927062)							
EM1707184-001	Anonymous	EP071-EM: >C10 - C16 Fraction	----	1101 mg/kg	118	65	123
		EP071-EM: >C16 - C34 Fraction	----	3914 mg/kg	108	67	121
		EP071-EM: >C34 - C40 Fraction	----	283 mg/kg	126	44	126

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 926587)							
EM1707085-011	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	95.8	82	118
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	91.5	75	129
		EG020A-T: Cobalt	7440-48-4	1 mg/L	85.7	82	120
		EG020A-T: Lead	7439-92-1	1 mg/L	87.3	83	121
		EG020A-T: Nickel	7440-02-0	1 mg/L	91.0	80	118
		EG020A-T: Zinc	7440-66-6	1 mg/L	94.7	74	116
EG035T: Total Recoverable Mercury by FIMS (QCLot: 928544)							
EM1707083-047	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	94.0	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 926354)							
EM1707109-001	Anonymous	EP080: C6 - C9 Fraction	----	280 µg/L	90.0	43	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 926354)							
EM1707109-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	330 µg/L	86.3	44	122
EP080: BTEXN (QCLot: 926354)							
EM1707109-001	Anonymous	EP080: Benzene	71-43-2	20 µg/L	94.4	68	130
		EP080: Toluene	108-88-3	20 µg/L	103	72	132

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM1707148**	Page	: 1 of 14
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLFA NAZARIO	Telephone	: +61-3-8549 9600
Project	: 2135645A	Date Samples Received	: 02-Jun-2017
Site	: Site 24 + 26	Issue Date	: 08-Jun-2017
Sampler	: RM	No. of samples received	: 18
Order number	: ----	No. of samples analysed	: 17

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **Laboratory Control outliers exist - please see following pages for full details.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Laboratory Control Spike (LCS) Recoveries							
EP075A: Phenolic Compounds (Halogenated)	QC-927061-001	----	**Pentachlorophenol**	87-86-5	127 %	36-124%	**Recovery greater than upper control limit**
Matrix Spike (MS) Recoveries							
EG005T: Total Metals by ICP-AES	EM1707083--022	Anonymous	**Arsenic**	7440-38-2	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Outliers : Frequency of Quality Control Samples

Matrix: **SOIL**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
Laboratory Control Samples (LCS)					
Hexavalent Chromium by Alkaline Digestion and DA Finish	3	37	8.11	10.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA001: pH in soil using 0.01M CaCl extract							
Soil Glass Jar - Unpreserved (EA001) TP17-26-49/0.8	**01-Jun-2017**	**05-Jun-2017**	08-Jun-2017	✓	**05-Jun-2017**	05-Jun-2017	✓
Soil Glass Jar - Unpreserved (EA001) TP17-26-09/0.8, TP17-26-47/0.7	**01-Jun-2017**	**06-Jun-2017**	08-Jun-2017	✓	**06-Jun-2017**	06-Jun-2017	✓
Soil Glass Jar - Unpreserved (EA001) TP17-24-29/0.8, DUP A - TP17-24-29/0.8, TP17-24-25/0.7	**29-May-2017**	**05-Jun-2017**	05-Jun-2017	✓	**05-Jun-2017**	05-Jun-2017	✓
Soil Glass Jar - Unpreserved (EA001) TP17-24-34/0.3, TP17-24-31/0.7	**30-May-2017**	**05-Jun-2017**	06-Jun-2017	✓	**05-Jun-2017**	05-Jun-2017	✓
Soil Glass Jar - Unpreserved (EA001) TP17-26-20/0.7, TP17-26-10/1.0, TP17-26-23/0.9, TP17-26-18/0.8	**31-May-2017**	**06-Jun-2017**	07-Jun-2017	✓	**06-Jun-2017**	06-Jun-2017	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content								
Soil Glass Jar - Unpreserved (EA055-103)								
TP17-26-09/0.8, TP17-26-49/0.8	TP17-26-47/0.7,	**01-Jun-2017**	**----**	----	----	**05-Jun-2017**	15-Jun-2017	✓
Soil Glass Jar - Unpreserved (EA055-103)								
TP17-24-29/0.8, TP17-24-25/0.7	DUP A - TP17-24-29/0.8,	**29-May-2017**	**----**	----	----	**05-Jun-2017**	12-Jun-2017	✓
Soil Glass Jar - Unpreserved (EA055-103)								
TP17-24-34/0.3,	TP17-24-31/0.7	**30-May-2017**	**----**	----	----	**05-Jun-2017**	13-Jun-2017	✓
Soil Glass Jar - Unpreserved (EA055-103)								
TP17-26-20/0.7, TP17-26-23/0.9,	TP17-26-10/1.0, TP17-26-18/0.8	**31-May-2017**	**----**	----	----	**05-Jun-2017**	14-Jun-2017	✓
EG005T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T)								
TP17-26-09/0.8, TP17-26-49/0.8	TP17-26-47/0.7,	**01-Jun-2017**	**06-Jun-2017**	28-Nov-2017	✓	**06-Jun-2017**	28-Nov-2017	✓
Soil Glass Jar - Unpreserved (EG005T)								
TP17-24-29/0.8, TP17-24-25/0.7	DUP A - TP17-24-29/0.8,	**29-May-2017**	**06-Jun-2017**	25-Nov-2017	✓	**06-Jun-2017**	25-Nov-2017	✓
Soil Glass Jar - Unpreserved (EG005T)								
TP17-24-34/0.3,	TP17-24-31/0.7	**30-May-2017**	**06-Jun-2017**	26-Nov-2017	✓	**06-Jun-2017**	26-Nov-2017	✓
Soil Glass Jar - Unpreserved (EG005T)								
TP17-26-20/0.7, TP17-26-23/0.9,	TP17-26-10/1.0, TP17-26-18/0.8	**31-May-2017**	**06-Jun-2017**	27-Nov-2017	✓	**06-Jun-2017**	27-Nov-2017	✓
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T)								
TP17-26-09/0.8, TP17-26-49/0.8	TP17-26-47/0.7,	**01-Jun-2017**	**06-Jun-2017**	29-Jun-2017	✓	**07-Jun-2017**	29-Jun-2017	✓
Soil Glass Jar - Unpreserved (EG035T)								
TP17-24-29/0.8, TP17-24-25/0.7	DUP A - TP17-24-29/0.8,	**29-May-2017**	**06-Jun-2017**	26-Jun-2017	✓	**07-Jun-2017**	26-Jun-2017	✓
Soil Glass Jar - Unpreserved (EG035T)								
TP17-24-34/0.3,	TP17-24-31/0.7	**30-May-2017**	**06-Jun-2017**	27-Jun-2017	✓	**07-Jun-2017**	27-Jun-2017	✓
Soil Glass Jar - Unpreserved (EG035T)								
TP17-26-20/0.7, TP17-26-23/0.9,	TP17-26-10/1.0, TP17-26-18/0.8	**31-May-2017**	**06-Jun-2017**	28-Jun-2017	✓	**07-Jun-2017**	28-Jun-2017	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG048: Hexavalent Chromium (Alkaline Digest)								
Soil Glass Jar - Unpreserved (EG048G)								
TP17-26-09/0.8,	TP17-26-47/0.7,	**01-Jun-2017**	**06-Jun-2017**	29-Jun-2017	✓	**06-Jun-2017**	13-Jun-2017	✓
TP17-26-49/0.8								
Soil Glass Jar - Unpreserved (EG048G)								
TP17-24-29/0.8,	DUP A - TP17-24-29/0.8,	**29-May-2017**	**06-Jun-2017**	26-Jun-2017	✓	**06-Jun-2017**	13-Jun-2017	✓
TP17-24-25/0.7								
Soil Glass Jar - Unpreserved (EG048G)								
TP17-24-34/0.3,	TP17-24-31/0.7	**30-May-2017**	**06-Jun-2017**	27-Jun-2017	✓	**06-Jun-2017**	13-Jun-2017	✓
Soil Glass Jar - Unpreserved (EG048G)								
TP17-26-20/0.7,	TP17-26-10/1.0,	**31-May-2017**	**06-Jun-2017**	28-Jun-2017	✓	**06-Jun-2017**	13-Jun-2017	✓
TP17-26-23/0.9,	TP17-26-18/0.8							
EK026SF: Total CN by Segmented Flow Analyser								
Soil Glass Jar - Unpreserved (EK026SF)								
TP17-26-09/0.8,	TP17-26-47/0.7,	**01-Jun-2017**	**06-Jun-2017**	15-Jun-2017	✓	**07-Jun-2017**	20-Jun-2017	✓
TP17-26-49/0.8								
Soil Glass Jar - Unpreserved (EK026SF)								
TP17-24-29/0.8,	DUP A - TP17-24-29/0.8,	**29-May-2017**	**06-Jun-2017**	12-Jun-2017	✓	**07-Jun-2017**	20-Jun-2017	✓
TP17-24-25/0.7								
Soil Glass Jar - Unpreserved (EK026SF)								
TP17-24-34/0.3,	TP17-24-31/0.7	**30-May-2017**	**06-Jun-2017**	13-Jun-2017	✓	**07-Jun-2017**	20-Jun-2017	✓
Soil Glass Jar - Unpreserved (EK026SF)								
TP17-26-20/0.7,	TP17-26-10/1.0,	**31-May-2017**	**06-Jun-2017**	14-Jun-2017	✓	**07-Jun-2017**	20-Jun-2017	✓
TP17-26-23/0.9,	TP17-26-18/0.8							
EK040T: Fluoride Total								
Soil Glass Jar - Unpreserved (EK040T)								
TP17-26-09/0.8,	TP17-26-47/0.7,	**01-Jun-2017**	**05-Jun-2017**	29-Jun-2017	✓	**07-Jun-2017**	29-Jun-2017	✓
TP17-26-49/0.8								
Soil Glass Jar - Unpreserved (EK040T)								
TP17-24-29/0.8,	DUP A - TP17-24-29/0.8,	**29-May-2017**	**05-Jun-2017**	26-Jun-2017	✓	**07-Jun-2017**	26-Jun-2017	✓
TP17-24-25/0.7								
Soil Glass Jar - Unpreserved (EK040T)								
TP17-24-34/0.3,	TP17-24-31/0.7	**30-May-2017**	**05-Jun-2017**	27-Jun-2017	✓	**07-Jun-2017**	27-Jun-2017	✓
Soil Glass Jar - Unpreserved (EK040T)								
TP17-26-20/0.7,	TP17-26-10/1.0,	**31-May-2017**	**05-Jun-2017**	28-Jun-2017	✓	**07-Jun-2017**	28-Jun-2017	✓
TP17-26-23/0.9,	TP17-26-18/0.8							

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP066: Polychlorinated Biphenyls (PCB)								
Soil Glass Jar - Unpreserved (EP066-EM)								
TP17-26-09/0.8,	TP17-26-47/0.7	**01-Jun-2017**	**05-Jun-2017**	15-Jun-2017	✓	**05-Jun-2017**	15-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP066-EM)								
TP17-26-49/0.8		**01-Jun-2017**	**05-Jun-2017**	15-Jun-2017	✓	**06-Jun-2017**	15-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP066-EM)								
TP17-24-29/0.8, TP17-24-25/0.7	DUP A - TP17-24-29/0.8,	**29-May-2017**	**05-Jun-2017**	12-Jun-2017	✓	**05-Jun-2017**	15-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP066-EM)								
TP17-24-34/0.3,	TP17-24-31/0.7	**30-May-2017**	**05-Jun-2017**	13-Jun-2017	✓	**06-Jun-2017**	15-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP066-EM)								
TP17-26-20/0.7, TP17-26-23/0.9,	TP17-26-10/1.0, TP17-26-18/0.8	**31-May-2017**	**05-Jun-2017**	14-Jun-2017	✓	**05-Jun-2017**	15-Jul-2017	✓
EP074A: Monocyclic Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP074-UT)								
TP17-26-09/0.8, TP17-26-49/0.8	TP17-26-47/0.7,	**01-Jun-2017**	**05-Jun-2017**	08-Jun-2017	✓	**05-Jun-2017**	08-Jun-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT)								
TP17-24-29/0.8, TP17-24-25/0.7	DUP A - TP17-24-29/0.8,	**29-May-2017**	**05-Jun-2017**	05-Jun-2017	✓	**05-Jun-2017**	05-Jun-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT)								
TP17-24-34/0.3,	TP17-24-31/0.7	**30-May-2017**	**05-Jun-2017**	06-Jun-2017	✓	**05-Jun-2017**	06-Jun-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT)								
TP17-26-20/0.7, TP17-26-23/0.9,	TP17-26-10/1.0, TP17-26-18/0.8	**31-May-2017**	**05-Jun-2017**	07-Jun-2017	✓	**05-Jun-2017**	07-Jun-2017	✓
EP074H: Naphthalene								
Soil Glass Jar - Unpreserved (EP074-UT)								
TP17-26-09/0.8, TP17-26-49/0.8	TP17-26-47/0.7,	**01-Jun-2017**	**05-Jun-2017**	08-Jun-2017	✓	**05-Jun-2017**	08-Jun-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT)								
TP17-24-29/0.8, TP17-24-25/0.7	DUP A - TP17-24-29/0.8,	**29-May-2017**	**05-Jun-2017**	05-Jun-2017	✓	**05-Jun-2017**	05-Jun-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT)								
TP17-24-34/0.3,	TP17-24-31/0.7	**30-May-2017**	**05-Jun-2017**	06-Jun-2017	✓	**05-Jun-2017**	06-Jun-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT)								
TP17-26-20/0.7, TP17-26-23/0.9,	TP17-26-10/1.0, TP17-26-18/0.8	**31-May-2017**	**05-Jun-2017**	07-Jun-2017	✓	**05-Jun-2017**	07-Jun-2017	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074I: Volatile Halogenated Compounds								
Soil Glass Jar - Unpreserved (EP074-UT)								
TP17-26-09/0.8, TP17-26-49/0.8	TP17-26-47/0.7,	**01-Jun-2017**	**05-Jun-2017**	08-Jun-2017	✓	**05-Jun-2017**	08-Jun-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT)								
TP17-24-29/0.8, TP17-24-25/0.7	DUP A - TP17-24-29/0.8,	**29-May-2017**	**05-Jun-2017**	05-Jun-2017	✓	**05-Jun-2017**	05-Jun-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT)								
TP17-24-34/0.3,	TP17-24-31/0.7	**30-May-2017**	**05-Jun-2017**	06-Jun-2017	✓	**05-Jun-2017**	06-Jun-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT)								
TP17-26-20/0.7, TP17-26-23/0.9,	TP17-26-10/1.0, TP17-26-18/0.8	**31-May-2017**	**05-Jun-2017**	07-Jun-2017	✓	**05-Jun-2017**	07-Jun-2017	✓
EP075A: Phenolic Compounds (Halogenated)								
Soil Glass Jar - Unpreserved (EP075-EM)								
TP17-26-09/0.8,	TP17-26-47/0.7	**01-Jun-2017**	**05-Jun-2017**	15-Jun-2017	✓	**05-Jun-2017**	15-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP075-EM)								
TP17-26-49/0.8		**01-Jun-2017**	**05-Jun-2017**	15-Jun-2017	✓	**06-Jun-2017**	15-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP075-EM)								
TP17-24-29/0.8, TP17-24-25/0.7	DUP A - TP17-24-29/0.8,	**29-May-2017**	**05-Jun-2017**	12-Jun-2017	✓	**05-Jun-2017**	15-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP075-EM)								
TP17-24-34/0.3,	TP17-24-31/0.7	**30-May-2017**	**05-Jun-2017**	13-Jun-2017	✓	**06-Jun-2017**	15-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP075-EM)								
TP17-26-20/0.7, TP17-26-23/0.9,	TP17-26-10/1.0, TP17-26-18/0.8	**31-May-2017**	**05-Jun-2017**	14-Jun-2017	✓	**05-Jun-2017**	15-Jul-2017	✓
EP075A: Phenolic Compounds (Non-halogenated)								
Soil Glass Jar - Unpreserved (EP075-EM)								
TP17-26-09/0.8,	TP17-26-47/0.7	**01-Jun-2017**	**05-Jun-2017**	15-Jun-2017	✓	**05-Jun-2017**	15-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP075-EM)								
TP17-26-49/0.8		**01-Jun-2017**	**05-Jun-2017**	15-Jun-2017	✓	**06-Jun-2017**	15-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP075-EM)								
TP17-24-29/0.8, TP17-24-25/0.7	DUP A - TP17-24-29/0.8,	**29-May-2017**	**05-Jun-2017**	12-Jun-2017	✓	**05-Jun-2017**	15-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP075-EM)								
TP17-24-34/0.3,	TP17-24-31/0.7	**30-May-2017**	**05-Jun-2017**	13-Jun-2017	✓	**06-Jun-2017**	15-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP075-EM)								
TP17-26-20/0.7, TP17-26-23/0.9,	TP17-26-10/1.0, TP17-26-18/0.8	**31-May-2017**	**05-Jun-2017**	14-Jun-2017	✓	**05-Jun-2017**	15-Jul-2017	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075-EM)								
TP17-26-09/0.8,	TP17-26-47/0.7	**01-Jun-2017**	**05-Jun-2017**	15-Jun-2017	✓	**05-Jun-2017**	15-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP075-EM)								
TP17-26-49/0.8		**01-Jun-2017**	**05-Jun-2017**	15-Jun-2017	✓	**06-Jun-2017**	15-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP075-EM)								
TP17-24-29/0.8, TP17-24-25/0.7	DUP A - TP17-24-29/0.8,	**29-May-2017**	**05-Jun-2017**	12-Jun-2017	✓	**05-Jun-2017**	15-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP075-EM)								
TP17-24-34/0.3,	TP17-24-31/0.7	**30-May-2017**	**05-Jun-2017**	13-Jun-2017	✓	**06-Jun-2017**	15-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP075-EM)								
TP17-26-20/0.7, TP17-26-23/0.9,	TP17-26-10/1.0, TP17-26-18/0.8	**31-May-2017**	**05-Jun-2017**	14-Jun-2017	✓	**05-Jun-2017**	15-Jul-2017	✓
EP075I: Organochlorine Pesticides								
Soil Glass Jar - Unpreserved (EP075-EM)								
TP17-26-09/0.8,	TP17-26-47/0.7	**01-Jun-2017**	**05-Jun-2017**	15-Jun-2017	✓	**05-Jun-2017**	15-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP075-EM)								
TP17-26-49/0.8		**01-Jun-2017**	**05-Jun-2017**	15-Jun-2017	✓	**06-Jun-2017**	15-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP075-EM)								
TP17-24-29/0.8, TP17-24-25/0.7	DUP A - TP17-24-29/0.8,	**29-May-2017**	**05-Jun-2017**	12-Jun-2017	✓	**05-Jun-2017**	15-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP075-EM)								
TP17-24-34/0.3,	TP17-24-31/0.7	**30-May-2017**	**05-Jun-2017**	13-Jun-2017	✓	**06-Jun-2017**	15-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP075-EM)								
TP17-26-20/0.7, TP17-26-23/0.9,	TP17-26-10/1.0, TP17-26-18/0.8	**31-May-2017**	**05-Jun-2017**	14-Jun-2017	✓	**05-Jun-2017**	15-Jul-2017	✓
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP074-UT)								
TP17-26-09/0.8, TP17-26-49/0.8	TP17-26-47/0.7,	**01-Jun-2017**	**05-Jun-2017**	08-Jun-2017	✓	**05-Jun-2017**	08-Jun-2017	✓
Soil Glass Jar - Unpreserved (EP071-EM)								
TP17-26-49/0.8		**01-Jun-2017**	**05-Jun-2017**	15-Jun-2017	✓	**06-Jun-2017**	15-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT)								
TP17-24-29/0.8, TP17-24-25/0.7	DUP A - TP17-24-29/0.8,	**29-May-2017**	**05-Jun-2017**	05-Jun-2017	✓	**05-Jun-2017**	05-Jun-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT)								
TP17-24-34/0.3,	TP17-24-31/0.7	**30-May-2017**	**05-Jun-2017**	06-Jun-2017	✓	**05-Jun-2017**	06-Jun-2017	✓
Soil Glass Jar - Unpreserved (EP071-EM)								
TP17-24-34/0.3,	TP17-24-31/0.7	**30-May-2017**	**05-Jun-2017**	13-Jun-2017	✓	**06-Jun-2017**	15-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT)								
TP17-26-20/0.7, TP17-26-23/0.9,	TP17-26-10/1.0, TP17-26-18/0.8	**31-May-2017**	**05-Jun-2017**	07-Jun-2017	✓	**05-Jun-2017**	07-Jun-2017	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP074-UT) TP17-26-09/0.8, TP17-26-47/0.7, TP17-26-49/0.8	**01-Jun-2017**	**05-Jun-2017**	08-Jun-2017	✓	**05-Jun-2017**	08-Jun-2017	✓
Soil Glass Jar - Unpreserved (EP071-EM) TP17-26-49/0.8	**01-Jun-2017**	**05-Jun-2017**	15-Jun-2017	✓	**06-Jun-2017**	15-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT) TP17-24-29/0.8, DUP A - TP17-24-29/0.8, TP17-24-25/0.7	**29-May-2017**	**05-Jun-2017**	05-Jun-2017	✓	**05-Jun-2017**	05-Jun-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT) TP17-24-34/0.3, TP17-24-31/0.7	**30-May-2017**	**05-Jun-2017**	06-Jun-2017	✓	**05-Jun-2017**	06-Jun-2017	✓
Soil Glass Jar - Unpreserved (EP071-EM) TP17-24-34/0.3, TP17-24-31/0.7	**30-May-2017**	**05-Jun-2017**	13-Jun-2017	✓	**06-Jun-2017**	15-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT) TP17-26-20/0.7, TP17-26-10/1.0, TP17-26-23/0.9, TP17-26-18/0.8	**31-May-2017**	**05-Jun-2017**	07-Jun-2017	✓	**05-Jun-2017**	07-Jun-2017	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unspecified (EG020B-T) RB260417	**01-Jun-2017**	**06-Jun-2017**	28-Nov-2017	✓	**06-Jun-2017**	28-Nov-2017	✓
Clear Plastic Bottle - Nitric Acid; Unspecified (EG020B-T) RB260417	**29-May-2017**	**06-Jun-2017**	25-Nov-2017	✓	**06-Jun-2017**	25-Nov-2017	✓
Clear Plastic Bottle - Nitric Acid; Unspecified (EG020B-T) RB260417	**30-May-2017**	**06-Jun-2017**	26-Nov-2017	✓	**06-Jun-2017**	26-Nov-2017	✓
Clear Plastic Bottle - Nitric Acid; Unspecified (EG020B-T) RB260417	**31-May-2017**	**06-Jun-2017**	27-Nov-2017	✓	**06-Jun-2017**	27-Nov-2017	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unspecified (EG035T) RB260417	**01-Jun-2017**	**----**	----	----	**07-Jun-2017**	29-Jun-2017	✓
Clear Plastic Bottle - Nitric Acid; Unspecified (EG035T) RB260417	**29-May-2017**	**----**	----	----	**07-Jun-2017**	26-Jun-2017	✓
Clear Plastic Bottle - Nitric Acid; Unspecified (EG035T) RB260417	**30-May-2017**	**----**	----	----	**07-Jun-2017**	27-Jun-2017	✓
Clear Plastic Bottle - Nitric Acid; Unspecified (EG035T) RB260417	**31-May-2017**	**----**	----	----	**07-Jun-2017**	28-Jun-2017	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP080) TB260417	**02-Jun-2017**	**05-Jun-2017**	16-Jun-2017	✓	**05-Jun-2017**	16-Jun-2017	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber VOC Vial - Sulfuric Acid (EP080) TB260417	**02-Jun-2017**	**05-Jun-2017**	16-Jun-2017	✓	**05-Jun-2017**	16-Jun-2017	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
TB260417	**02-Jun-2017**	**05-Jun-2017**	16-Jun-2017	✓	**05-Jun-2017**	16-Jun-2017	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	4	37	**10.81**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055-103	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	4	32	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	4	38	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	4	32	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	4	39	**10.26**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	4	25	**16.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	4	33	**12.12**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	4	36	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	4	32	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	3	21	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	3	37	**8.11**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	2	32	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	2	32	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	2	25	**8.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	33	**6.06**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	36	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	2	32	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	2	21	**9.52**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	37	**5.41**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	2	32	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	2	32	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	2	25	**8.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	33	**6.06**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	36	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	2	32	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	2	21	**9.52**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	37	**5.41**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	2	32	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	2	32	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Matrix Spikes (MS) - Continued							
Total Fluoride	EK040T	2	25	**8.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	33	**6.06**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	36	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	2	32	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	2	21	**9.52**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite B	EG020B-T	2	7	**28.57**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite B	EG020B-T	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite B	EG020B-T	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH in soil using a 0.01M CaCl2 extract	EA001	SOIL	In house: Referenced to Rayment and Higginson 4B1 (mod.) 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Moisture Content	EA055-103	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	SOIL	In house: Referenced to USEPA SW846, Method 3060A. Hexavalent chromium is extracted by alkaline digestion. The digest is determined by photometrically by automatic discrete analyser, following pH adjustment. The instrument uses colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Cyanide by Segmented Flow Analyser	EK026SF	SOIL	In house: Referenced to APHA 4500-CN C / ASTM D7511. Caustic leachates of soil samples are introduced into an automated segmented flow analyser. Complex bound cyanide is decomposed in a continuously flowing stream, at a pH of 3.8, by the effect of UV light. A UV-B lamp (312 nm) and a decomposition spiral of borosilicate glass are used to filter out UV light with a wavelength of less than 290 nm thus preventing the conversion of thiocyanate into cyanide. The hydrogen cyanide present at a pH of 3.8 is separated by gas dialysis. The hydrogen cyanide is then determined photometrically, based on the reaction of cyanide with chloramine-T to form cyanogen chloride. This then reacts with 4-pyridine carboxylic acid and 1,3-dimethylbarbituric acid to give a red colour which is measured at 600 nm. This method is compliant with NEPM (2013) Schedule B(3)
Total Fluoride	EK040T	SOIL	(In-house) Total fluoride is determined by ion specific electrode (ISE) in a solution obtained after a Sodium Carbonate / Potassium Carbonate fusion dissolution.
PCB - VIC EPA 448.3 Screen	EP066-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
TRH - Semivolatile Fraction	EP071-EM	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40.
Volatile Organic Compounds - Ultra-trace	EP074-UT	SOIL	In house: Referenced to USEPA SW 846 - 8260B Extracts are analysed by Purge and Trap, Capillary GC/MS in partial SIM/Scan mode. Quantification is by comparison against an established multi-point calibration curves. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)

Analytical Methods	Method	Matrix	Method Descriptions
Volatile Organic Compounds - Ultra-trace - Summations	EP074-UT-SUM	SOIL	Summation of MAHs and VHCs
Semivolatile Organic Compounds - Waste Classification	EP075-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (2013) Schedule B(3) (Method 502)
SVOC - Waste Classification (Sums)	EP075-EM-SUM	SOIL	Summations for EP075 (EM variation)
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite B	EG020B-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
NaOH leach for CN in Soils	CN-PR	SOIL	In house: APHA 4500 CN. Samples are extracted by end-over-end tumbling with NaOH.
pH in soil using a 0.01M CaCl2 extract	EA001-PR	SOIL	In house: Referenced to Rayment and Higginson 4B1, 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Alkaline digestion for Hexavalent Chromium	EG048PR	SOIL	In house: Referenced to USEPA SW846, Method 3060A.
Total Fluoride	EK040T-PR	SOIL	In house: Samples are fused with Sodium Carbonate / Potassium Carbonate flux.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils - Ultra-trace.	ORG16-UT	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids - VIC EPA Screen	ORG17-EM	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

Preparation Methods	Method	Matrix	Method Descriptions
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EM1707148**

Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLFA NAZARIO	Contact	: Steven McGrath
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: onazario@pb.com.au	E-mail	: steven.mcgrath@alsglobal.com
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9600
Facsimile	: +61 03 9861 1144	Facsimile	: +61-3-8549 9601
Project	: 2135645A	Page	: 1 of 3
Order number	: ----	Quote number	: EM2016PARBRIVIC0006 (ME-525-16)
C-O-C number	: 72869, 72870	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Site 24 + 26		
Sampler	: RM		

Dates

Date Samples Received	: 02-Jun-2017 12:30	Issue Date	: 02-Jun-2017
Client Requested Due Date	: 09-Jun-2017	Scheduled Reporting Date	: **09-Jun-2017**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 1.2°C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 19 / 14

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.
- **Analytical work for this work order will be conducted at ALS Springvale.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

EM1707148-002 : [29-May-2017] : DUP A - TP17-24-29/0.8

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - P-16 IWRG 621
EM1707148-001	29-May-2017 00:00	TP17-24-29/0.8		✓	✓
EM1707148-002	29-May-2017 00:00	DUP A - TP17-24-29/0...		✓	✓
EM1707148-003	29-May-2017 00:00	DUP B - TP17-24-29/0...	✓		
EM1707148-004	29-May-2017 00:00	TP17-24-25/0.7		✓	✓
EM1707148-005	30-May-2017 00:00	TP17-24-34/0.3	✓		
EM1707148-006	30-May-2017 00:00	TP17-24-31/0.7	✓		
EM1707148-007	31-May-2017 00:00	TP17-26-20/0.7		✓	✓
EM1707148-008	31-May-2017 00:00	TP17-26-10/1.0		✓	✓
EM1707148-009	31-May-2017 00:00	TP17-26-23/0.9		✓	✓
EM1707148-010	31-May-2017 00:00	TP17-26-18/0.8		✓	✓
EM1707148-011	01-Jun-2017 00:00	TP17-26-09/0.8		✓	✓
EM1707148-012	01-Jun-2017 00:00	TP17-26-47/0.7		✓	✓
EM1707148-013	01-Jun-2017 00:00	TP17-26-49/0.8	✓		

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) WATER No analysis requested	WATER - EG020T Total Recoverable Metals by ICPMS (including	WATER - EG035T Total Mercury by FIMS	WATER - W-18 TRH(C6 - C9)/BTEXN
EM1707148-014	29-May-2017 00:00	RB260417		✓	✓	
EM1707148-015	30-May-2017 00:00	RB260417		✓	✓	
EM1707148-016	31-May-2017 00:00	RB260417		✓	✓	
EM1707148-017	01-Jun-2017 00:00	RB260417		✓	✓	
EM1707148-018	[02-Jun-2017]	TB260417				✓
EM1707148-019	[02-Jun-2017]	Water Sample	✓			

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ALL INVOICES		
- A4 - AU Tax Invoice (INV)	Email	apinvoices@pb.com.au
OLFA NAZARIO		
- *AU Certificate of Analysis - NATA (COA)	Email	onazario@pb.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	onazario@pb.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	onazario@pb.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	onazario@pb.com.au
- AU IWRG 621 2009 Guideline Report (COA_GL_IWRG_621)	Email	onazario@pb.com.au
- Chain of Custody (CoC) (COC)	Email	onazario@pb.com.au
- EDI Format - ENMRG (ENMRG)	Email	onazario@pb.com.au
- EDI Format - ESDAT (ESDAT)	Email	onazario@pb.com.au
OLIVIA HENDERSON		
- *AU Certificate of Analysis - NATA (COA)	Email	ohenderson@pb.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	ohenderson@pb.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	ohenderson@pb.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	ohenderson@pb.com.au
- AU IWRG 621 2009 Guideline Report (COA_GL_IWRG_621)	Email	ohenderson@pb.com.au
- Chain of Custody (CoC) (COC)	Email	ohenderson@pb.com.au
- EDI Format - ENMRG (ENMRG)	Email	ohenderson@pb.com.au
- EDI Format - ESDAT (ESDAT)	Email	ohenderson@pb.com.au

PARSONS BRINCKERHOFF

ABN 80 078 004 798

White Page - Laboratory Copy
Yellow Page - Project File Copy
Pink Page - Remains in Book

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PO Box 115 Singleton NSW 2330
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PO Box 1162 Newcastle NSW, 2300
Tel: (02) 4929 8300 Fax: (02) 4929 8382

Chain of Custody

Order No: 72869

Job Title: OSAR - SITE

PB Job Number: 213561.5A

Job Location: SITE 24 26

Project Manager: Ofa Nazario

Results Expected by/on: ONazario@pb.com.au

Laboratory Name: ALS

Address: ALS Springvale

Fax Number:

Phone Number: 8549 9600

Contact Name: Graeme Jablonka

Delivery Method: Courier

Quote Number: MF525-16

Terms of Business	PB	Other	Checked
	✓		

Fax Results to:

Fax Number:

Phone Number:

Spreadsheet of Results Required: (Y) / N

Format:

Turnaround Time Required:

Invoice to:

Comments: 1/2

Date Sampled	Time	ALS I.D	Sample I.D.	Container Size	Sample Location	Medium*	Preservative Type	Filtered (X)	TPH	BTEX	PAH's	OC/OP/PCB's	Metals**	TMRG 621 // Suite	TMRG 621 Metals				Initials	Comments/Additional Information and/or Analysis Required
29/05/17	1		TP17-24-29/0.8	250ml	Site 24	S								X					RM	
	2		DUP A - TP17-24-29/0.8											X						
	3		DUP B - "											X						
	4		TP17-24-25/0.7											X						
30/05/17	5		TP17-24-34/0.3											X						
"	6		TP17-24-31/0.7											X						
31/05/17	7		TP17-26-20/0.7											X						
	8		TP17-26-10/1.0											X						
	9		TP17-26-23/0.9											X						
	10		TP17-26-18/0.8											X						
01/06/17	11		TP17-26-09/0.8											X						
	12		TP17-26-47/0.7											X						
	13		TP17-26-49/0.8											X						

Environmental Division
Melbourne
Work Order Reference
EM1707148

Telephone : + 61-3-8549 9600

Relinquished by:	Relinquished by:	Relinquished by:
Roy Mackay		
Date & Time: 02/06/17	Date & Time:	Date & Time:
Company: WSP	Company:	Company:
Signature:	Signature:	Signature:
Received in Good Order & Condition by (Name):	Received in Good Order & Condition by (Name):	Received in Good Order & Condition by (Name):
Date & Time: 2/6 12:30	Date & Time:	Date & Time:
Company: ALS	Company:	Company:
Signature:	Signature:	Signature:

Medium*: S = Soil, W = Water, V = Vapour

Legend**: (circle the following to be tested)

Metals: Al As Be Cd Co Cr Cu Fe Hg Li Mg Mn Ni Pb Se Sn V Zn

Samples on Ice: ☐ Yes ☐ No

Please fax back a signed copy when samples are received at the laboratory

PARSONS BRINCKERHOFF

White Page - Laboratory Copy
Yellow Page - Project File Copy
Pink Page - Remains in Book

ABN 80 078 004 798

Adelaide
Level 16, 1 King William Street,
GPO Box 398 Adelaide SA 5001
Tel: (08) 8405 4300 Fax: (08) 8405 4301

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Level 4, Northbank Plaza 69 Ann Street,
GPO Box 2907 Brisbane QLD 4001
Tel: (07) 3854 6200 Fax: (07) 3854 6500

Melbourne
Level 15, 28 Freshwater Place,
PO Box 19016 Southbank VIC 3006
Tel: (03) 9861 1111 Fax: (03) 9861 1144

Sydney
Level 27, Ernst & Young Centre
680 George Street,
GPO Box 5394, Sydney NSW 2001
Tel: (02) 9272 5100 Fax: (02) 9272 5101

Perth
Level 5, 503 Murray Street,
PO Box 7181 Cloisters Square WA 6850
Tel: (08) 9489 9700 Fax: (08) 9489 9777

Singleton
188 John Street,
PO Box 115 Singleton NSW 2330
Tel: (02) 6572 3377 Fax: (02) 6572 4080

Newcastle
Level 3, 51-55 Bolton Street,
PO Box 1162 Newcastle NSW, 2300
Tel: (02) 4929 8300 Fax: (02) 4929 8382

Chain of Custody

Order No: 72870

Job Title:

PB Job Number:

Job Location:

Project Manager:

Results Expected by/on:

Laboratory Name:

Address:

Terms of Business | PB | Other | Checked

Fax Results to:

Fax Number:

Phone Number:

Spreadsheet of Results Required: Y / N

Format:

Turnaround Time Required:

Invoice to:

Comments: 1/2

Fax Number:

Phone Number:

Contact Name:

Delivery Method:

Quote Number:

Date Sampled	Time (AZS I.D)	Sample I.D.	Container Size	Sample Location	Medium*	Preservative Type	Filtered (X)	TPH	BTEX	PAH's	OC/OP/PCB's	Metals**	TWRG621//Suite	TWRG624 Metals				Initials	Comments/Additional Information and/or Analysis Required
29/05/17	14	RB 260417	250ml	Site 26										X				RM	
30/05/17	15	"												X					
31/05/17	16	"												X					
01/06/17	17	"												X					
	18	TB 260417						X	X										TB - To be analysed for TRH, BTEX
EXTRA	19	Water Sample	2x VIALS																

Relinquished by:	Relinquished by:	Relinquished by:	Medium*: S = Soil, W = Water, V = Vapour
Rory MacKay			Legend**: (circle the following to be tested)
Date & Time: 02/06/17	Date & Time:	Date & Time:	Metals: Al As Be Cd Co Cr Cu Fe Hg Li Mg Mn Ni Pb Se Sn V Zn
Company: WSP	Company:	Company:	
Signature:	Signature:	Signature:	
Received in Good Order & Condition by (Name):	Received in Good Order & Condition by (Name):	Received in Good Order & Condition by (Name):	Samples on Ice: ☐ Yes ☐ No
Date & Time: 2/6 12:30	Date & Time:	Date & Time:	***Please fax back a signed copy when samples are received at the laboratory***
Company:	Company:	Company:	
Signature:	Signature:	Signature:	

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1707764**	Page	: 1 of 14
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLFA NAZARIO	Contact	: Steven McGrath
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9600
Project	: 2135645A	Date Samples Received	: 15-Jun-2017 17:05
Order number	: ----	Date Analysis Commenced	: 16-Jun-2017
C-O-C number	: 85406	Issue Date	: 21-Jun-2017 15:44
Sampler	: AH		
Site	: Site 26		
Quote number	: ME-525-16		
No. of samples received	: 11		
No. of samples analysed	: 11		

ilac-MRA NATA
Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	Senior Semivolatile Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP074/EP080: Poor Matrix Spike recovery for particular sample EM1707687_01 due to matrix interferences.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TP17-26-53/0.6	TP17-26-52/0.6	TP17-26-58/0.6	TP17-26-56/0.6	TP17-26-55/0.6
			Client sampling date / time	14-Jun-2017 00:00	14-Jun-2017 00:00	14-Jun-2017 00:00	14-Jun-2017 00:00	14-Jun-2017 00:00
Compound	CAS Number	LOR	Unit	EM1707764-001	EM1707764-002	EM1707764-003	EM1707764-004	EM1707764-005
				Result	Result	Result	Result	Result
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	5.3	6.8	6.4	7.7	7.1
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1	%	5.5	10.9	15.3	14.5	12.3
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	20	<5	11
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Copper	7440-50-8	5	mg/kg	<5	<5	13	<5	<5
Lead	7439-92-1	5	mg/kg	<5	6	35	5	5
Molybdenum	7439-98-7	2	mg/kg	<2	<2	<2	<2	<2
Nickel	7440-02-0	2	mg/kg	<2	2	14	2	5
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Silver	7440-22-4	2	mg/kg	<2	<2	<2	<2	<2
Tin	7440-31-5	5	mg/kg	<5	<5	<5	<5	<5
Zinc	7440-66-6	5	mg/kg	<5	<5	34	<5	<5
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
EK026SF: Total CN by Segmented Flow Analyser								
Total Cyanide	57-12-5	1	mg/kg	<1	<1	<1	<1	<1
EK040T: Fluoride Total								
Fluoride	16984-48-8	40	mg/kg	70	<40	80	40	190
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of monocyclic aromatic hydrocarbons	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP17-26-53/0.6	TP17-26-52/0.6	TP17-26-58/0.6	TP17-26-56/0.6	TP17-26-55/0.6
				Client sampling date / time	14-Jun-2017 00:00	14-Jun-2017 00:00	14-Jun-2017 00:00	14-Jun-2017 00:00	14-Jun-2017 00:00
Compound	CAS Number	LOR	Unit		EM1707764-001	EM1707764-002	EM1707764-003	EM1707764-004	EM1707764-005
					Result	Result	Result	Result	Result
EP074H: Naphthalene									
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP074I: Volatile Halogenated Compounds									
Vinyl chloride	75-01-4	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.1-Dichloroethene	75-35-4	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Methylene chloride	75-09-2	0.4	mg/kg		<0.4	<0.4	<0.4	<0.4	<0.4
trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Chloroform	67-66-3	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.1.1-Trichloroethane	71-55-6	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Carbon Tetrachloride	56-23-5	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
1.2-Dichloroethane	107-06-2	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Trichloroethene	79-01-6	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.1.2-Trichloroethane	79-00-5	0.04	mg/kg		<0.04	<0.04	<0.04	<0.04	<0.04
Tetrachloroethene	127-18-4	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Hexachlorobutadiene	87-68-3	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Chlorobenzene	108-90-7	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.4-Dichlorobenzene	106-46-7	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.2-Dichlorobenzene	95-50-1	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
^ Sum of volatile chlorinated hydrocarbons	----	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
^ Sum of other chlorinated hydrocarbons	----	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
EP075A: Phenolic Compounds (Halogenated)									
2-Chlorophenol	95-57-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
2.4-Dichlorophenol	120-83-2	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
2.6-Dichlorophenol	87-65-0	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Pentachlorophenol	87-86-5	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Sum of Phenols (halogenated)	----	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP17-26-53/0.6	TP17-26-52/0.6	TP17-26-58/0.6	TP17-26-56/0.6	TP17-26-55/0.6
				Client sampling date / time	14-Jun-2017 00:00	14-Jun-2017 00:00	14-Jun-2017 00:00	14-Jun-2017 00:00	14-Jun-2017 00:00
Compound	CAS Number	LOR	Unit		EM1707764-001	EM1707764-002	EM1707764-003	EM1707764-004	EM1707764-005
					Result	Result	Result	Result	Result
EP075A: Phenolic Compounds (Halogenated) - Continued									
EP075A: Phenolic Compounds (Non-halogenated)									
Phenol	108-95-2	1	mg/kg		<1	<1	<1	<1	<1
2-Methylphenol	95-48-7	1	mg/kg		<1	<1	<1	<1	<1
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	1	mg/kg		<1	<1	<1	<1	<1
2.4-Dimethylphenol	105-67-9	1	mg/kg		<1	<1	<1	<1	<1
2.4-Dinitrophenol	51-28-5	5	mg/kg		<5	<5	<5	<5	<5
4-Nitrophenol	100-02-7	5	mg/kg		<5	<5	<5	<5	<5
2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg		<5	<5	<5	<5	<5
Dinoseb	88-85-7	5	mg/kg		<5	<5	<5	<5	<5
2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg		<5	<5	<5	<5	<5
^ Sum of Phenols (non-halogenated)	----	1	mg/kg		<1	<1	<1	<1	<1
EP075B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP075I: Organochlorine Pesticides									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP17-26-53/0.6	TP17-26-52/0.6	TP17-26-58/0.6	TP17-26-56/0.6	TP17-26-55/0.6
				Client sampling date / time	14-Jun-2017 00:00	14-Jun-2017 00:00	14-Jun-2017 00:00	14-Jun-2017 00:00	14-Jun-2017 00:00
Compound	CAS Number	LOR	Unit		EM1707764-001	EM1707764-002	EM1707764-003	EM1707764-004	EM1707764-005
					Result	Result	Result	Result	Result
EP075(l): Organochlorine Pesticides - Continued									
alpha-BHC	319-84-6	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
beta-BHC	319-85-7	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
gamma-BHC	58-89-9	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
delta-BHC	319-86-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Heptachlor	76-44-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Aldrin	309-00-2	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Heptachlor epoxide	1024-57-3	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
cis-Chlordane	5103-71-9	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
trans-Chlordane	5103-74-2	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Endosulfan 1	959-98-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Endrin aldehyde	7421-93-4	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Endrin	72-20-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Endosulfan 2	33213-65-9	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
4.4`-DDT	50-29-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
^ Sum of organochlorine pesticides	----	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ Chlordane	57-74-9	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
^ Sum of other organochlorine pesticides	----	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP17-26-53/0.6	TP17-26-52/0.6	TP17-26-58/0.6	TP17-26-56/0.6	TP17-26-55/0.6
				Client sampling date / time	14-Jun-2017 00:00	14-Jun-2017 00:00	14-Jun-2017 00:00	14-Jun-2017 00:00	14-Jun-2017 00:00
Compound	CAS Number	LOR	Unit		EM1707764-001	EM1707764-002	EM1707764-003	EM1707764-004	EM1707764-005
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
>C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	<50
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		76.2	83.7	76.4	78.1	74.6
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		78.3	80.0	87.6	77.8	83.2
Toluene-D8	2037-26-5	0.1	%		88.6	87.8	99.9	88.1	93.4
4-Bromofluorobenzene	460-00-4	0.1	%		76.2	78.2	81.7	76.2	83.9
EP075S: Acid Extractable Surrogates									
Phenol-d6	13127-88-3	0.025	%		71.6	83.7	74.2	83.0	87.0
2-Chlorophenol-D4	93951-73-6	0.025	%		64.7	82.4	66.9	80.7	80.8
2.4.6-Tribromophenol	118-79-6	0.025	%		81.4	94.5	84.7	94.3	85.5
EP075T: Base/Neutral Extractable Surrogates									
Nitrobenzene-D5	4165-60-0	0.025	%		72.6	87.8	74.9	85.5	90.6
1.2-Dichlorobenzene-D4	2199-69-1	0.025	%		74.6	88.4	76.5	87.0	84.8
2-Fluorobiphenyl	321-60-8	0.025	%		71.0	86.4	72.9	88.3	88.1
Anthracene-d10	1719-06-8	0.025	%		98.1	110	93.2	107	96.0
4-Terphenyl-d14	1718-51-0	0.025	%		98.3	110	92.7	107	97.2

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TP17-26-63/0.6	TP17-26-62/0.6	TP17-26-6/0.6	----	----
			Client sampling date / time	15-Jun-2017 00:00	15-Jun-2017 00:00	15-Jun-2017 00:00	----	----
Compound	CAS Number	LOR	Unit	EM1707764-008	EM1707764-009	EM1707764-010	--------	--------
				Result	Result	Result	----	----
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	**5.6**	**6.2**	**6.2**	----	----
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1	%	**14.8**	**19.7**	**15.7**	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	**9**	<5	<5	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	----	----
Copper	7440-50-8	5	mg/kg	<5	<5	<5	----	----
Lead	7439-92-1	5	mg/kg	**9**	**10**	**6**	----	----
Molybdenum	7439-98-7	2	mg/kg	<2	<2	<2	----	----
Nickel	7440-02-0	2	mg/kg	**5**	**9**	**6**	----	----
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	----	----
Silver	7440-22-4	2	mg/kg	<2	<2	<2	----	----
Tin	7440-31-5	5	mg/kg	<5	<5	<5	----	----
Zinc	7440-66-6	5	mg/kg	**17**	**7**	<5	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	----	----
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
EK026SF: Total CN by Segmented Flow Analyser								
Total Cyanide	57-12-5	1	mg/kg	<1	<1	<1	----	----
EK040T: Fluoride Total								
Fluoride	16984-48-8	40	mg/kg	**90**	**150**	**110**	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	<0.1	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Sum of monocyclic aromatic hydrocarbons	----	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TP17-26-63/0.6	TP17-26-62/0.6	TP17-26-6/0.6	----	----
			Client sampling date / time	15-Jun-2017 00:00	15-Jun-2017 00:00	15-Jun-2017 00:00	----	----
Compound	CAS Number	LOR	Unit	EM1707764-008	EM1707764-009	EM1707764-010	--------	--------
				Result	Result	Result	----	----
EP074H: Naphthalene								
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	----	----
EP074I: Volatile Halogenated Compounds								
Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	<0.01	<0.01	----	----
Methylene chloride	75-09-2	0.4	mg/kg	<0.4	<0.4	<0.4	----	----
trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	<0.01	<0.01	----	----
Chloroform	67-66-3	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	<0.01	<0.01	----	----
Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	<0.01	<0.01	----	----
1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
Trichloroethene	79-01-6	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	<0.04	<0.04	----	----
Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	<0.01	<0.01	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	<0.01	<0.01	----	----
^ Sum of volatile chlorinated hydrocarbons	----	0.01	mg/kg	<0.01	<0.01	<0.01	----	----
^ Sum of other chlorinated hydrocarbons	----	0.01	mg/kg	<0.01	<0.01	<0.01	----	----
EP075A: Phenolic Compounds (Halogenated)								
2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
^ Sum of Phenols (halogenated)	----	0.03	mg/kg	<0.03	<0.03	<0.03	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP17-26-63/0.6	TP17-26-62/0.6	TP17-26-6/0.6	----	----
				Client sampling date / time	15-Jun-2017 00:00	15-Jun-2017 00:00	15-Jun-2017 00:00	----	----
Compound	CAS Number	LOR	Unit		EM1707764-008	EM1707764-009	EM1707764-010	--------	--------
					Result	Result	Result	----	----
EP075A: Phenolic Compounds (Halogenated) - Continued									
EP075A: Phenolic Compounds (Non-halogenated)									
Phenol	108-95-2	1	mg/kg		<1	<1	<1	----	----
2-Methylphenol	95-48-7	1	mg/kg		<1	<1	<1	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	<1	----	----
2-Nitrophenol	88-75-5	1	mg/kg		<1	<1	<1	----	----
2.4-Dimethylphenol	105-67-9	1	mg/kg		<1	<1	<1	----	----
2.4-Dinitrophenol	51-28-5	5	mg/kg		<5	<5	<5	----	----
4-Nitrophenol	100-02-7	5	mg/kg		<5	<5	<5	----	----
2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg		<5	<5	<5	----	----
Dinoseb	88-85-7	5	mg/kg		<5	<5	<5	----	----
2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg		<5	<5	<5	----	----
^ Sum of Phenols (non-halogenated)	----	1	mg/kg		<1	<1	<1	----	----
EP075B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	----	----
EP075I: Organochlorine Pesticides									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP17-26-63/0.6	TP17-26-62/0.6	TP17-26-6/0.6	----	----
				Client sampling date / time	15-Jun-2017 00:00	15-Jun-2017 00:00	15-Jun-2017 00:00	----	----
Compound	CAS Number	LOR	Unit		EM1707764-008	EM1707764-009	EM1707764-010	--------	--------
					Result	Result	Result	----	----
EP075l: Organochlorine Pesticides - Continued									
alpha-BHC	319-84-6	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
beta-BHC	319-85-7	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
gamma-BHC	58-89-9	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
delta-BHC	319-86-8	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Heptachlor	76-44-8	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Aldrin	309-00-2	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Heptachlor epoxide	1024-57-3	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
cis-Chlordane	5103-71-9	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
trans-Chlordane	5103-74-2	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Endosulfan 1	959-98-8	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Dieldrin	60-57-1	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Endrin aldehyde	7421-93-4	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Endrin	72-20-8	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Endosulfan 2	33213-65-9	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Endosulfan sulfate	1031-07-8	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
4.4`-DDT	50-29-3	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Methoxychlor	72-43-5	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
^ Sum of organochlorine pesticides	----	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
^ Chlordane	57-74-9	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
^ Sum of other organochlorine pesticides	----	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	----	----
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP17-26-63/0.6	TP17-26-62/0.6	TP17-26-6/0.6	----	----
				Client sampling date / time	15-Jun-2017 00:00	15-Jun-2017 00:00	15-Jun-2017 00:00	----	----
Compound	CAS Number	LOR	Unit		EM1707764-008	EM1707764-009	EM1707764-010	--------	--------
					Result	Result	Result	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	----	----
>C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	----	----
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		72.0	80.5	75.5	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		78.1	89.3	87.6	----	----
Toluene-D8	2037-26-5	0.1	%		94.2	104	96.7	----	----
4-Bromofluorobenzene	460-00-4	0.1	%		81.9	82.5	85.2	----	----
EP075S: Acid Extractable Surrogates									
Phenol-d6	13127-88-3	0.025	%		70.5	83.1	82.8	----	----
2-Chlorophenol-D4	93951-73-6	0.025	%		67.1	81.7	79.3	----	----
2.4.6-Tribromophenol	118-79-6	0.025	%		70.7	85.1	82.0	----	----
EP075T: Base/Neutral Extractable Surrogates									
Nitrobenzene-D5	4165-60-0	0.025	%		78.8	91.3	89.2	----	----
1.2-Dichlorobenzene-D4	2199-69-1	0.025	%		73.3	86.7	83.3	----	----
2-Fluorobiphenyl	321-60-8	0.025	%		74.1	88.6	86.4	----	----
Anthracene-d10	1719-06-8	0.025	%		79.3	89.9	93.0	----	----
4-Terphenyl-d14	1718-51-0	0.025	%		78.8	95.4	94.1	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	RB1/140617	TB2/140617	RB2/150617	----	----
				Client sampling date / time	14-Jun-2017 00:00	14-Jun-2017 00:00	15-Jun-2017 00:00	----	----
Compound	CAS Number	LOR	Unit		EM1707764-006	EM1707764-007	EM1707764-011	--------	--------
					Result	Result	Result	----	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	----	<0.001	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	----	<0.0001	----	----
Copper	7440-50-8	0.001	mg/L		<0.001	----	<0.001	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	----	<0.001	----	----
Molybdenum	7439-98-7	0.001	mg/L		<0.001	----	<0.001	----	----
Nickel	7440-02-0	0.001	mg/L		<0.001	----	<0.001	----	----
Selenium	7782-49-2	0.01	mg/L		<0.01	----	<0.01	----	----
Silver	7440-22-4	0.001	mg/L		<0.001	----	<0.001	----	----
Tin	7440-31-5	0.001	mg/L		<0.001	----	<0.001	----	----
Zinc	7440-66-6	0.005	mg/L		<0.005	----	<0.005	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	----	<0.0001	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		----	<20	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		----	<20	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		----	<20	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		----	<1	----	----	----
Toluene	108-88-3	2	µg/L		----	<2	----	----	----
Ethylbenzene	100-41-4	2	µg/L		----	<2	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		----	<2	----	----	----
ortho-Xylene	95-47-6	2	µg/L		----	<2	----	----	----
^ Total Xylenes	1330-20-7	2	µg/L		----	<2	----	----	----
^ Sum of BTEX	----	1	µg/L		----	<1	----	----	----
Naphthalene	91-20-3	5	µg/L		----	<5	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		----	102	----	----	----
Toluene-D8	2037-26-5	2	%		----	100	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		----	108	----	----	----

Surrogate Control Limits

Sub-Matrix: **SOIL**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	41	122
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	59	119
Toluene-D8	2037-26-5	55	117
4-Bromofluorobenzene	460-00-4	59	123
EP075S: Acid Extractable Surrogates			
Phenol-d6	13127-88-3	28	134
2-Chlorophenol-D4	93951-73-6	27	123
2.4.6-Tribromophenol	118-79-6	25	149
EP075T: Base/Neutral Extractable Surrogates			
Nitrobenzene-D5	4165-60-0	29	125
1.2-Dichlorobenzene-D4	2199-69-1	31	117
2-Fluorobiphenyl	321-60-8	44	136
Anthracene-d10	1719-06-8	53	133
4-Terphenyl-d14	1718-51-0	59	141

Sub-Matrix: **WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	129
Toluene-D8	2037-26-5	70	125
4-Bromofluorobenzene	460-00-4	71	129

ALS Environmental

Automated Guideline Comparison Report

EPA Victoria Publication IWRG 621 (2009) - Table 2: Soil Hazard Categorisation

Work Order	: **EM1707764**	Page	: 1 of 14
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLFA NAZARIO		
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: onazario@pb.com.au	E-mail	: ----
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9600
Facsimile	: +61 03 9861 1144	Facsimile	: +61-3-8549 9601
Project	: 2135645A	Date Received	: 15-Jun-2017 17:05
Order number	: ----	Date Analysed	: 16-Jun-2017
C-O-C number	: 85406	Date Issued	: 21-Jun-2017 15:45
No. of samples received	: 11		
No. of samples analysed	: 11	Quote number	: ME-525-16

General Comments

This guideline comparison report **only** provides evaluation of total concentration data against upper limit thresholds for the 'Fill Material', 'C', 'B' Categories in Table 2 of EPA Publication IWRG621.

This guideline comparison report is **NOT** a soil classification report. Classification of soils as Fill Material, Category C, Category B or Category A requires consideration of a number of other factors including preliminary site investigation, sampling density and statistical calculations, as set out in EPA Publication IWRG 702.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

This guideline comparison report only provides evaluation data where chemical parameters specifically listed within the IWRG621 (2009) guideline are analysed by ALS using the **P-16 package in full**.

Red shading is applied where the result is equal to or greater than the guideline upper limit and/or equal to or lower than the guideline lower limit. Red shading is not applied to the 'Summary of Thresholds Reached or Exceeded'.

For the 'Summary of Thresholds Reached or Exceeded' to accurately function, all samples must be analysed and included in the 'Analytical Results' section of the following report. Please verify that all required IDs are listed and analysed.

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Summary of Thresholds Reached or Exceeded

EPA Victoria Publication IWRG 621 (2009)

Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Client Sample ID	*ALS Sample ID*	*Compound*	*Method*	*LOR*	*Limits*	*Result*
TP17-26-58/0.6	**EM1707764-003**	Arsenic	EG005T	5	*< 20 mg/kg*	**20 mg/kg**

Analytical Results

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	TP17-26-53/0.6	TP17-26-52/0.6	TP17-26-58/0.6	TP17-26-56/0.6	TP17-26-55/0.6
Client sample ID										
Sampling date/time						14-Jun-2017	14-Jun-2017	14-Jun-2017	14-Jun-2017	14-Jun-2017
						EM1707764-001	EM1707764-002	EM1707764-003	EM1707764-004	EM1707764-005
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	2	12.5	**5.3**	**6.8**	**6.4**	**7.7**	**7.1**
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	2000	<5	<5	**20**	<5	**11**
Cadmium	EG005T	1	mg/kg	----	400	<1	<1	<1	<1	<1
Copper	EG005T	5	mg/kg	----	20000	<5	<5	**13**	<5	<5
Lead	EG005T	5	mg/kg	----	6000	<5	**6**	**35**	**5**	**5**
Molybdenum	EG005T	2	mg/kg	----	4000	<2	<2	<2	<2	<2
Nickel	EG005T	2	mg/kg	----	12000	<2	**2**	**14**	**2**	**5**
Selenium	EG005T	5	mg/kg	----	200	<5	<5	<5	<5	<5
Silver	EG005T	2	mg/kg	----	720	<2	<2	<2	<2	<2
Zinc	EG005T	5	mg/kg	----	140000	<5	<5	**34**	<5	<5
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	300	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	2000	<0.5	<0.5	<0.5	<0.5	<0.5
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	10000	<1	<1	<1	<1	<1
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	40000	**70**	<40	**80**	**40**	**190**
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	16	<0.2	<0.2	<0.2	<0.2	<0.2
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	240	<0.2	<0.2	<0.2	<0.2	<0.2
EP074I: Volatile Halogenated Compounds										
Vinyl chloride	EP074-UT	0.02	mg/kg	----	4.8	<0.02	<0.02	<0.02	<0.02	<0.02
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	11	<0.02	<0.02	<0.02	<0.02	<0.02
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	50	<0.01	<0.01	<0.01	<0.01	<0.01
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	320	<0.03	<0.03	<0.03	<0.03	<0.03
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	2200	<1	<1	<1	<1	<1
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	20	<0.5	<0.5	<0.5	<0.5	<0.5

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

				Client sample ID	Guideline Lower Limit	Guideline Upper Limit	TP17-26-53/0.6	TP17-26-52/0.6	TP17-26-58/0.6	TP17-26-56/0.6	TP17-26-55/0.6
				Sampling date/time			14-Jun-2017	14-Jun-2017	14-Jun-2017	14-Jun-2017	14-Jun-2017
Compound	*Method*	*LOR*	*Unit*				EM1707764-001	EM1707764-002	EM1707764-003	EM1707764-004	EM1707764-005
EP075B: Polynuclear Aromatic Hydrocarbons - Continued											
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg		----	400	<0.5	<0.5	<0.5	<0.5	<0.5
EP075I: Organochlorine Pesticides											
Heptachlor	EP075-EM	0.03	mg/kg		----	4.8	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg		----	4.8	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg		----	50	<0.05	<0.05	<0.05	<0.05	<0.05
Chlordane	EP075-EM-SUM	0.03	mg/kg		----	16	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg		----	50	<0.03	<0.03	<0.03	<0.03	<0.03
EP080/071: Total Petroleum Hydrocarbons											
C6 - C9 Fraction	EP074-UT	10	mg/kg		----	2600	<10	<10	<10	<10	<10
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg		----	40000	<50	<50	<50	<50	<50

Soil Hazard Categorisation and Management
Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Client sample ID: TP17-26-53/0.6	TP17-26-52/0.6	TP17-26-58/0.6	TP17-26-56/0.6	TP17-26-55/0.6
			Sampling date/time			14-Jun-2017	14-Jun-2017	14-Jun-2017	14-Jun-2017	14-Jun-2017
						EM1707764-001	EM1707764-002	EM1707764-003	EM1707764-004	EM1707764-005
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	4	9	**5.3**	**6.8**	**6.4**	**7.7**	**7.1**
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	500	<5	<5	**20**	<5	**11**
Cadmium	EG005T	1	mg/kg	----	100	<1	<1	<1	<1	<1
Copper	EG005T	5	mg/kg	----	5000	<5	<5	**13**	<5	<5
Lead	EG005T	5	mg/kg	----	1500	<5	**6**	**35**	**5**	**5**
Molybdenum	EG005T	2	mg/kg	----	1000	<2	<2	<2	<2	<2
Nickel	EG005T	2	mg/kg	----	3000	<2	**2**	**14**	**2**	**5**
Selenium	EG005T	5	mg/kg	----	50	<5	<5	<5	<5	<5
Silver	EG005T	2	mg/kg	----	180	<2	<2	<2	<2	<2
Tin	EG005T	5	mg/kg	----	500	<5	<5	<5	<5	<5
Zinc	EG005T	5	mg/kg	----	35000	<5	<5	**34**	<5	<5
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	75	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	500	<0.5	<0.5	<0.5	<0.5	<0.5
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	2500	<1	<1	<1	<1	<1
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	10000	**70**	<40	**80**	**40**	**190**
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	4	<0.2	<0.2	<0.2	<0.2	<0.2
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	70	<0.2	<0.2	<0.2	<0.2	<0.2
EP074I: Volatile Halogenated Compounds										
Vinyl chloride	EP074-UT	0.02	mg/kg	----	1.2	<0.02	<0.02	<0.02	<0.02	<0.02
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	2.8	<0.02	<0.02	<0.02	<0.02	<0.02
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	10	<0.01	<0.01	<0.01	<0.01	<0.01
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	10	<0.03	<0.03	<0.03	<0.03	<0.03
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	560	<1	<1	<1	<1	<1
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	5	<0.5	<0.5	<0.5	<0.5	<0.5

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

				Client sample ID	Guideline Lower Limit	Guideline Upper Limit	TP17-26-53/0.6	TP17-26-52/0.6	TP17-26-58/0.6	TP17-26-56/0.6	TP17-26-55/0.6
				Sampling date/time			14-Jun-2017	14-Jun-2017	14-Jun-2017	14-Jun-2017	14-Jun-2017
Compound	*Method*	*LOR*	*Unit*				EM1707764-001	EM1707764-002	EM1707764-003	EM1707764-004	EM1707764-005
EP075B: Polynuclear Aromatic Hydrocarbons - Continued											
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg		----	100	<0.5	<0.5	<0.5	<0.5	<0.5
EP075I: Organochlorine Pesticides											
Heptachlor	EP075-EM	0.03	mg/kg		----	1.2	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg		----	1.2	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg		----	50	<0.05	<0.05	<0.05	<0.05	<0.05
Chlordane	EP075-EM-SUM	0.03	mg/kg		----	4	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg		----	10	<0.03	<0.03	<0.03	<0.03	<0.03
EP080/071: Total Petroleum Hydrocarbons											
C6 - C9 Fraction	EP074-UT	10	mg/kg		----	650	<10	<10	<10	<10	<10
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg		----	10000	<50	<50	<50	<50	<50

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

				Client sample ID		TP17-26-53/0.6	TP17-26-52/0.6	TP17-26-58/0.6	TP17-26-56/0.6	TP17-26-55/0.6
				Sampling date/time		14-Jun-2017	14-Jun-2017	14-Jun-2017	14-Jun-2017	14-Jun-2017
Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	EM1707764-001	EM1707764-002	EM1707764-003	EM1707764-004	EM1707764-005
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	4	9	**5.3**	**6.8**	**6.4**	**7.7**	**7.1**
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	20	<5	<5	**20**	<5	**11**
Cadmium	EG005T	1	mg/kg	----	3	<1	<1	<1	<1	<1
Copper	EG005T	5	mg/kg	----	100	<5	<5	**13**	<5	<5
Lead	EG005T	5	mg/kg	----	300	<5	**6**	**35**	**5**	**5**
Molybdenum	EG005T	2	mg/kg	----	40	<2	<2	<2	<2	<2
Nickel	EG005T	2	mg/kg	----	60	<2	**2**	**14**	**2**	**5**
Selenium	EG005T	5	mg/kg	----	10	<5	<5	<5	<5	<5
Silver	EG005T	2	mg/kg	----	10	<2	<2	<2	<2	<2
Tin	EG005T	5	mg/kg	----	50	<5	<5	<5	<5	<5
Zinc	EG005T	5	mg/kg	----	200	<5	<5	**34**	<5	<5
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	1	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	1	<0.5	<0.5	<0.5	<0.5	<0.5
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	50	<1	<1	<1	<1	<1
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	450	**70**	<40	**80**	**40**	**190**
EP066: Polychlorinated Biphenyls (PCB)										
Total Polychlorinated biphenyls	EP066-EM	0.1	mg/kg	----	2	<0.1	<0.1	<0.1	<0.1	<0.1
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	1	<0.2	<0.2	<0.2	<0.2	<0.2
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	7	<0.2	<0.2	<0.2	<0.2	<0.2
EP074I: Volatile Halogenated Compounds										
Sum of volatile chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	1	<0.01	<0.01	<0.01	<0.01	<0.01
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	1	<0.03	<0.03	<0.03	<0.03	<0.03
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	60	<1	<1	<1	<1	<1
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	1	<0.5	<0.5	<0.5	<0.5	<0.5

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

				Client sample ID	Guideline Lower Limit	Guideline Upper Limit	TP17-26-53/0.6	TP17-26-52/0.6	TP17-26-58/0.6	TP17-26-56/0.6	TP17-26-55/0.6
				Sampling date/time			14-Jun-2017	14-Jun-2017	14-Jun-2017	14-Jun-2017	14-Jun-2017
Compound	*Method*	*LOR*	*Unit*				EM1707764-001	EM1707764-002	EM1707764-003	EM1707764-004	EM1707764-005
EP075B: Polynuclear Aromatic Hydrocarbons - Continued											
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg		----	20	<0.5	<0.5	<0.5	<0.5	<0.5
EP075I: Organochlorine Pesticides											
Sum of organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg		----	1	<0.03	<0.03	<0.03	<0.03	<0.03
EP080/071: Total Petroleum Hydrocarbons											
C6 - C9 Fraction	EP074-UT	10	mg/kg		----	100	<10	<10	<10	<10	<10
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg		----	1000	<50	<50	<50	<50	<50

Soil Hazard Categorisation and Management
Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Client sample ID / Sampling date/time	Guideline Lower Limit	Guideline Upper Limit	TP17-26-63/0.6 15-Jun-2017 EM1707764-008	TP17-26-62/0.6 15-Jun-2017 EM1707764-009	TP17-26-6/0.6 15-Jun-2017 EM1707764-010	---- ---- --------	---- ---- --------
EA001: pH in soil using 0.01M CaCl extract											
pH (CaCl2)	EA001	0.1	pH Unit		2	12.5	**5.6**	**6.2**	**6.2**	----	----
EG005T: Total Metals by ICP-AES											
Arsenic	EG005T	5	mg/kg		----	2000	**9**	<5	<5	----	----
Cadmium	EG005T	1	mg/kg		----	400	<1	<1	<1	----	----
Copper	EG005T	5	mg/kg		----	20000	<5	<5	<5	----	----
Lead	EG005T	5	mg/kg		----	6000	**9**	**10**	**6**	----	----
Molybdenum	EG005T	2	mg/kg		----	4000	<2	<2	<2	----	----
Nickel	EG005T	2	mg/kg		----	12000	**5**	**9**	**6**	----	----
Selenium	EG005T	5	mg/kg		----	200	<5	<5	<5	----	----
Silver	EG005T	2	mg/kg		----	720	<2	<2	<2	----	----
Zinc	EG005T	5	mg/kg		----	140000	**17**	**7**	<5	----	----
EG035T: Total Recoverable Mercury by FIMS											
Mercury	EG035T	0.1	mg/kg		----	300	<0.1	<0.1	<0.1	----	----
EG048: Hexavalent Chromium (Alkaline Digest)											
Hexavalent Chromium	EG048G	0.5	mg/kg		----	2000	<0.5	<0.5	<0.5	----	----
EK026SF: Total CN by Segmented Flow Analyser											
Total Cyanide	EK026SF	1	mg/kg		----	10000	<1	<1	<1	----	----
EK040T: Fluoride Total											
Fluoride	EK040T	40	mg/kg		----	40000	**90**	**150**	**110**	----	----
EP074A: Monocyclic Aromatic Hydrocarbons											
Benzene	EP074-UT	0.2	mg/kg		----	16	<0.2	<0.2	<0.2	----	----
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg		----	240	<0.2	<0.2	<0.2	----	----
EP074I: Volatile Halogenated Compounds											
Vinyl chloride	EP074-UT	0.02	mg/kg		----	4.8	<0.02	<0.02	<0.02	----	----
Hexachlorobutadiene	EP074-UT	0.02	mg/kg		----	11	<0.02	<0.02	<0.02	----	----
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg		----	50	<0.01	<0.01	<0.01	----	----
EP075A: Phenolic Compounds (Halogenated)											
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg		----	320	<0.03	<0.03	<0.03	----	----
EP075A: Phenolic Compounds (Non-halogenated)											
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg		----	2200	<1	<1	<1	----	----
EP075B: Polynuclear Aromatic Hydrocarbons											
Benzo(a)pyrene	EP075-EM	0.5	mg/kg		----	20	<0.5	<0.5	<0.5	----	----
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg		----	400	<0.5	<0.5	<0.5	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Client sample ID	TP17-26-63/0.6	TP17-26-62/0.6	TP17-26-6/0.6	----	----
						Sampling date/time	15-Jun-2017	15-Jun-2017	15-Jun-2017	----	----
							EM1707764-008	EM1707764-009	EM1707764-010	--------	--------
EP075I: Organochlorine Pesticides											
Heptachlor	EP075-EM	0.03	mg/kg	----	4.8		<0.03	<0.03	<0.03	----	----
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	4.8		<0.03	<0.03	<0.03	----	----
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50		<0.05	<0.05	<0.05	----	----
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	16		<0.03	<0.03	<0.03	----	----
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	50		<0.03	<0.03	<0.03	----	----
EP080/071: Total Petroleum Hydrocarbons											
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	2600		<10	<10	<10	----	----
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	40000		<50	<50	<50	----	----

Soil Hazard Categorisation and Management
Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Client sample ID: TP17-26-63/0.6	TP17-26-62/0.6	TP17-26-6/0.6	----	----
			Sampling date/time			15-Jun-2017	15-Jun-2017	15-Jun-2017	----	----
						EM1707764-008	EM1707764-009	EM1707764-010	--------	--------
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	4	9	**5.6**	**6.2**	**6.2**	----	----
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	500	**9**	<5	<5	----	----
Cadmium	EG005T	1	mg/kg	----	100	<1	<1	<1	----	----
Copper	EG005T	5	mg/kg	----	5000	<5	<5	<5	----	----
Lead	EG005T	5	mg/kg	----	1500	**9**	**10**	**6**	----	----
Molybdenum	EG005T	2	mg/kg	----	1000	<2	<2	<2	----	----
Nickel	EG005T	2	mg/kg	----	3000	**5**	**9**	**6**	----	----
Selenium	EG005T	5	mg/kg	----	50	<5	<5	<5	----	----
Silver	EG005T	2	mg/kg	----	180	<2	<2	<2	----	----
Tin	EG005T	5	mg/kg	----	500	<5	<5	<5	----	----
Zinc	EG005T	5	mg/kg	----	35000	**17**	**7**	<5	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	75	<0.1	<0.1	<0.1	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	500	<0.5	<0.5	<0.5	----	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	2500	<1	<1	<1	----	----
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	10000	**90**	**150**	**110**	----	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	4	<0.2	<0.2	<0.2	----	----
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	70	<0.2	<0.2	<0.2	----	----
EP074I: Volatile Halogenated Compounds										
Vinyl chloride	EP074-UT	0.02	mg/kg	----	1.2	<0.02	<0.02	<0.02	----	----
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	2.8	<0.02	<0.02	<0.02	----	----
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	10	<0.01	<0.01	<0.01	----	----
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	10	<0.03	<0.03	<0.03	----	----
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	560	<1	<1	<1	----	----
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	5	<0.5	<0.5	<0.5	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Client sample ID: TP17-26-63/0.6	TP17-26-62/0.6	TP17-26-6/0.6	----	----
						Sampling date/time: 15-Jun-2017	15-Jun-2017	15-Jun-2017	----	----
						EM1707764-008	EM1707764-009	EM1707764-010	--------	--------
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	100	<0.5	<0.5	<0.5	----	----
EP075I: Organochlorine Pesticides										
Heptachlor	EP075-EM	0.03	mg/kg	----	1.2	<0.03	<0.03	<0.03	----	----
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	1.2	<0.03	<0.03	<0.03	----	----
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50	<0.05	<0.05	<0.05	----	----
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	4	<0.03	<0.03	<0.03	----	----
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	10	<0.03	<0.03	<0.03	----	----
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	650	<10	<10	<10	----	----
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	10000	<50	<50	<50	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

				Client sample ID		TP17-26-63/0.6	TP17-26-62/0.6	TP17-26-6/0.6	----	----
				Sampling date/time		15-Jun-2017	15-Jun-2017	15-Jun-2017	----	----
Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	EM1707764-008	EM1707764-009	EM1707764-010	--------	--------
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	4	9	**5.6**	**6.2**	**6.2**	----	----
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	20	**9**	<5	<5	----	----
Cadmium	EG005T	1	mg/kg	----	3	<1	<1	<1	----	----
Copper	EG005T	5	mg/kg	----	100	<5	<5	<5	----	----
Lead	EG005T	5	mg/kg	----	300	**9**	**10**	**6**	----	----
Molybdenum	EG005T	2	mg/kg	----	40	<2	<2	<2	----	----
Nickel	EG005T	2	mg/kg	----	60	**5**	**9**	**6**	----	----
Selenium	EG005T	5	mg/kg	----	10	<5	<5	<5	----	----
Silver	EG005T	2	mg/kg	----	10	<2	<2	<2	----	----
Tin	EG005T	5	mg/kg	----	50	<5	<5	<5	----	----
Zinc	EG005T	5	mg/kg	----	200	**17**	**7**	<5	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	1	<0.1	<0.1	<0.1	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	1	<0.5	<0.5	<0.5	----	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	50	<1	<1	<1	----	----
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	450	**90**	**150**	**110**	----	----
EP066: Polychlorinated Biphenyls (PCB)										
Total Polychlorinated biphenyls	EP066-EM	0.1	mg/kg	----	2	<0.1	<0.1	<0.1	----	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	1	<0.2	<0.2	<0.2	----	----
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	7	<0.2	<0.2	<0.2	----	----
EP074I: Volatile Halogenated Compounds										
Sum of volatile chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	1	<0.01	<0.01	<0.01	----	----
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	1	<0.03	<0.03	<0.03	----	----
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	60	<1	<1	<1	----	----
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	1	<0.5	<0.5	<0.5	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

				Client sample ID	Guideline Lower Limit	Guideline Upper Limit	TP17-26-63/0.6	TP17-26-62/0.6	TP17-26-6/0.6	----	----
				Sampling date/time			15-Jun-2017	15-Jun-2017	15-Jun-2017	----	----
Compound	*Method*	*LOR*	*Unit*				EM1707764-008	EM1707764-009	EM1707764-010	--------	--------
EP075B: Polynuclear Aromatic Hydrocarbons - Continued											
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	20		<0.5	<0.5	<0.5	----	----
EP075I: Organochlorine Pesticides											
Sum of organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	1		<0.03	<0.03	<0.03	----	----
EP080/071: Total Petroleum Hydrocarbons											
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	100		<10	<10	<10	----	----
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	1000		<50	<50	<50	----	----

Note: Red shading is applied where the result is equal to or greater than the guideline upper limit and/or equal to or lower than the guideline lower limit.

QUALITY CONTROL REPORT

Work Order	: **EM1707764**	Page	: 1 of 16
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLFA NAZARIO	Contact	: Steven McGrath
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9600
Project	: 2135645A	Date Samples Received	: 15-Jun-2017
Order number	: ----	Date Analysis Commenced	: 16-Jun-2017
C-O-C number	: 85406	Issue Date	: 21-Jun-2017
Sampler	: AH		
Site	: Site 26		
Quote number	: ME-525-16		
No. of samples received	: 11		
No. of samples analysed	: 11		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	Senior Semivolatile Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA001: pH in soil using 0.01M CaCl extract (QC Lot: 951075)									
EM1707721-008	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	6.9	6.9	0.00	0% - 20%
EM1707764-010	TP17-26-6/0.6	EA001: pH (CaCl2)	----	0.1	pH Unit	6.2	6.2	0.00	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 949299)									
EM1707758-007	Anonymous	EA055: Moisture Content	----	1	%	16.8	16.3	3.04	0% - 50%
EM1707765-001	Anonymous	EA055: Moisture Content	----	1	%	17.3	14.3	19.3	0% - 50%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 951096)									
EM1707661-046	Anonymous	EA055: Moisture Content	----	1	%	21.0	21.8	3.51	0% - 20%
EM1707835-002	Anonymous	EA055: Moisture Content	----	1	%	25.2	26.9	6.61	0% - 20%
EG005T: Total Metals by ICP-AES (QC Lot: 951663)									
EM1707764-001	TP17-26-53/0.6	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Tin	7440-31-5	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.00	No Limit
EM1707772-006	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	80	86	7.85	0% - 20%
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	8	6	27.7	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG005T: Total Metals by ICP-AES (QC Lot: 951663) - continued									
EM1707772-006	Anonymous	EG005T: Copper	7440-50-8	5	mg/kg	46	33	34.2	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	24	12	71.1	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Tin	7440-31-5	5	mg/kg	5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	244	200	19.9	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 951664)									
EM1707764-001	TP17-26-53/0.6	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EM1707772-006	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EG048: Hexavalent Chromium (Alkaline Digest) (QC Lot: 951056)									
EM1707714-001	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1707764-001	TP17-26-53/0.6	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EK026SF: Total CN by Segmented Flow Analyser (QC Lot: 952047)									
EM1707721-009	Anonymous	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.00	No Limit
EM1707764-008	TP17-26-63/0.6	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.00	No Limit
EK040T: Fluoride Total (QC Lot: 948390)									
EM1707756-001	Anonymous	EK040T: Fluoride	16984-48-8	40	mg/kg	40	<40	0.00	No Limit
EM1707764-004	TP17-26-56/0.6	EK040T: Fluoride	16984-48-8	40	mg/kg	40	<40	0.00	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 948303)									
EM1707721-001	Anonymous	EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EM1707764-004	TP17-26-56/0.6	EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 948305)									
EM1707721-005	Anonymous	EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1707764-009	TP17-26-62/0.6	EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074H: Naphthalene (QC Lot: 948305)									
EM1707721-005	Anonymous	EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EM1707764-009	TP17-26-62/0.6	EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EP074I: Volatile Halogenated Compounds (QC Lot: 948305)									

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074I: Volatile Halogenated Compounds (QC Lot: 948305) - continued									
EM1707721-005	Anonymous	EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	<0.04	0.00	No Limit
		EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	<0.4	0.00	No Limit
EM1707764-009	TP17-26-62/0.6	EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	<0.04	0.00	No Limit
		EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	<0.4	0.00	No Limit
EP075A: Phenolic Compounds (Halogenated) (QC Lot: 948301)									
EM1707721-001	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075A: Phenolic Compounds (Halogenated) (QC Lot: 948301) - continued									
EM1707721-001	Anonymous	EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EM1707764-004	TP17-26-56/0.6	EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP075A: Phenolic Compounds (Non-halogenated) (QC Lot: 948301)									
EM1707721-001	Anonymous	EP075-EM: Phenol	108-95-2	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	0.00	No Limit
EM1707764-004	TP17-26-56/0.6	EP075-EM: Phenol	108-95-2	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075B: Polynuclear Aromatic Hydrocarbons (QC Lot: 948301)									
EM1707721-001	Anonymous	EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1707764-004	TP17-26-56/0.6	EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP075I: Organochlorine Pesticides (QC Lot: 948301)									
EM1707721-001	Anonymous	EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075I: Organochlorine Pesticides (QC Lot: 948301) - continued									
EM1707721-001	Anonymous	EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EM1707764-004	TP17-26-56/0.6	EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 948302)									
EM1707721-001	Anonymous	EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EM1707764-004	TP17-26-56/0.6	EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 948305)									
EM1707721-005	Anonymous	EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EM1707764-009	TP17-26-62/0.6	EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 948302)									
EM1707721-001	Anonymous	EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EM1707764-004	TP17-26-56/0.6	EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 948305)									
EM1707721-005	Anonymous	EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
		EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	0.00	No Limit
EM1707764-009	TP17-26-62/0.6	EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
		EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	0.00	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG020T: Total Metals by ICP-MS (QC Lot: 948328)									
EM1707749-015	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	0.0016	0.0015	0.00	0% - 50%
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.085	0.088	3.08	0% - 20%
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.002	0.002	0.00	No Limit
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.093	0.094	0.00	0% - 20%
		EG020A-T: Tin	7440-31-5	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.491	0.502	2.20	0% - 20%
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EG020T: Total Metals by ICP-MS (QC Lot: 948329)									
EM1707764-006	RB1/140617	EG020B-T: Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 953617)									
EM1707764-006	RB1/140617	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EM1707796-006	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 947728)									
EM1707687-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	170000	164000	3.71	0% - 20%
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 947728)									
EM1707687-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	164000	158000	3.72	0% - 20%
EP080: BTEXN (QC Lot: 947728)									
EM1707687-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<100	<100	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	96600	87600	9.81	0% - 20%

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080: BTEXN (QC Lot: 947728) - continued									
EM1707687-001	Anonymous	EP080: Ethylbenzene	100-41-4	2	µg/L	7680	7370	4.06	0% - 20%
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	32800	31600	3.63	0% - 20%
		EP080: ortho-Xylene	95-47-6	2	µg/L	14800	14400	3.19	0% - 20%
		EP080: Naphthalene	91-20-3	5	µg/L	<100	<100	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 951663)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	91.0	79	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	86.6	85	109
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	90.2	84	116
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	87.7	85	107
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	7.9 mg/kg	101	86	112
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	91.4	89	111
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	102	93	109
EG005T: Silver	7440-22-4	2	mg/kg	<2	2.1 mg/kg	93.1	80	108
EG005T: Tin	7440-31-5	5	mg/kg	<5	5.2 mg/kg	105	92	114
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	95.7	89	111
EG035T: Total Recoverable Mercury by FIMS (QCLot: 951664)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	96.9	85	103
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 951056)								
EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	40 mg/kg	86.9	80	120
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 952047)								
EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	20 mg/kg	97.2	80	110
EK040T: Fluoride Total (QCLot: 948390)								
EK040T: Fluoride	16984-48-8	40	mg/kg	<40	950 mg/kg	82.5	76	108
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 948303)								
EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	100.0	63	133
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 948305)								
EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	2.1 mg/kg	91.8	74	118
EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	2.1 mg/kg	106	70	118
EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2.1 mg/kg	91.7	69	117
EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4.2 mg/kg	92.1	68	116
EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	2.1 mg/kg	92.2	71	117
EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2.1 mg/kg	92.9	70	116
EP074H: Naphthalene (QCLot: 948305)								
EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	0.6 mg/kg	92.0	74	116
EP074I: Volatile Halogenated Compounds (QCLot: 948305)								
EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	0.1 mg/kg	89.8	49	133
EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	0.1 mg/kg	93.4	62	127

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP074I: Volatile Halogenated Compounds (QCLot: 948305) - continued								
EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	2.1 mg/kg	88.2	65	131
EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	0.1 mg/kg	90.2	68	124
EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	0.1 mg/kg	92.7	74	118
EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	0.1 mg/kg	86.1	72	118
EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	0.1 mg/kg	93.7	67	119
EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	0.1 mg/kg	93.3	65	119
EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	0.1 mg/kg	106	70	122
EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	0.1 mg/kg	91.0	72	124
EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	0.1 mg/kg	106	74	122
EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	0.1 mg/kg	91.4	58	120
EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	0.1 mg/kg	93.4	70	119
EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	0.1 mg/kg	96.1	71	125
EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	0.1 mg/kg	99.8	61	125
EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	0.1 mg/kg	91.8	70	122
EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	0.1 mg/kg	91.8	61	118
EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	0.1 mg/kg	93.2	67	117
EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	0.1 mg/kg	93.3	53	127
EP075A: Phenolic Compounds (Halogenated) (QCLot: 948301)								
EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	0.5 mg/kg	95.2	43	119
EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	0.5 mg/kg	113	44	131
EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	0.5 mg/kg	89.1	43	122
EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	0.5 mg/kg	122	50	129
EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	0.5 mg/kg	80.9	44	128
EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	0.5 mg/kg	105	44	126
EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	0.5 mg/kg	103	46	126
EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/5 8-90-2	0.05	mg/kg	<0.05	1 mg/kg	99.8	44	124
EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	1 mg/kg	# 130	36	124
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 948301)								
EP075-EM: Phenol	108-95-2	1	mg/kg	<1	0.5 mg/kg	# 123	41	120
EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	0.5 mg/kg	95.7	41	131
EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	1 mg/kg	102	43	130
EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	0.5 mg/kg	115	49	130
EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	0.5 mg/kg	78.2	37	119
EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	3 mg/kg	40.6	23	125
EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	3 mg/kg	117	49	133
EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	3 mg/kg	62.0	47	125
EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	3 mg/kg	104	48	123
EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	2.5 mg/kg	46.5	12	132

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 948301)								
EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	0.5 mg/kg	91.6	44	122
EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	0.5 mg/kg	99.8	54	126
EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	0.5 mg/kg	89.8	46	126
EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	0.5 mg/kg	101	51	125
EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	0.5 mg/kg	103	57	127
EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	0.5 mg/kg	73.1	55	127
EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	0.5 mg/kg	108	57	131
EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	0.5 mg/kg	111	57	131
EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	0.5 mg/kg	91.1	56	132
EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	0.5 mg/kg	105	58	134
EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	1 mg/kg	115	55	133
EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	0.5 mg/kg	113	51	135
EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	0.5 mg/kg	95.4	55	137
EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	0.5 mg/kg	92.7	54	136
EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	0.5 mg/kg	97.0	55	137
EP075I: Organochlorine Pesticides (QCLot: 948301)								
EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	0.5 mg/kg	99.8	54	130
EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	0.5 mg/kg	111	54	130
EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	0.5 mg/kg	103	54	134
EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	0.5 mg/kg	103	54	132
EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	0.5 mg/kg	105	55	131
EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	0.5 mg/kg	110	54	128
EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	0.5 mg/kg	112	54	128
EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	0.5 mg/kg	109	56	130
EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	0.5 mg/kg	107	56	130
EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	0.5 mg/kg	109	55	131
EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	0.5 mg/kg	104	53	133
EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	93.0	54	130
EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	0.5 mg/kg	115	57	133
EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	0.5 mg/kg	119	28	174
EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	0.5 mg/kg	118	40	148
EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	0.5 mg/kg	106	56	138
EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	107	57	135
EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	0.5 mg/kg	112	51	133
EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	0.5 mg/kg	106	51	133
EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	0.5 mg/kg	102	48	136
EP080/071: Total Petroleum Hydrocarbons (QCLot: 948302)								
EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	837 mg/kg	98.8	72	130

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 948302) - continued								
EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	3061 mg/kg	95.8	77	126
EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	1592 mg/kg	92.7	75	119
EP080/071: Total Petroleum Hydrocarbons (QCLot: 948305)								
EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	39.6 mg/kg	91.6	69	114
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 948302)								
EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	1222 mg/kg	100	75	123
EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	3919 mg/kg	94.5	77	127
EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	316 mg/kg	98.8	43	123
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 948305)								
EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	48.9 mg/kg	93.2	69	112
EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	----	----	----

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 948328)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	100.0	94	113
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	94.4	88	110
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	99.0	87	112
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	93.3	88	113
EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	102	89	114
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	95.0	91	111
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	98.8	86	110
EG020A-T: Tin	7440-31-5	0.001	mg/L	<0.001	0.1 mg/L	101	88	113
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	99.7	88	112
EG020T: Total Metals by ICP-MS (QCLot: 948329)								
EG020B-T: Silver	7440-22-4	0.001	mg/L	<0.001	0.02 mg/L	107	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 953617)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	87.6	87	113
EP080/071: Total Petroleum Hydrocarbons (QCLot: 947728)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	360 µg/L	102	67	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 947728)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	98.2	65	125
EP080: BTEXN (QCLot: 947728)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	103	76	120
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	108	76	124
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	107	72	124

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080: BTEXN (QCLot: 947728) - continued								
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	105	72	130
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	104	78	128
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	95.9	71	129

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG005T: Total Metals by ICP-AES (QCLot: 951663)							
EM1707764-002	TP17-26-52/0.6	EG005T: Arsenic	7440-38-2	50 mg/kg	97.1	78	124
		EG005T: Cadmium	7440-43-9	50 mg/kg	102	84	116
		EG005T: Copper	7440-50-8	50 mg/kg	101	82	124
		EG005T: Lead	7439-92-1	50 mg/kg	99.6	76	124
		EG005T: Molybdenum	7439-98-7	50 mg/kg	91.0	79	117
		EG005T: Nickel	7440-02-0	50 mg/kg	99.6	78	120
		EG005T: Selenium	7782-49-2	50 mg/kg	93.7	71	125
		EG005T: Zinc	7440-66-6	50 mg/kg	99.8	74	128
EG035T: Total Recoverable Mercury by FIMS (QCLot: 951664)							
EM1707764-002	TP17-26-52/0.6	EG035T: Mercury	7439-97-6	5 mg/kg	87.6	76	116
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 951056)							
EM1707721-001	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	40 mg/kg	94.0	58	114
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 952047)							
EM1707761-001	Anonymous	EK026SF: Total Cyanide	57-12-5	20 mg/kg	98.2	77	113
EK040T: Fluoride Total (QCLot: 948390)							
EM1707756-002	Anonymous	EK040T: Fluoride	16984-48-8	400 mg/kg	104	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 948303)							
EM1707721-005	Anonymous	EP066-EM: Total Polychlorinated biphenyls	----	1 mg/kg	97.1	36	152
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 948305)							
EM1707721-007	Anonymous	EP074-UT: Benzene	71-43-2	2 mg/kg	105	50	138
		EP074-UT: Toluene	108-88-3	2 mg/kg	117	56	134
EP074I: Volatile Halogenated Compounds (QCLot: 948305)							
EM1707721-007	Anonymous	EP074-UT: 1.1-Dichloroethene	75-35-4	2 mg/kg	116	26	141

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP074I: Volatile Halogenated Compounds (QCLot: 948305) - continued							
EM1707721-007	Anonymous	EP074-UT: Trichloroethene	79-01-6	2 mg/kg	99.7	50	134
		EP074-UT: Chlorobenzene	108-90-7	2 mg/kg	106	28	134
EP075A: Phenolic Compounds (Halogenated) (QCLot: 948301)							
EM1707721-003	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	0.5 mg/kg	74.0	34	118
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.5 mg/kg	78.2	41	139
		EP075-EM: Pentachlorophenol	87-86-5	0.5 mg/kg	10.7	10	144
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 948301)							
EM1707721-003	Anonymous	EP075-EM: Phenol	108-95-2	0.5 mg/kg	74.4	32	134
		EP075-EM: 2-Nitrophenol	88-75-5	0.5 mg/kg	82.4	13	129
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 948301)							
EM1707721-003	Anonymous	EP075-EM: Acenaphthene	83-32-9	0.5 mg/kg	79.1	46	138
		EP075-EM: Pyrene	129-00-0	0.5 mg/kg	92.1	27	169
EP080/071: Total Petroleum Hydrocarbons (QCLot: 948302)							
EM1707721-004	Anonymous	EP071-EM: C10 - C14 Fraction	----	837 mg/kg	99.4	53	123
		EP071-EM: C15 - C28 Fraction	----	3061 mg/kg	96.6	70	124
		EP071-EM: C29 - C36 Fraction	----	1592 mg/kg	93.4	64	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 948305)							
EM1707721-007	Anonymous	EP074-UT: C6 - C9 Fraction	----	28 mg/kg	90.9	43	111
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 948302)							
EM1707721-004	Anonymous	EP071-EM: >C10 - C16 Fraction	----	1222 mg/kg	101	65	123
		EP071-EM: >C16 - C34 Fraction	----	3919 mg/kg	95.3	67	121
		EP071-EM: >C34 - C40 Fraction	----	316 mg/kg	95.3	44	126
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 948305)							
EM1707721-007	Anonymous	EP074-UT: C6 - C10 Fraction	C6_C10	33 mg/kg	90.9	42	106

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 948328)							
EM1707749-015	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	92.7	82	118
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	89.6	75	129
		EG020A-T: Copper	7440-50-8	1 mg/L	86.5	81	115
		EG020A-T: Lead	7439-92-1	1 mg/L	88.3	83	121
		EG020A-T: Nickel	7440-02-0	1 mg/L	90.0	80	118
		EG020A-T: Zinc	7440-66-6	1 mg/L	92.4	74	116
EG035T: Total Recoverable Mercury by FIMS (QCLot: 953617)							
EM1707764-011	RB2/150617	EG035T: Mercury	7439-97-6	0.01 mg/L	88.9	70	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP080/071: Total Petroleum Hydrocarbons (QCLot: 947728)							
EM1707687-001	Anonymous	EP080: C6 - C9 Fraction	----	280 µg/L	# Not Determined	43	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 947728)							
EM1707687-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	330 µg/L	# Not Determined	44	122
EP080: BTEXN (QCLot: 947728)							
EM1707687-001	Anonymous	EP080: Benzene	71-43-2	20 µg/L	# 54.8	68	130
		EP080: Toluene	108-88-3	20 µg/L	# Not Determined	72	132

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM1707764**	Page	: 1 of 12
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLFA NAZARIO	Telephone	: +61-3-8549 9600
Project	: 2135645A	Date Samples Received	: 15-Jun-2017
Site	: Site 26	Issue Date	: 21-Jun-2017
Sampler	: AH	No. of samples received	: 11
Order number	: ----	No. of samples analysed	: 11

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **Laboratory Control outliers exist - please see following pages for full details.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Laboratory Control Spike (LCS) Recoveries							
EP075A: Phenolic Compounds (Halogenated)	QC-948301-001	----	**Pentachlorophenol**	87-86-5	130 %	36-124%	**Recovery greater than upper control limit**
EP075A: Phenolic Compounds (Non-halogenated)	QC-948301-001	----	**Phenol**	108-95-2	123 %	41-120%	**Recovery greater than upper control limit**

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EP080/071: Total Petroleum Hydrocarbons	EM1707687--001	Anonymous	**C6 - C9 Fraction**	----	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2	EM1707687--001	Anonymous	**C6 - C10 Fraction**	C6_C10	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP080: BTEXN	EM1707687--001	Anonymous	**Benzene**	71-43-2	54.8 %	68-130%	**Recovery less than lower data quality objective**
EP080: BTEXN	EM1707687--001	Anonymous	**Toluene**	108-88-3	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA001: pH in soil using 0.01M CaCl extract							
Soil Glass Jar - Unpreserved (EA001)							
TP17-26-53/0.6, TP17-26-52/0.6, TP17-26-58/0.6, TP17-26-56/0.6, TP17-26-55/0.6	**14-Jun-2017**	**20-Jun-2017**	21-Jun-2017	✓	**20-Jun-2017**	20-Jun-2017	✓
Soil Glass Jar - Unpreserved (EA001)							
TP17-26-63/0.6, TP17-26-62/0.6, TP17-26-6/0.6	**15-Jun-2017**	**20-Jun-2017**	22-Jun-2017	✓	**20-Jun-2017**	20-Jun-2017	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content								
Soil Glass Jar - Unpreserved (EA055)								
TP17-26-53/0.6, TP17-26-58/0.6, TP17-26-55/0.6	TP17-26-52/0.6, TP17-26-56/0.6,	**14-Jun-2017**	**----**	----	----	**16-Jun-2017**	28-Jun-2017	✓
Soil Glass Jar - Unpreserved (EA055)								
TP17-26-63/0.6, TP17-26-6/0.6	TP17-26-62/0.6,	**15-Jun-2017**	**----**	----	----	**19-Jun-2017**	29-Jun-2017	✓
EG005T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T)								
TP17-26-53/0.6, TP17-26-58/0.6, TP17-26-55/0.6	TP17-26-52/0.6, TP17-26-56/0.6,	**14-Jun-2017**	**19-Jun-2017**	11-Dec-2017	✓	**20-Jun-2017**	11-Dec-2017	✓
Soil Glass Jar - Unpreserved (EG005T)								
TP17-26-63/0.6, TP17-26-6/0.6	TP17-26-62/0.6,	**15-Jun-2017**	**19-Jun-2017**	12-Dec-2017	✓	**20-Jun-2017**	12-Dec-2017	✓
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T)								
TP17-26-53/0.6, TP17-26-58/0.6, TP17-26-55/0.6	TP17-26-52/0.6, TP17-26-56/0.6,	**14-Jun-2017**	**19-Jun-2017**	12-Jul-2017	✓	**20-Jun-2017**	12-Jul-2017	✓
Soil Glass Jar - Unpreserved (EG035T)								
TP17-26-63/0.6, TP17-26-6/0.6	TP17-26-62/0.6,	**15-Jun-2017**	**19-Jun-2017**	13-Jul-2017	✓	**20-Jun-2017**	13-Jul-2017	✓
EG048: Hexavalent Chromium (Alkaline Digest)								
Soil Glass Jar - Unpreserved (EG048G)								
TP17-26-53/0.6, TP17-26-58/0.6, TP17-26-55/0.6	TP17-26-52/0.6, TP17-26-56/0.6,	**14-Jun-2017**	**19-Jun-2017**	12-Jul-2017	✓	**19-Jun-2017**	26-Jun-2017	✓
Soil Glass Jar - Unpreserved (EG048G)								
TP17-26-63/0.6, TP17-26-6/0.6	TP17-26-62/0.6,	**15-Jun-2017**	**19-Jun-2017**	13-Jul-2017	✓	**19-Jun-2017**	26-Jun-2017	✓
EK026SF: Total CN by Segmented Flow Analyser								
Soil Glass Jar - Unpreserved (EK026SF)								
TP17-26-53/0.6, TP17-26-58/0.6, TP17-26-55/0.6	TP17-26-52/0.6, TP17-26-56/0.6,	**14-Jun-2017**	**19-Jun-2017**	28-Jun-2017	✓	**20-Jun-2017**	03-Jul-2017	✓
Soil Glass Jar - Unpreserved (EK026SF)								
TP17-26-63/0.6, TP17-26-6/0.6	TP17-26-62/0.6,	**15-Jun-2017**	**19-Jun-2017**	29-Jun-2017	✓	**20-Jun-2017**	03-Jul-2017	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EK040T: Fluoride Total							
Soil Glass Jar - Unpreserved (EK040T)							
TP17-26-53/0.6, TP17-26-52/0.6, TP17-26-58/0.6, TP17-26-56/0.6, TP17-26-55/0.6	**14-Jun-2017**	**16-Jun-2017**	12-Jul-2017	✓	**19-Jun-2017**	12-Jul-2017	✓
Soil Glass Jar - Unpreserved (EK040T)							
TP17-26-63/0.6, TP17-26-62/0.6, TP17-26-6/0.6	**15-Jun-2017**	**16-Jun-2017**	13-Jul-2017	✓	**19-Jun-2017**	13-Jul-2017	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066-EM)							
TP17-26-53/0.6, TP17-26-52/0.6, TP17-26-58/0.6, TP17-26-56/0.6, TP17-26-55/0.6	**14-Jun-2017**	**16-Jun-2017**	28-Jun-2017	✓	**16-Jun-2017**	26-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP066-EM)							
TP17-26-63/0.6, TP17-26-62/0.6, TP17-26-6/0.6	**15-Jun-2017**	**16-Jun-2017**	29-Jun-2017	✓	**16-Jun-2017**	26-Jul-2017	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074-UT)							
TP17-26-53/0.6, TP17-26-52/0.6, TP17-26-58/0.6, TP17-26-56/0.6, TP17-26-55/0.6	**14-Jun-2017**	**16-Jun-2017**	21-Jun-2017	✓	**17-Jun-2017**	21-Jun-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT)							
TP17-26-63/0.6, TP17-26-62/0.6, TP17-26-6/0.6	**15-Jun-2017**	**16-Jun-2017**	22-Jun-2017	✓	**17-Jun-2017**	22-Jun-2017	✓
EP074H: Naphthalene							
Soil Glass Jar - Unpreserved (EP074-UT)							
TP17-26-53/0.6, TP17-26-52/0.6, TP17-26-58/0.6, TP17-26-56/0.6, TP17-26-55/0.6	**14-Jun-2017**	**16-Jun-2017**	21-Jun-2017	✓	**17-Jun-2017**	21-Jun-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT)							
TP17-26-63/0.6, TP17-26-62/0.6, TP17-26-6/0.6	**15-Jun-2017**	**16-Jun-2017**	22-Jun-2017	✓	**17-Jun-2017**	22-Jun-2017	✓
EP074I: Volatile Halogenated Compounds							
Soil Glass Jar - Unpreserved (EP074-UT)							
TP17-26-53/0.6, TP17-26-52/0.6, TP17-26-58/0.6, TP17-26-56/0.6, TP17-26-55/0.6	**14-Jun-2017**	**16-Jun-2017**	21-Jun-2017	✓	**17-Jun-2017**	21-Jun-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT)							
TP17-26-63/0.6, TP17-26-62/0.6, TP17-26-6/0.6	**15-Jun-2017**	**16-Jun-2017**	22-Jun-2017	✓	**17-Jun-2017**	22-Jun-2017	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075A: Phenolic Compounds (Halogenated)								
Soil Glass Jar - Unpreserved (EP075-EM)								
TP17-26-53/0.6, TP17-26-58/0.6, TP17-26-55/0.6	TP17-26-52/0.6, TP17-26-56/0.6,	**14-Jun-2017**	**16-Jun-2017**	28-Jun-2017	✓	**16-Jun-2017**	26-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP075-EM)								
TP17-26-63/0.6, TP17-26-6/0.6	TP17-26-62/0.6,	**15-Jun-2017**	**16-Jun-2017**	29-Jun-2017	✓	**16-Jun-2017**	26-Jul-2017	✓
EP075A: Phenolic Compounds (Non-halogenated)								
Soil Glass Jar - Unpreserved (EP075-EM)								
TP17-26-53/0.6, TP17-26-58/0.6, TP17-26-55/0.6	TP17-26-52/0.6, TP17-26-56/0.6,	**14-Jun-2017**	**16-Jun-2017**	28-Jun-2017	✓	**16-Jun-2017**	26-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP075-EM)								
TP17-26-63/0.6, TP17-26-6/0.6	TP17-26-62/0.6,	**15-Jun-2017**	**16-Jun-2017**	29-Jun-2017	✓	**16-Jun-2017**	26-Jul-2017	✓
EP075B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075-EM)								
TP17-26-53/0.6, TP17-26-58/0.6, TP17-26-55/0.6	TP17-26-52/0.6, TP17-26-56/0.6,	**14-Jun-2017**	**16-Jun-2017**	28-Jun-2017	✓	**16-Jun-2017**	26-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP075-EM)								
TP17-26-63/0.6, TP17-26-6/0.6	TP17-26-62/0.6,	**15-Jun-2017**	**16-Jun-2017**	29-Jun-2017	✓	**16-Jun-2017**	26-Jul-2017	✓
EP075I: Organochlorine Pesticides								
Soil Glass Jar - Unpreserved (EP075-EM)								
TP17-26-53/0.6, TP17-26-58/0.6, TP17-26-55/0.6	TP17-26-52/0.6, TP17-26-56/0.6,	**14-Jun-2017**	**16-Jun-2017**	28-Jun-2017	✓	**16-Jun-2017**	26-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP075-EM)								
TP17-26-63/0.6, TP17-26-6/0.6	TP17-26-62/0.6,	**15-Jun-2017**	**16-Jun-2017**	29-Jun-2017	✓	**16-Jun-2017**	26-Jul-2017	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP071-EM)							
TP17-26-53/0.6, TP17-26-52/0.6, TP17-26-58/0.6, TP17-26-56/0.6, TP17-26-55/0.6	**14-Jun-2017**	**16-Jun-2017**	28-Jun-2017	✓	**16-Jun-2017**	26-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT)							
TP17-26-53/0.6, TP17-26-52/0.6, TP17-26-58/0.6, TP17-26-56/0.6, TP17-26-55/0.6	**14-Jun-2017**	**16-Jun-2017**	21-Jun-2017	✓	**17-Jun-2017**	21-Jun-2017	✓
Soil Glass Jar - Unpreserved (EP071-EM)							
TP17-26-63/0.6, TP17-26-62/0.6, TP17-26-6/0.6	**15-Jun-2017**	**16-Jun-2017**	29-Jun-2017	✓	**16-Jun-2017**	26-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT)							
TP17-26-63/0.6, TP17-26-62/0.6, TP17-26-6/0.6	**15-Jun-2017**	**16-Jun-2017**	22-Jun-2017	✓	**17-Jun-2017**	22-Jun-2017	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP071-EM)							
TP17-26-53/0.6, TP17-26-52/0.6, TP17-26-58/0.6, TP17-26-56/0.6, TP17-26-55/0.6	**14-Jun-2017**	**16-Jun-2017**	28-Jun-2017	✓	**16-Jun-2017**	26-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT)							
TP17-26-53/0.6, TP17-26-52/0.6, TP17-26-58/0.6, TP17-26-56/0.6, TP17-26-55/0.6	**14-Jun-2017**	**16-Jun-2017**	21-Jun-2017	✓	**17-Jun-2017**	21-Jun-2017	✓
Soil Glass Jar - Unpreserved (EP071-EM)							
TP17-26-63/0.6, TP17-26-62/0.6, TP17-26-6/0.6	**15-Jun-2017**	**16-Jun-2017**	29-Jun-2017	✓	**16-Jun-2017**	26-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT)							
TP17-26-63/0.6, TP17-26-62/0.6, TP17-26-6/0.6	**15-Jun-2017**	**16-Jun-2017**	22-Jun-2017	✓	**17-Jun-2017**	22-Jun-2017	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020B-T)							
RB1/140617	**14-Jun-2017**	**16-Jun-2017**	11-Dec-2017	✓	**19-Jun-2017**	11-Dec-2017	✓
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020B-T)							
RB2/150617	**15-Jun-2017**	**16-Jun-2017**	12-Dec-2017	✓	**19-Jun-2017**	12-Dec-2017	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T)							
RB1/140617	**14-Jun-2017**	**----**	----	----	**20-Jun-2017**	12-Jul-2017	✓
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T)							
RB2/150617	**15-Jun-2017**	**----**	----	----	**20-Jun-2017**	13-Jul-2017	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP080)							
TB2/140617	**14-Jun-2017**	**16-Jun-2017**	28-Jun-2017	✓	**16-Jun-2017**	28-Jun-2017	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber VOC Vial - Sulfuric Acid (EP080)							
TB2/140617	**14-Jun-2017**	**16-Jun-2017**	28-Jun-2017	✓	**16-Jun-2017**	28-Jun-2017	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
TB2/140617	**14-Jun-2017**	**16-Jun-2017**	28-Jun-2017	✓	**16-Jun-2017**	28-Jun-2017	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	4	35	**11.43**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Matrix Spikes (MS) - Continued							
Total Fluoride	EK040T	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite B	EG020B-T	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	10	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite B	EG020B-T	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite B	EG020B-T	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH in soil using a 0.01M CaCl2 extract	EA001	SOIL	In house: Referenced to Rayment and Lyons 4B3 (mod.) or 4B4 (mod.) 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM (2013) Schedule B(3)
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	SOIL	In house: Referenced to USEPA SW846, Method 3060A. Hexavalent chromium is extracted by alkaline digestion. The digest is determined by photometrically by automatic discrete analyser, following pH adjustment. The instrument uses colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Cyanide by Segmented Flow Analyser	EK026SF	SOIL	In house: Referenced to APHA 4500-CN C / ASTM D7511. Caustic leachates of soil samples are introduced into an automated segmented flow analyser. Complex bound cyanide is decomposed in a continuously flowing stream, at a pH of 3.8, by the effect of UV light. A UV-B lamp (312 nm) and a decomposition spiral of borosilicate glass are used to filter out UV light with a wavelength of less than 290 nm thus preventing the conversion of thiocyanate into cyanide. The hydrogen cyanide present at a pH of 3.8 is separated by gas dialysis. The hydrogen cyanide is then determined photometrically, based on the reaction of cyanide with chloramine-T to form cyanogen chloride. This then reacts with 4-pyridine carboxylic acid and 1,3-dimethylbarbituric acid to give a red colour which is measured at 600 nm. This method is compliant with NEPM (2013) Schedule B(3)
Total Fluoride	EK040T	SOIL	(In-house) Total fluoride is determined by ion specific electrode (ISE) in a solution obtained after a Sodium Carbonate / Potassium Carbonate fusion dissolution.
PCB - VIC EPA 448.3 Screen	EP066-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
TRH - Semivolatile Fraction	EP071-EM	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40.
Volatile Organic Compounds - Ultra-trace	EP074-UT	SOIL	In house: Referenced to USEPA SW 846 - 8260B Extracts are analysed by Purge and Trap, Capillary GC/MS in partial SIM/Scan mode. Quantification is by comparison against an established multi-point calibration curves. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)

Analytical Methods	Method	Matrix	Method Descriptions
Volatile Organic Compounds - Ultra-trace - Summations	EP074-UT-SUM	SOIL	Summation of MAHs and VHCs
Semivolatile Organic Compounds - Waste Classification	EP075-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (2013) Schedule B(3) (Method 502)
SVOC - Waste Classification (Sums)	EP075-EM-SUM	SOIL	Summations for EP075 (EM variation)
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite B	EG020B-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
NaOH leach for CN in Soils	CN-PR	SOIL	In house: APHA 4500 CN. Samples are extracted by end-over-end tumbling with NaOH.
pH in soil using a 0.01M CaCl2 extract	EA001-PR	SOIL	In house: Referenced to Rayment and Higginson 4B1, 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Alkaline digestion for Hexavalent Chromium	EG048PR	SOIL	In house: Referenced to USEPA SW846, Method 3060A.
Total Fluoride	EK040T-PR	SOIL	In house: Samples are fused with Sodium Carbonate / Potassium Carbonate flux.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils - Ultra-trace.	ORG16-UT	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids - VIC EPA Screen	ORG17-EM	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

Preparation Methods	Method	Matrix	Method Descriptions
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EM1707764**

Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLFA NAZARIO	Contact	: Steven McGrath
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: onazario@pb.com.au	E-mail	:
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9600
Facsimile	: +61 03 9861 1144	Facsimile	: +61-3-8549 9601
Project	: 2135645A	Page	: 1 of 3
Order number	: ----	Quote number	: EM2016PARBRIVIC0006 (ME-525-16)
C-O-C number	: 85406	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Site 26		
Sampler	: AH		

Dates

Date Samples Received	: 15-Jun-2017 17:05	Issue Date	: 15-Jun-2017
Client Requested Due Date	: 23-Jun-2017	Scheduled Reporting Date	: **23-Jun-2017**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 6.1°C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 11 / 11

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.
- **Analytical work for this work order will be conducted at ALS Springvale.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA055-103 Moisture Content	SOIL - P-16 WRG 621
EM1707764-001	14-Jun-2017 00:00	TP17-26-53/0.6	✓	✓
EM1707764-002	14-Jun-2017 00:00	TP17-26-52/0.6	✓	✓
EM1707764-003	14-Jun-2017 00:00	TP17-26-58/0.6	✓	✓
EM1707764-004	14-Jun-2017 00:00	TP17-26-56/0.6	✓	✓
EM1707764-005	14-Jun-2017 00:00	TP17-26-55/0.6	✓	✓
EM1707764-008	15-Jun-2017 00:00	TP17-26-63/0.6	✓	✓
EM1707764-009	15-Jun-2017 00:00	TP17-26-62/0.6	✓	✓
EM1707764-010	15-Jun-2017 00:00	TP17-26-6/0.6	✓	✓

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG020T Total Recoverable Metals by ICPMS (including	WATER - EG035T Total Mercury by FIMS	WATER - W-18 TRH(C6 - C9)/BTEXN
EM1707764-006	14-Jun-2017 00:00	RB1/140617	✓	✓	
EM1707764-007	14-Jun-2017 00:00	TB2/140617			✓
EM1707764-011	15-Jun-2017 00:00	RB2/150617	✓	✓	

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ALL INVOICES

- A4 - AU Tax Invoice (INV)	Email	apinvoices@pb.com.au

OLFA NAZARIO

- *AU Certificate of Analysis - NATA (COA)	Email	onazario@pb.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	onazario@pb.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	onazario@pb.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	onazario@pb.com.au
- AU IWRG 621 2009 Guideline Report (COA_GL_IWRG_621)	Email	onazario@pb.com.au
- Chain of Custody (CoC) (COC)	Email	onazario@pb.com.au
- EDI Format - ENMRG (ENMRG)	Email	onazario@pb.com.au
- EDI Format - ESDAT (ESDAT)	Email	onazario@pb.com.au

OLIVIA HENDERSON

- *AU Certificate of Analysis - NATA (COA)	Email	ohenderson@pb.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	ohenderson@pb.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	ohenderson@pb.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	ohenderson@pb.com.au
- AU IWRG 621 2009 Guideline Report (COA_GL_IWRG_621)	Email	ohenderson@pb.com.au
- Chain of Custody (CoC) (COC)	Email	ohenderson@pb.com.au
- EDI Format - ENMRG (ENMRG)	Email	ohenderson@pb.com.au
- EDI Format - ESDAT (ESDAT)	Email	ohenderson@pb.com.au

WSP | PARSONS BRINCKERHOFF

ABN 80 078 004 798

White Page - Laboratory Copy
Yellow Page - Project File Copy
Pink Page - Remains in Book

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Level 1, 1 King William Street,
GPO Box 398 Adelaide SA 5001
Tel: (08) 8405 4300 Fax: (08) 8405 4301

Perth
Level 5, 503 Murray Street,
PO Box 7181 Cloisters Square WA 6850
Tel: (08) 9489 9700 Fax: (08) 9489 9777

Brisbane
Level 3, Northbank Plaza 69 Ann Street,
GPO Box 2907 Brisbane QLD 4001
Tel: (07) 3854 6200 Fax: (07) 3854 6500

Singleton
188 John Street,
PO Box 115 Singleton NSW 2330
Tel: (02) 6572 3377 Fax: (02) 6572 4080

Melbourne
Level 15, 28 Freshwater Place,
Tel: (03) 9861 1111 Fax: (03) 9861 1144

Newcastle
Level 3, 51-55 Bolton Street, Suite 1
PO Box 1162 Newcastle NSW, 2300
Tel: (02) 4929 8300 Fax: (02) 4929 8382

Sydney
Level 27, Ernst & Young Centre
680 George Street,
GPO Box 5394, Sydney NSW 2001
Tel: (02) 9272 5100 Fax: (02) 9272 5101

Chain of Custody

Order No: 85406

Job Title: OSAR

PB Job Number: 2135645A

Job Location: Site 26

Project Manager: Olfa Nazario

Laboratory Name: ALS

Results Expected by/on: STANDARD

Address: 2-4 Westall Rd, Springvale, VIC

Terms of Business	PB	Other	Checked

Fax Results to: O. Nazario

Fax Number:

Phone Number: 03 85499600

Phone Number:

Contact Name: Steven McGrath

Spreadsheet of Results Required: (Y) / N

Delivery Method:

Format: ESDAT, PDF

Quote Number: ME-525-16

Turnaround Time Required: STD

Invoice to: O. Nazario

Comments: (1)

No.	Date Sampled	Time	Sample I.D.	Container Size	Sample Location	Medium*	Preservative Type	Filtered (X)	TPH	BTEX	PAH's	OC/OP/PCB's	Metals**	/MRG62 Soil /MRG Metals	TPH/BTEX				Initials	Comments/Additional Information and/or Analysis Required
1	14/6/17	9AM	TP17-26-53/0.6	250mL	Site 26	S								✓						
2	"	10AM	TP17-26-52/0.6	250mL	Site26	S								✓						
3	"	11AM	TP17-26-58/0.6	250mL	Site 26	S								✓						
4	"	12PM	TP17-26-56/0.6	250mL	Site 26	S								✓						
5	"	1:45pm	TP17-26-55/0.6	250mL	Site26	S								✓						
6	"	2PM	RB1/140617	Bottle	—	W									✓					
7	"	2PM	TB1/140617	Bottle	—	W										✓				
8	15/6/17	12PM	TP17-26-63/0.6	250mL	Site 26	S								✓						
9	"	1:30PM	TP17-26-62/0.6	250mL	↓	S								✓						
10	"	2pm	TP17-26-6 /0.6	250mL	↓	S								✓						
11	"	2PM	RB2/140617	Bottle	—	W									✓					

Environmental Division
Melbourne
Work Order Reference
EM1707764

Telephone : +61-3-8549 9600

Relinquished by:	Relinquished by:	Relinquished by:
Date & Time:	Date & Time:	Date & Time:
Company:	Company:	Company:
Signature:	Signature:	Signature:
Received in Good Order & Condition by (Name):	Received in Good Order & Condition by (Name):	Received in Good Order & Condition by (Name):
Date & Time: 15/6 17-05	Date & Time:	Date & Time:
Company: AM	Company:	Company:
Signature:	Signature:	Signature:

Medium*: S = Soil, W = Water, V = Vapour

Legend**: (circle the following to be tested)

Metals: Al As Be Cd Co Cr Cu Fe Hg Li Mg Mn Ni Pb Se Sn V Zn

Samples on Ice: ☐ Yes ☐ No

Please fax back a signed copy when samples are received at the laboratory

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1708010**	Page	: 1 of 9
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLFA NAZARIO	Contact	: Steven McGrath
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9600
Project	: 2135645A	Date Samples Received	: 20-Jun-2017 15:05
Order number	:	Date Analysis Commenced	: 21-Jun-2017
C-O-C number	: 85408	Issue Date	: 27-Jun-2017 09:43
Sampler	: AH		
Site	: Site 26		
Quote number	: ME-525-16		
No. of samples received	: 7		
No. of samples analysed	: 7		

ilac-MRA NATA
Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	Senior Semivolatile Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	Senior Semivolatile Instrument Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TP17-26-07/0.6	TP17-26-05/0.6	TP17-26-03/0.6	DUP A - 26/0.6	DUP B - 26/0.6
			Client sampling date / time	18-Jun-2017 00:00	18-Jun-2017 00:00	19-Jun-2017 00:00	18-Jun-2017 00:00	18-Jun-2017 00:00
Compound	CAS Number	LOR	Unit	EM1708010-001	EM1708010-002	EM1708010-003	EM1708010-006	EM1708010-007
				Result	Result	Result	Result	Result
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	4.7	4.3	4.3	4.7	4.7
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1	%	18.2	7.0	11.7	17.6	19.1
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	6	6	9	<5	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Copper	7440-50-8	5	mg/kg	10	<5	<5	8	10
Lead	7439-92-1	5	mg/kg	18	<5	6	13	16
Molybdenum	7439-98-7	2	mg/kg	<2	<2	<2	<2	<2
Nickel	7440-02-0	2	mg/kg	9	2	4	7	10
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Silver	7440-22-4	2	mg/kg	<2	<2	<2	<2	<2
Tin	7440-31-5	5	mg/kg	<5	<5	<5	<5	<5
Zinc	7440-66-6	5	mg/kg	8	<5	<5	6	8
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
EK026SF: Total CN by Segmented Flow Analyser								
Total Cyanide	57-12-5	1	mg/kg	<1	<1	<1	<1	<1
EK040T: Fluoride Total								
Fluoride	16984-48-8	40	mg/kg	200	70	70	80	160
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of monocyclic aromatic hydrocarbons	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP17-26-07/0.6	TP17-26-05/0.6	TP17-26-03/0.6	DUP A - 26/0.6	DUP B - 26/0.6
				Client sampling date / time	18-Jun-2017 00:00	18-Jun-2017 00:00	19-Jun-2017 00:00	18-Jun-2017 00:00	18-Jun-2017 00:00
Compound	CAS Number	LOR	Unit		EM1708010-001	EM1708010-002	EM1708010-003	EM1708010-006	EM1708010-007
					Result	Result	Result	Result	Result
EP074H: Naphthalene									
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP074I: Volatile Halogenated Compounds									
Vinyl chloride	75-01-4	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.1-Dichloroethene	75-35-4	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Methylene chloride	75-09-2	0.4	mg/kg		<0.4	<0.4	<0.4	<0.4	<0.4
trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Chloroform	67-66-3	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.1.1-Trichloroethane	71-55-6	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Carbon Tetrachloride	56-23-5	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
1.2-Dichloroethane	107-06-2	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Trichloroethene	79-01-6	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.1.2-Trichloroethane	79-00-5	0.04	mg/kg		<0.04	<0.04	<0.04	<0.04	<0.04
Tetrachloroethene	127-18-4	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Hexachlorobutadiene	87-68-3	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Chlorobenzene	108-90-7	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.4-Dichlorobenzene	106-46-7	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.2-Dichlorobenzene	95-50-1	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
^ Sum of volatile chlorinated hydrocarbons	----	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
^ Sum of other chlorinated hydrocarbons	----	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
EP075A: Phenolic Compounds (Halogenated)									
2-Chlorophenol	95-57-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
2.4-Dichlorophenol	120-83-2	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
2.6-Dichlorophenol	87-65-0	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Pentachlorophenol	87-86-5	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Sum of Phenols (halogenated)	----	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP17-26-07/0.6	TP17-26-05/0.6	TP17-26-03/0.6	DUP A - 26/0.6	DUP B - 26/0.6
				Client sampling date / time	18-Jun-2017 00:00	18-Jun-2017 00:00	19-Jun-2017 00:00	18-Jun-2017 00:00	18-Jun-2017 00:00
Compound	CAS Number	LOR	Unit		EM1708010-001	EM1708010-002	EM1708010-003	EM1708010-006	EM1708010-007
					Result	Result	Result	Result	Result
EP075A: Phenolic Compounds (Halogenated) - Continued									
EP075A: Phenolic Compounds (Non-halogenated)									
Phenol	108-95-2	1	mg/kg		<1	<1	<1	<1	<1
2-Methylphenol	95-48-7	1	mg/kg		<1	<1	<1	<1	<1
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	1	mg/kg		<1	<1	<1	<1	<1
2.4-Dimethylphenol	105-67-9	1	mg/kg		<1	<1	<1	<1	<1
2.4-Dinitrophenol	51-28-5	5	mg/kg		<5	<5	<5	<5	<5
4-Nitrophenol	100-02-7	5	mg/kg		<5	<5	<5	<5	<5
2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg		<5	<5	<5	<5	<5
Dinoseb	88-85-7	5	mg/kg		<5	<5	<5	<5	<5
2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg		<5	<5	<5	<5	<5
^ Sum of Phenols (non-halogenated)	----	1	mg/kg		<1	<1	<1	<1	<1
EP075B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP075I: Organochlorine Pesticides									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP17-26-07/0.6	TP17-26-05/0.6	TP17-26-03/0.6	DUP A - 26/0.6	DUP B - 26/0.6
				Client sampling date / time	18-Jun-2017 00:00	18-Jun-2017 00:00	19-Jun-2017 00:00	18-Jun-2017 00:00	18-Jun-2017 00:00
Compound	CAS Number	LOR	Unit		EM1708010-001	EM1708010-002	EM1708010-003	EM1708010-006	EM1708010-007
					Result	Result	Result	Result	Result
EP075l: Organochlorine Pesticides - Continued									
alpha-BHC	319-84-6	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
beta-BHC	319-85-7	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
gamma-BHC	58-89-9	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
delta-BHC	319-86-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Heptachlor	76-44-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Aldrin	309-00-2	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Heptachlor epoxide	1024-57-3	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
cis-Chlordane	5103-71-9	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
trans-Chlordane	5103-74-2	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Endosulfan 1	959-98-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Endrin aldehyde	7421-93-4	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Endrin	72-20-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Endosulfan 2	33213-65-9	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
4.4`-DDT	50-29-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
^ Sum of organochlorine pesticides	----	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ Chlordane	57-74-9	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
^ Sum of other organochlorine pesticides	----	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP17-26-07/0.6	TP17-26-05/0.6	TP17-26-03/0.6	DUP A - 26/0.6	DUP B - 26/0.6
				Client sampling date / time	18-Jun-2017 00:00	18-Jun-2017 00:00	19-Jun-2017 00:00	18-Jun-2017 00:00	18-Jun-2017 00:00
Compound	CAS Number	LOR	Unit		EM1708010-001	EM1708010-002	EM1708010-003	EM1708010-006	EM1708010-007
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		<50	<50	<50	<50	<50
>C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	<50
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**76.1**	**81.0**	**78.3**	**89.4**	**75.2**
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		**82.2**	**84.6**	**90.8**	**83.9**	**83.1**
Toluene-D8	2037-26-5	0.1	%		**85.9**	**89.8**	**89.8**	**84.9**	**86.9**
4-Bromofluorobenzene	460-00-4	0.1	%		**81.7**	**80.6**	**82.9**	**76.0**	**74.7**
EP075S: Acid Extractable Surrogates									
Phenol-d6	13127-88-3	0.025	%		**87.3**	**83.2**	**67.1**	**90.7**	**76.6**
2-Chlorophenol-D4	93951-73-6	0.025	%		**74.9**	**71.3**	**62.5**	**79.4**	**65.4**
2.4.6-Tribromophenol	118-79-6	0.025	%		**92.8**	**92.3**	**73.5**	**106**	**89.5**
EP075T: Base/Neutral Extractable Surrogates									
Nitrobenzene-D5	4165-60-0	0.025	%		**89.3**	**84.4**	**72.6**	**95.3**	**79.9**
1.2-Dichlorobenzene-D4	2199-69-1	0.025	%		**80.0**	**76.1**	**64.4**	**83.1**	**68.5**
2-Fluorobiphenyl	321-60-8	0.025	%		**82.5**	**79.3**	**65.5**	**88.4**	**74.8**
Anthracene-d10	1719-06-8	0.025	%		**104**	**108**	**96.4**	**121**	**105**
4-Terphenyl-d14	1718-51-0	0.025	%		**100**	**108**	**96.1**	**121**	**104**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Client sample ID	RB1/190617	TB1/180617	----	----	----
			Client sampling date / time	19-Jun-2017 00:00	18-Jun-2017 00:00	----	----	----
Compound	CAS Number	LOR	Unit	EM1708010-004	EM1708010-005	--------	--------	--------
				Result	Result	----	----	----
EG020T: Total Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	----	----	----	----
Copper	7440-50-8	0.001	mg/L	<0.001	----	----	----	----
Lead	7439-92-1	0.001	mg/L	<0.001	----	----	----	----
Molybdenum	7439-98-7	0.001	mg/L	<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L	<0.001	----	----	----	----
Selenium	7782-49-2	0.01	mg/L	<0.01	----	----	----	----
Silver	7440-22-4	0.001	mg/L	<0.001	----	----	----	----
Tin	7440-31-5	0.001	mg/L	<0.001	----	----	----	----
Zinc	7440-66-6	0.005	mg/L	<0.005	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	----	<20	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	----	<20	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	----	<20	----	----	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	----	<1	----	----	----
Toluene	108-88-3	2	µg/L	----	<2	----	----	----
Ethylbenzene	100-41-4	2	µg/L	----	<2	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	----	<2	----	----	----
ortho-Xylene	95-47-6	2	µg/L	----	<2	----	----	----
^ Total Xylenes	1330-20-7	2	µg/L	----	<2	----	----	----
^ Sum of BTEX	----	1	µg/L	----	<1	----	----	----
Naphthalene	91-20-3	5	µg/L	----	<5	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	----	**104**	----	----	----
Toluene-D8	2037-26-5	2	%	----	**96.0**	----	----	----
4-Bromofluorobenzene	460-00-4	2	%	----	**91.8**	----	----	----

Surrogate Control Limits

Sub-Matrix: **SOIL**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	41	122
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	59	119
Toluene-D8	2037-26-5	55	117
4-Bromofluorobenzene	460-00-4	59	123
EP075S: Acid Extractable Surrogates			
Phenol-d6	13127-88-3	28	134
2-Chlorophenol-D4	93951-73-6	27	123
2.4.6-Tribromophenol	118-79-6	25	149
EP075T: Base/Neutral Extractable Surrogates			
Nitrobenzene-D5	4165-60-0	29	125
1.2-Dichlorobenzene-D4	2199-69-1	31	117
2-Fluorobiphenyl	321-60-8	44	136
Anthracene-d10	1719-06-8	53	133
4-Terphenyl-d14	1718-51-0	59	141

Sub-Matrix: **WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	129
Toluene-D8	2037-26-5	70	125
4-Bromofluorobenzene	460-00-4	71	129

Automated Guideline Comparison Report

EPA Victoria Publication IWRG 621 (2009) - Table 2: Soil Hazard Categorisation

Work Order	: **EM1708010**	Page	: 1 of 8
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLFA NAZARIO		
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: onazario@pb.com.au	E-mail	: ----
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9600
Facsimile	: +61 03 9861 1144	Facsimile	: +61-3-8549 9601
Project	: 2135645A	Date Received	: 20-Jun-2017 15:05
Order number	:	Date Analysed	: 21-Jun-2017
C-O-C number	: 85408	Date Issued	: 27-Jun-2017 09:43
No. of samples received	: 7		
No. of samples analysed	: 7	Quote number	: ME-525-16

General Comments

This guideline comparison report **only** provides evaluation of total concentration data against upper limit thresholds for the 'Fill Material', 'C', 'B' Categories in Table 2 of EPA Publication IWRG621.

This guideline comparison report is **NOT** a soil classification report. Classification of soils as Fill Material, Category C, Category B or Category A requires consideration of a number of other factors including preliminary site investigation, sampling density and statistical calculations, as set out in EPA Publication IWRG 702.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

This guideline comparison report only provides evaluation data where chemical parameters specifically listed within the IWRG621 (2009) guideline are analysed by ALS using the **P-16 package in full**.

Red shading is applied where the result is equal to or greater than the guideline upper limit and/or equal to or lower than the guideline lower limit. Red shading is not applied to the 'Summary of Thresholds Reached or Exceeded'.

For the 'Summary of Thresholds Reached or Exceeded' to accurately function, all samples must be analysed and included in the 'Analytical Results' section of the following report. Please verify that all required IDs are listed and analysed.

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Summary of Thresholds Reached or Exceeded

Results for all samples detailed in this report are below the upper threshold limits for Fill Material.

Analytical Results

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	TP17-26-07/0.6	TP17-26-05/0.6	TP17-26-03/0.6	DUP A - 26/0.6	DUP B - 26/0.6
Client sample ID										
Sampling date/time						18-Jun-2017	18-Jun-2017	19-Jun-2017	18-Jun-2017	18-Jun-2017
						EM1708010-001	EM1708010-002	EM1708010-003	EM1708010-006	EM1708010-007
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	2	12.5	**4.7**	**4.3**	**4.3**	**4.7**	**4.7**
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	2000	**6**	**6**	**9**	<5	<5
Cadmium	EG005T	1	mg/kg	----	400	<1	<1	<1	<1	<1
Copper	EG005T	5	mg/kg	----	20000	**10**	<5	<5	**8**	**10**
Lead	EG005T	5	mg/kg	----	6000	**18**	<5	**6**	**13**	**16**
Molybdenum	EG005T	2	mg/kg	----	4000	<2	<2	<2	<2	<2
Nickel	EG005T	2	mg/kg	----	12000	**9**	**2**	**4**	**7**	**10**
Selenium	EG005T	5	mg/kg	----	200	<5	<5	<5	<5	<5
Silver	EG005T	2	mg/kg	----	720	<2	<2	<2	<2	<2
Zinc	EG005T	5	mg/kg	----	140000	**8**	<5	<5	**6**	**8**
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	300	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	2000	<0.5	<0.5	<0.5	<0.5	<0.5
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	10000	<1	<1	<1	<1	<1
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	40000	**200**	**70**	**70**	**80**	**160**
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	16	<0.2	<0.2	<0.2	<0.2	<0.2
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	240	<0.2	<0.2	<0.2	<0.2	<0.2
EP074I: Volatile Halogenated Compounds										
Vinyl chloride	EP074-UT	0.02	mg/kg	----	4.8	<0.02	<0.02	<0.02	<0.02	<0.02
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	11	<0.02	<0.02	<0.02	<0.02	<0.02
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	50	<0.01	<0.01	<0.01	<0.01	<0.01
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	320	<0.03	<0.03	<0.03	<0.03	<0.03
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	2200	<1	<1	<1	<1	<1
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	20	<0.5	<0.5	<0.5	<0.5	<0.5

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

				Client sample ID		TP17-26-07/0.6	TP17-26-05/0.6	TP17-26-03/0.6	DUP A - 26/0.6	DUP B - 26/0.6
				Sampling date/time		18-Jun-2017	18-Jun-2017	19-Jun-2017	18-Jun-2017	18-Jun-2017
Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	EM1708010-001	EM1708010-002	EM1708010-003	EM1708010-006	EM1708010-007
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	400	<0.5	<0.5	<0.5	<0.5	<0.5
EP075I: Organochlorine Pesticides										
Heptachlor	EP075-EM	0.03	mg/kg	----	4.8	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	4.8	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50	<0.05	<0.05	<0.05	<0.05	<0.05
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	16	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	50	<0.03	<0.03	<0.03	<0.03	<0.03
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	2600	<10	<10	<10	<10	<10
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	40000	<50	<50	<50	<50	<50

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Client sample ID: TP17-26-07/0.6	TP17-26-05/0.6	TP17-26-03/0.6	DUP A - 26/0.6	DUP B - 26/0.6
			Sampling date/time			18-Jun-2017	18-Jun-2017	19-Jun-2017	18-Jun-2017	18-Jun-2017
						EM1708010-001	EM1708010-002	EM1708010-003	EM1708010-006	EM1708010-007
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	4	9	**4.7**	**4.3**	**4.3**	**4.7**	**4.7**
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	500	**6**	**6**	**9**	<5	<5
Cadmium	EG005T	1	mg/kg	----	100	<1	<1	<1	<1	<1
Copper	EG005T	5	mg/kg	----	5000	**10**	<5	<5	**8**	**10**
Lead	EG005T	5	mg/kg	----	1500	**18**	<5	**6**	**13**	**16**
Molybdenum	EG005T	2	mg/kg	----	1000	<2	<2	<2	<2	<2
Nickel	EG005T	2	mg/kg	----	3000	**9**	**2**	**4**	**7**	**10**
Selenium	EG005T	5	mg/kg	----	50	<5	<5	<5	<5	<5
Silver	EG005T	2	mg/kg	----	180	<2	<2	<2	<2	<2
Tin	EG005T	5	mg/kg	----	500	<5	<5	<5	<5	<5
Zinc	EG005T	5	mg/kg	----	35000	**8**	<5	<5	**6**	**8**
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	75	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	500	<0.5	<0.5	<0.5	<0.5	<0.5
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	2500	<1	<1	<1	<1	<1
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	10000	**200**	**70**	**70**	**80**	**160**
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	4	<0.2	<0.2	<0.2	<0.2	<0.2
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	70	<0.2	<0.2	<0.2	<0.2	<0.2
EP074I: Volatile Halogenated Compounds										
Vinyl chloride	EP074-UT	0.02	mg/kg	----	1.2	<0.02	<0.02	<0.02	<0.02	<0.02
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	2.8	<0.02	<0.02	<0.02	<0.02	<0.02
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	10	<0.01	<0.01	<0.01	<0.01	<0.01
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	10	<0.03	<0.03	<0.03	<0.03	<0.03
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	560	<1	<1	<1	<1	<1
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	5	<0.5	<0.5	<0.5	<0.5	<0.5

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

				Client sample ID	Guideline Lower Limit	Guideline Upper Limit	TP17-26-07/0.6	TP17-26-05/0.6	TP17-26-03/0.6	DUP A - 26/0.6	DUP B - 26/0.6
				Sampling date/time			18-Jun-2017	18-Jun-2017	19-Jun-2017	18-Jun-2017	18-Jun-2017
Compound	*Method*	*LOR*	*Unit*				EM1708010-001	EM1708010-002	EM1708010-003	EM1708010-006	EM1708010-007
EP075B: Polynuclear Aromatic Hydrocarbons - Continued											
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg		----	100	<0.5	<0.5	<0.5	<0.5	<0.5
EP075I: Organochlorine Pesticides											
Heptachlor	EP075-EM	0.03	mg/kg		----	1.2	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg		----	1.2	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg		----	50	<0.05	<0.05	<0.05	<0.05	<0.05
Chlordane	EP075-EM-SUM	0.03	mg/kg		----	4	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg		----	10	<0.03	<0.03	<0.03	<0.03	<0.03
EP080/071: Total Petroleum Hydrocarbons											
C6 - C9 Fraction	EP074-UT	10	mg/kg		----	650	<10	<10	<10	<10	<10
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg		----	10000	<50	<50	<50	<50	<50

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

				Client sample ID		TP17-26-07/0.6	TP17-26-05/0.6	TP17-26-03/0.6	DUP A - 26/0.6	DUP B - 26/0.6
				Sampling date/time		18-Jun-2017	18-Jun-2017	19-Jun-2017	18-Jun-2017	18-Jun-2017
Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	EM1708010-001	EM1708010-002	EM1708010-003	EM1708010-006	EM1708010-007
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	4	9	**4.7**	**4.3**	**4.3**	**4.7**	**4.7**
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	20	**6**	**6**	**9**	<5	<5
Cadmium	EG005T	1	mg/kg	----	3	<1	<1	<1	<1	<1
Copper	EG005T	5	mg/kg	----	100	**10**	<5	<5	**8**	**10**
Lead	EG005T	5	mg/kg	----	300	**18**	<5	**6**	**13**	**16**
Molybdenum	EG005T	2	mg/kg	----	40	<2	<2	<2	<2	<2
Nickel	EG005T	2	mg/kg	----	60	**9**	**2**	**4**	**7**	**10**
Selenium	EG005T	5	mg/kg	----	10	<5	<5	<5	<5	<5
Silver	EG005T	2	mg/kg	----	10	<2	<2	<2	<2	<2
Tin	EG005T	5	mg/kg	----	50	<5	<5	<5	<5	<5
Zinc	EG005T	5	mg/kg	----	200	**8**	<5	<5	**6**	**8**
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	1	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	1	<0.5	<0.5	<0.5	<0.5	<0.5
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	50	<1	<1	<1	<1	<1
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	450	**200**	**70**	**70**	**80**	**160**
EP066: Polychlorinated Biphenyls (PCB)										
Total Polychlorinated biphenyls	EP066-EM	0.1	mg/kg	----	2	<0.1	<0.1	<0.1	<0.1	<0.1
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	1	<0.2	<0.2	<0.2	<0.2	<0.2
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	7	<0.2	<0.2	<0.2	<0.2	<0.2
EP074I: Volatile Halogenated Compounds										
Sum of volatile chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	1	<0.01	<0.01	<0.01	<0.01	<0.01
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	1	<0.03	<0.03	<0.03	<0.03	<0.03
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	60	<1	<1	<1	<1	<1
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	1	<0.5	<0.5	<0.5	<0.5	<0.5

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

				Client sample ID	Guideline Lower Limit	Guideline Upper Limit	TP17-26-07/0.6	TP17-26-05/0.6	TP17-26-03/0.6	DUP A - 26/0.6	DUP B - 26/0.6
				Sampling date/time			18-Jun-2017	18-Jun-2017	19-Jun-2017	18-Jun-2017	18-Jun-2017
Compound	*Method*	*LOR*	*Unit*				EM1708010-001	EM1708010-002	EM1708010-003	EM1708010-006	EM1708010-007
EP075B: Polynuclear Aromatic Hydrocarbons - Continued											
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg		----	20	<0.5	<0.5	<0.5	<0.5	<0.5
EP075I: Organochlorine Pesticides											
Sum of organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg		----	1	<0.03	<0.03	<0.03	<0.03	<0.03
EP080/071: Total Petroleum Hydrocarbons											
C6 - C9 Fraction	EP074-UT	10	mg/kg		----	100	<10	<10	<10	<10	<10
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg		----	1000	<50	<50	<50	<50	<50

Note: Red shading is applied where the result is equal to or greater than the guideline upper limit and/or equal to or lower than the guideline lower limit.

QUALITY CONTROL REPORT

Work Order	: **EM1708010**	Page	: 1 of 16
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLFA NAZARIO	Contact	: Steven McGrath
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9600
Project	: 2135645A	Date Samples Received	: 20-Jun-2017
Order number	:	Date Analysis Commenced	: 21-Jun-2017
C-O-C number	: 85408	Issue Date	: 27-Jun-2017
Sampler	: AH		
Site	: Site 26		
Quote number	: ME-525-16		
No. of samples received	: 7		
No. of samples analysed	: 7		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	Senior Semivolatile Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	Senior Semivolatile Instrument Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA001: pH in soil using 0.01M CaCl extract (QC Lot: 958824)									
EM1707991-015	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	7.7	7.8	1.29	0% - 20%
EM1708007-008	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	6.5	6.5	0.00	0% - 20%
EA001: pH in soil using 0.01M CaCl extract (QC Lot: 961307)									
EM1707991-069	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	10.8	10.8	0.00	0% - 20%
EM1708029-009	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	8.2	8.2	0.00	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 959156)									
EM1708007-002	Anonymous	EA055: Moisture Content	----	1	%	20.2	19.5	3.53	0% - 20%
EM1708013-004	Anonymous	EA055: Moisture Content	----	1	%	5.2	5.3	0.00	No Limit
EG005T: Total Metals by ICP-AES (QC Lot: 959518)									
EM1707849-002	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	3	<2	42.4	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	14	22	45.4	0% - 50%
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	8	11	30.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	12	14	10.4	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Tin	7440-31-5	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	17	25	39.7	No Limit
EM1708010-007	DUP B - 26/0.6	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	10	9	0.00	No Limit
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG005T: Total Metals by ICP-AES (QC Lot: 959518) - continued									
EM1708010-007	DUP B - 26/0.6	EG005T: Copper	7440-50-8	5	mg/kg	10	9	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	16	15	6.80	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Tin	7440-31-5	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	8	8	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 959519)									
EM1707849-002	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EM1708010-007	DUP B - 26/0.6	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EG048: Hexavalent Chromium (Alkaline Digest) (QC Lot: 961310)									
EM1707993-001	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1708013-011	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EK026SF: Total CN by Segmented Flow Analyser (QC Lot: 961825)									
EM1707965-001	Anonymous	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.00	No Limit
EM1707939-001	Anonymous	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.00	No Limit
EK026SF: Total CN by Segmented Flow Analyser (QC Lot: 961827)									
EM1708010-006	DUP A - 26/0.6	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.00	No Limit
EM1708018-014	Anonymous	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.00	No Limit
EK040T: Fluoride Total (QC Lot: 961313)									
EM1707989-004	Anonymous	EK040T: Fluoride	16984-48-8	40	mg/kg	230	220	4.52	No Limit
EM1707989-016	Anonymous	EK040T: Fluoride	16984-48-8	40	mg/kg	400	390	3.53	0% - 50%
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 956016)									
EM1707812-001	Anonymous	EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EM1708010-002	TP17-26-05/0.6	EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 956002)									
EM1707981-001	Anonymous	EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1708010-002	TP17-26-05/0.6	EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074H: Naphthalene (QC Lot: 956002)									

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074H: Naphthalene (QC Lot: 956002) - continued									
EM1707981-001	Anonymous	EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EM1708010-002	TP17-26-05/0.6	EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EP074I: Volatile Halogenated Compounds (QC Lot: 956002)									
EM1707981-001	Anonymous	EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	<0.04	0.00	No Limit
		EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	<0.4	0.00	No Limit
EM1708010-002	TP17-26-05/0.6	EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	<0.04	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074I: Volatile Halogenated Compounds (QC Lot: 956002) - continued									
EM1708010-002	TP17-26-05/0.6	EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	<0.4	0.00	No Limit
EP075A: Phenolic Compounds (Halogenated) (QC Lot: 956014)									
EM1707812-001	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EM1708010-002	TP17-26-05/0.6	EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP075A: Phenolic Compounds (Non-halogenated) (QC Lot: 956014)									
EM1707812-001	Anonymous	EP075-EM: Phenol	108-95-2	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	0.00	No Limit
EM1708010-002	TP17-26-05/0.6	EP075-EM: Phenol	108-95-2	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075A: Phenolic Compounds (Non-halogenated) (QC Lot: 956014) - continued									
EM1708010-002	TP17-26-05/0.6	EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	0.00	No Limit
EP075B: Polynuclear Aromatic Hydrocarbons (QC Lot: 956014)									
EM1707812-001	Anonymous	EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1708010-002	TP17-26-05/0.6	EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP075I: Organochlorine Pesticides (QC Lot: 956014)									
EM1707812-001	Anonymous	EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075I: Organochlorine Pesticides (QC Lot: 956014) - continued									
EM1707812-001	Anonymous	EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EM1708010-002	TP17-26-05/0.6	EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 956002)									
EM1707981-001	Anonymous	EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EM1708010-002	TP17-26-05/0.6	EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 956015)									
EM1707812-001	Anonymous	EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EM1708010-002	TP17-26-05/0.6	EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 956002)									
EM1707981-001	Anonymous	EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
		EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	0.00	No Limit
EM1708010-002	TP17-26-05/0.6	EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
		EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 956015)									
EM1707812-001	Anonymous	EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	60	27.0	No Limit
EM1708010-002	TP17-26-05/0.6	EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG020T: Total Metals by ICP-MS (QC Lot: 956342)									
EM1707984-003	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0002	0.0002	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.003	0.003	0.00	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.004	0.005	0.00	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.002	<0.002	0.00	No Limit
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	0.012	0.012	0.00	0% - 50%
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.002	0.003	0.00	No Limit
		EG020A-T: Tin	7440-31-5	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.032	0.031	3.58	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EM1707844-027	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Tin	7440-31-5	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.00	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG020T: Total Metals by ICP-MS (QC Lot: 956343)									
EM1707844-027	Anonymous	EG020B-T: Silver	7440-22-4	0.001	mg/L	0.001	<0.001	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 955608)									
EM1707986-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EM1707986-007	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	16600	16800	0.937	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 955608)									
EM1707986-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EM1707986-007	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	16000	16100	0.726	No Limit
EP080: BTEXN (QC Lot: 955608)									
EM1707986-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
EM1707986-007	Anonymous	EP080: Benzene	71-43-2	1	µg/L	7220	7420	2.72	0% - 20%
		EP080: Toluene	108-88-3	2	µg/L	4610	4580	0.598	0% - 20%
		EP080: Ethylbenzene	100-41-4	2	µg/L	531	519	2.26	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	1730	1700	2.11	0% - 50%
		EP080: ortho-Xylene	95-47-6	2	µg/L	404	399	1.42	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<100	<100	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 959518)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	100	79	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	96.6	85	109
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	98.7	84	116
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	99.7	85	107
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	7.9 mg/kg	100	86	112
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	107	89	111
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	100	93	109
EG005T: Silver	7440-22-4	2	mg/kg	<2	2.1 mg/kg	83.6	80	108
EG005T: Tin	7440-31-5	5	mg/kg	<5	5.2 mg/kg	93.1	92	114
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	106	89	111
EG035T: Total Recoverable Mercury by FIMS (QCLot: 959519)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	86.5	85	103
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 961310)								
EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	40 mg/kg	84.5	80	120
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 961825)								
EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	20 mg/kg	85.8	80	110
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 961827)								
EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	20 mg/kg	87.9	80	110
EK040T: Fluoride Total (QCLot: 961313)								
EK040T: Fluoride	16984-48-8	40	mg/kg	<40	950 mg/kg	89.7	76	108
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 956016)								
EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	96.4	63	133
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 956002)								
EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	2.1 mg/kg	87.9	74	118
EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	2.1 mg/kg	94.0	70	118
EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2.1 mg/kg	86.4	69	117
EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4.2 mg/kg	84.3	68	116
EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	2.1 mg/kg	86.9	71	117
EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2.1 mg/kg	86.9	70	116
EP074H: Naphthalene (QCLot: 956002)								
EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	0.6 mg/kg	90.6	74	116
EP074I: Volatile Halogenated Compounds (QCLot: 956002)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP074I: Volatile Halogenated Compounds (QCLot: 956002) - continued								
EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	0.1 mg/kg	95.5	49	133
EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	0.1 mg/kg	87.6	62	127
EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	2.1 mg/kg	72.8	65	131
EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	0.1 mg/kg	81.9	68	124
EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	0.1 mg/kg	88.5	74	118
EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	0.1 mg/kg	84.0	72	118
EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	0.1 mg/kg	85.7	67	119
EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	0.1 mg/kg	86.5	65	119
EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	0.1 mg/kg	87.1	70	122
EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	0.1 mg/kg	83.8	72	124
EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	0.1 mg/kg	86.3	74	122
EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	0.1 mg/kg	88.6	58	120
EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	0.1 mg/kg	90.7	70	119
EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	0.1 mg/kg	80.9	71	125
EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	0.1 mg/kg	85.6	61	125
EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	0.1 mg/kg	86.7	70	122
EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	0.1 mg/kg	77.9	61	118
EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	0.1 mg/kg	86.2	67	117
EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	0.1 mg/kg	81.7	53	127
EP075A: Phenolic Compounds (Halogenated) (QCLot: 956014)								
EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	2 mg/kg	90.2	43	119
EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	2 mg/kg	106	44	131
EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	2 mg/kg	87.0	43	122
EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	2 mg/kg	108	50	129
EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	2 mg/kg	85.2	44	128
EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	2 mg/kg	101	44	126
EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	2 mg/kg	105	46	126
EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/5 8-90-2	0.05	mg/kg	<0.05	4 mg/kg	99.9	44	124
EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	4 mg/kg	115	36	124
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 956014)								
EP075-EM: Phenol	108-95-2	1	mg/kg	<1	2 mg/kg	104	41	120
EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	2 mg/kg	90.2	41	131
EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	4 mg/kg	99.2	43	130
EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	2 mg/kg	106	49	130
EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	2 mg/kg	91.2	37	119
EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	12 mg/kg	50.0	23	125
EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	12 mg/kg	101	49	133
EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	12 mg/kg	73.5	47	125

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 956014) - continued								
EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	12 mg/kg	94.8	48	123
EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	10 mg/kg	51.2	12	132
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 956014)								
EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	2 mg/kg	92.8	44	122
EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	2 mg/kg	110	54	126
EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	2 mg/kg	89.1	46	126
EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	2 mg/kg	110	51	125
EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	2 mg/kg	113	57	127
EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	2 mg/kg	87.9	55	127
EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	2 mg/kg	111	57	131
EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	2 mg/kg	110	57	131
EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	2 mg/kg	105	56	132
EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	2 mg/kg	108	58	134
EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	4 mg/kg	96.9	55	133
EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	2 mg/kg	92.0	51	135
EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	2 mg/kg	86.2	55	137
EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	2 mg/kg	84.3	54	136
EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	2 mg/kg	90.8	55	137
EP075I: Organochlorine Pesticides (QCLot: 956014)								
EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	2 mg/kg	115	54	130
EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	2 mg/kg	108	54	130
EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	2 mg/kg	117	54	134
EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	2 mg/kg	119	54	132
EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	2 mg/kg	116	55	131
EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	2 mg/kg	106	54	128
EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	2 mg/kg	113	54	128
EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	2 mg/kg	106	56	130
EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	2 mg/kg	105	56	130
EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	2 mg/kg	104	55	131
EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	2 mg/kg	120	53	133
EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	2 mg/kg	107	54	130
EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	2 mg/kg	114	57	133
EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	2 mg/kg	120	28	174
EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	2 mg/kg	121	40	148
EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	2 mg/kg	115	56	138
EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	2 mg/kg	109	57	135
EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	2 mg/kg	110	51	133
EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	2 mg/kg	103	51	133

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP075I: Organochlorine Pesticides (QCLot: 956014) - continued								
EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	2 mg/kg	108	48	136
EP080/071: Total Petroleum Hydrocarbons (QCLot: 956002)								
EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	39.6 mg/kg	85.0	69	114
EP080/071: Total Petroleum Hydrocarbons (QCLot: 956015)								
EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	837 mg/kg	87.9	72	130
EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	3061 mg/kg	85.2	77	126
EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	1592 mg/kg	85.6	75	119
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 956002)								
EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	48.9 mg/kg	86.4	69	112
EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 956015)								
EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	1222 mg/kg	86.8	75	123
EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	3919 mg/kg	83.6	77	127
EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	316 mg/kg	90.7	43	123

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 956342)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	101	94	113
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	97.2	88	110
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	97.0	87	112
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	94.8	88	113
EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	99.8	89	114
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	99.0	91	111
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	92.2	86	110
EG020A-T: Tin	7440-31-5	0.001	mg/L	<0.001	0.1 mg/L	106	88	113
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	106	88	112
EG020T: Total Metals by ICP-MS (QCLot: 956343)								
EG020B-T: Silver	7440-22-4	0.001	mg/L	<0.001	0.02 mg/L	103	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 955608)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	360 µg/L	87.5	67	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 955608)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	85.7	65	125
EP080: BTEXN (QCLot: 955608)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	92.9	76	120
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	97.2	76	124

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080: BTEXN (QCLot: 955608) - continued								
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	91.3	72	124
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	89.9	72	130
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	90.6	78	128
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	97.6	71	129

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG005T: Total Metals by ICP-AES (QCLot: 959518)							
EM1707935-003	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	92.7	78	124
		EG005T: Cadmium	7440-43-9	50 mg/kg	98.5	84	116
		EG005T: Copper	7440-50-8	50 mg/kg	104	82	124
		EG005T: Lead	7439-92-1	50 mg/kg	87.2	76	124
		EG005T: Molybdenum	7439-98-7	50 mg/kg	95.0	79	117
		EG005T: Nickel	7440-02-0	50 mg/kg	103	78	120
		EG005T: Selenium	7782-49-2	50 mg/kg	80.7	71	125
		EG005T: Zinc	7440-66-6	50 mg/kg	94.4	74	128
EG035T: Total Recoverable Mercury by FIMS (QCLot: 959519)							
EM1707935-003	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	80.7	76	116
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 961310)							
EM1707993-004	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	40 mg/kg	82.4	58	114
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 961825)							
EM1707932-019	Anonymous	EK026SF: Total Cyanide	57-12-5	20 mg/kg	86.4	77	113
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 961827)							
EM1708010-007	DUP B - 26/0.6	EK026SF: Total Cyanide	57-12-5	20 mg/kg	86.2	77	113
EK040T: Fluoride Total (QCLot: 961313)							
EM1707989-005	Anonymous	EK040T: Fluoride	16984-48-8	400 mg/kg	95.2	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 956016)							
EM1707812-003	Anonymous	EP066-EM: Total Polychlorinated biphenyls	----	1 mg/kg	88.6	36	152
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 956002)							
EM1707981-004	Anonymous	EP074-UT: Benzene	71-43-2	2 mg/kg	76.7	50	138

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 956002) - continued							
EM1707981-004	Anonymous	EP074-UT: Toluene	108-88-3	2 mg/kg	76.1	56	134
EP074I: Volatile Halogenated Compounds (QCLot: 956002)							
EM1707981-004	Anonymous	EP074-UT: 1.1-Dichloroethene	75-35-4	2 mg/kg	84.0	26	141
		EP074-UT: Trichloroethene	79-01-6	2 mg/kg	75.4	50	134
		EP074-UT: Chlorobenzene	108-90-7	2 mg/kg	77.1	28	134
EP075A: Phenolic Compounds (Halogenated) (QCLot: 956014)							
EM1707812-009	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	1 mg/kg	76.1	34	118
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	1 mg/kg	80.5	41	139
		EP075-EM: Pentachlorophenol	87-86-5	1 mg/kg	58.0	10	144
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 956014)							
EM1707812-009	Anonymous	EP075-EM: Phenol	108-95-2	1 mg/kg	77.0	32	134
		EP075-EM: 2-Nitrophenol	88-75-5	1 mg/kg	67.1	13	129
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 956014)							
EM1707812-009	Anonymous	EP075-EM: Acenaphthene	83-32-9	1 mg/kg	86.6	46	138
		EP075-EM: Pyrene	129-00-0	1 mg/kg	141	27	169
EP080/071: Total Petroleum Hydrocarbons (QCLot: 956002)							
EM1707981-004	Anonymous	EP074-UT: C6 - C9 Fraction	----	28 mg/kg	56.8	43	111
EP080/071: Total Petroleum Hydrocarbons (QCLot: 956015)							
EM1707812-007	Anonymous	EP071-EM: C10 - C14 Fraction	----	837 mg/kg	89.7	53	123
		EP071-EM: C15 - C28 Fraction	----	3061 mg/kg	88.1	70	124
		EP071-EM: C29 - C36 Fraction	----	1592 mg/kg	89.9	64	118
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 956002)							
EM1707981-004	Anonymous	EP074-UT: C6 - C10 Fraction	C6_C10	33 mg/kg	55.6	42	106
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 956015)							
EM1707812-007	Anonymous	EP071-EM: >C10 - C16 Fraction	----	1222 mg/kg	89.0	65	123
		EP071-EM: >C16 - C34 Fraction	----	3919 mg/kg	86.8	67	121
		EP071-EM: >C34 - C40 Fraction	----	316 mg/kg	91.7	44	126

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 956342)							
EM1707844-027	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	100	82	118
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	98.5	75	129
		EG020A-T: Copper	7440-50-8	1 mg/L	95.2	81	115
		EG020A-T: Lead	7439-92-1	1 mg/L	99.8	83	121
		EG020A-T: Nickel	7440-02-0	1 mg/L	100	80	118

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 956342) - continued							
EM1707844-027	Anonymous	EG020A-T: Zinc	7440-66-6	1 mg/L	101	74	116
EP080/071: Total Petroleum Hydrocarbons (QCLot: 955608)							
EM1707936-002	Anonymous	EP080: C6 - C9 Fraction	----	280 µg/L	76.6	43	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 955608)							
EM1707936-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	330 µg/L	73.8	44	122
EP080: BTEXN (QCLot: 955608)							
EM1707936-002	Anonymous	EP080: Benzene	71-43-2	20 µg/L	99.5	68	130
		EP080: Toluene	108-88-3	20 µg/L	95.3	72	132

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM1708010**	Page	: 1 of 9
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLFA NAZARIO	Telephone	: +61-3-8549 9600
Project	: 2135645A	Date Samples Received	: 20-Jun-2017
Site	: Site 26	Issue Date	: 27-Jun-2017
Sampler	: AH	No. of samples received	: 7
Order number	:	No. of samples analysed	: 7

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA001: pH in soil using 0.01M CaCl extract							
Soil Glass Jar - Unpreserved (EA001) TP17-26-07/0.6, TP17-26-05/0.6, DUP A - 26/0.6, DUP B - 26/0.6	**18-Jun-2017**	**22-Jun-2017**	25-Jun-2017	✓	**22-Jun-2017**	22-Jun-2017	✓
Soil Glass Jar - Unpreserved (EA001) TP17-26-03/0.6	**19-Jun-2017**	**23-Jun-2017**	26-Jun-2017	✓	**23-Jun-2017**	23-Jun-2017	✓
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055) TP17-26-07/0.6, TP17-26-05/0.6, DUP A - 26/0.6, DUP B - 26/0.6	**18-Jun-2017**	**----**	----	----	**22-Jun-2017**	02-Jul-2017	✓
Soil Glass Jar - Unpreserved (EA055) TP17-26-03/0.6	**19-Jun-2017**	**----**	----	----	**22-Jun-2017**	03-Jul-2017	✓
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T) TP17-26-07/0.6, TP17-26-05/0.6, DUP A - 26/0.6, DUP B - 26/0.6	**18-Jun-2017**	**23-Jun-2017**	15-Dec-2017	✓	**23-Jun-2017**	15-Dec-2017	✓
Soil Glass Jar - Unpreserved (EG005T) TP17-26-03/0.6	**19-Jun-2017**	**23-Jun-2017**	16-Dec-2017	✓	**23-Jun-2017**	16-Dec-2017	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T) TP17-26-07/0.6, TP17-26-05/0.6, DUP A - 26/0.6, DUP B - 26/0.6	**18-Jun-2017**	**23-Jun-2017**	16-Jul-2017	✓	**26-Jun-2017**	16-Jul-2017	✓
Soil Glass Jar - Unpreserved (EG035T) TP17-26-03/0.6	**19-Jun-2017**	**23-Jun-2017**	17-Jul-2017	✓	**26-Jun-2017**	17-Jul-2017	✓
EG048: Hexavalent Chromium (Alkaline Digest)							
Soil Glass Jar - Unpreserved (EG048G) TP17-26-07/0.6, TP17-26-05/0.6, DUP A - 26/0.6, DUP B - 26/0.6	**18-Jun-2017**	**23-Jun-2017**	16-Jul-2017	✓	**23-Jun-2017**	30-Jun-2017	✓
Soil Glass Jar - Unpreserved (EG048G) TP17-26-03/0.6	**19-Jun-2017**	**23-Jun-2017**	17-Jul-2017	✓	**23-Jun-2017**	30-Jun-2017	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EK026SF: Total CN by Segmented Flow Analyser							
Soil Glass Jar - Unpreserved (EK026SF)							
TP17-26-07/0.6, TP17-26-05/0.6, DUP A - 26/0.6, DUP B - 26/0.6	**18-Jun-2017**	**23-Jun-2017**	02-Jul-2017	✓	**26-Jun-2017**	07-Jul-2017	✓
Soil Glass Jar - Unpreserved (EK026SF)							
TP17-26-03/0.6	**19-Jun-2017**	**23-Jun-2017**	03-Jul-2017	✓	**26-Jun-2017**	07-Jul-2017	✓
EK040T: Fluoride Total							
Soil Glass Jar - Unpreserved (EK040T)							
TP17-26-07/0.6, TP17-26-05/0.6, DUP A - 26/0.6, DUP B - 26/0.6	**18-Jun-2017**	**23-Jun-2017**	16-Jul-2017	✓	**26-Jun-2017**	16-Jul-2017	✓
Soil Glass Jar - Unpreserved (EK040T)							
TP17-26-03/0.6	**19-Jun-2017**	**23-Jun-2017**	17-Jul-2017	✓	**26-Jun-2017**	17-Jul-2017	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066-EM)							
TP17-26-07/0.6, TP17-26-05/0.6, DUP A - 26/0.6, DUP B - 26/0.6	**18-Jun-2017**	**21-Jun-2017**	02-Jul-2017	✓	**21-Jun-2017**	31-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP066-EM)							
TP17-26-03/0.6	**19-Jun-2017**	**21-Jun-2017**	03-Jul-2017	✓	**21-Jun-2017**	31-Jul-2017	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074-UT)							
TP17-26-07/0.6, TP17-26-05/0.6, DUP A - 26/0.6, DUP B - 26/0.6	**18-Jun-2017**	**21-Jun-2017**	25-Jun-2017	✓	**22-Jun-2017**	25-Jun-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT)							
TP17-26-03/0.6	**19-Jun-2017**	**21-Jun-2017**	26-Jun-2017	✓	**22-Jun-2017**	26-Jun-2017	✓
EP074H: Naphthalene							
Soil Glass Jar - Unpreserved (EP074-UT)							
TP17-26-07/0.6, TP17-26-05/0.6, DUP A - 26/0.6, DUP B - 26/0.6	**18-Jun-2017**	**21-Jun-2017**	25-Jun-2017	✓	**22-Jun-2017**	25-Jun-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT)							
TP17-26-03/0.6	**19-Jun-2017**	**21-Jun-2017**	26-Jun-2017	✓	**22-Jun-2017**	26-Jun-2017	✓
EP074I: Volatile Halogenated Compounds							
Soil Glass Jar - Unpreserved (EP074-UT)							
TP17-26-07/0.6, TP17-26-05/0.6, DUP A - 26/0.6, DUP B - 26/0.6	**18-Jun-2017**	**21-Jun-2017**	25-Jun-2017	✓	**22-Jun-2017**	25-Jun-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT)							
TP17-26-03/0.6	**19-Jun-2017**	**21-Jun-2017**	26-Jun-2017	✓	**22-Jun-2017**	26-Jun-2017	✓
EP075A: Phenolic Compounds (Halogenated)							
Soil Glass Jar - Unpreserved (EP075-EM)							
TP17-26-07/0.6, TP17-26-05/0.6, DUP A - 26/0.6, DUP B - 26/0.6	**18-Jun-2017**	**21-Jun-2017**	02-Jul-2017	✓	**21-Jun-2017**	31-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP075-EM)							
TP17-26-03/0.6	**19-Jun-2017**	**21-Jun-2017**	03-Jul-2017	✓	**21-Jun-2017**	31-Jul-2017	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075A: Phenolic Compounds (Non-halogenated)							
Soil Glass Jar - Unpreserved (EP075-EM)							
TP17-26-07/0.6, TP17-26-05/0.6, DUP A - 26/0.6, DUP B - 26/0.6	**18-Jun-2017**	**21-Jun-2017**	02-Jul-2017	✓	**21-Jun-2017**	31-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP075-EM)							
TP17-26-03/0.6	**19-Jun-2017**	**21-Jun-2017**	03-Jul-2017	✓	**21-Jun-2017**	31-Jul-2017	✓
EP075B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075-EM)							
TP17-26-07/0.6, TP17-26-05/0.6, DUP A - 26/0.6, DUP B - 26/0.6	**18-Jun-2017**	**21-Jun-2017**	02-Jul-2017	✓	**21-Jun-2017**	31-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP075-EM)							
TP17-26-03/0.6	**19-Jun-2017**	**21-Jun-2017**	03-Jul-2017	✓	**21-Jun-2017**	31-Jul-2017	✓
EP075I: Organochlorine Pesticides							
Soil Glass Jar - Unpreserved (EP075-EM)							
TP17-26-07/0.6, TP17-26-05/0.6, DUP A - 26/0.6, DUP B - 26/0.6	**18-Jun-2017**	**21-Jun-2017**	02-Jul-2017	✓	**21-Jun-2017**	31-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP075-EM)							
TP17-26-03/0.6	**19-Jun-2017**	**21-Jun-2017**	03-Jul-2017	✓	**21-Jun-2017**	31-Jul-2017	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP071-EM)							
TP17-26-07/0.6, TP17-26-05/0.6, DUP A - 26/0.6, DUP B - 26/0.6	**18-Jun-2017**	**21-Jun-2017**	02-Jul-2017	✓	**21-Jun-2017**	31-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT)							
TP17-26-07/0.6, TP17-26-05/0.6, DUP A - 26/0.6, DUP B - 26/0.6	**18-Jun-2017**	**21-Jun-2017**	25-Jun-2017	✓	**22-Jun-2017**	25-Jun-2017	✓
Soil Glass Jar - Unpreserved (EP071-EM)							
TP17-26-03/0.6	**19-Jun-2017**	**21-Jun-2017**	03-Jul-2017	✓	**21-Jun-2017**	31-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT)							
TP17-26-03/0.6	**19-Jun-2017**	**21-Jun-2017**	26-Jun-2017	✓	**22-Jun-2017**	26-Jun-2017	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP071-EM)							
TP17-26-07/0.6, TP17-26-05/0.6, DUP A - 26/0.6, DUP B - 26/0.6	**18-Jun-2017**	**21-Jun-2017**	02-Jul-2017	✓	**21-Jun-2017**	31-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT)							
TP17-26-07/0.6, TP17-26-05/0.6, DUP A - 26/0.6, DUP B - 26/0.6	**18-Jun-2017**	**21-Jun-2017**	25-Jun-2017	✓	**22-Jun-2017**	25-Jun-2017	✓
Soil Glass Jar - Unpreserved (EP071-EM)							
TP17-26-03/0.6	**19-Jun-2017**	**21-Jun-2017**	03-Jul-2017	✓	**21-Jun-2017**	31-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT)							
TP17-26-03/0.6	**19-Jun-2017**	**21-Jun-2017**	26-Jun-2017	✓	**22-Jun-2017**	26-Jun-2017	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unspecified (EG020B-T)							
RB1/190617	**19-Jun-2017**	**21-Jun-2017**	16-Dec-2017	✓	**22-Jun-2017**	16-Dec-2017	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP080)							
TB1/180617	**18-Jun-2017**	**21-Jun-2017**	02-Jul-2017	✓	**21-Jun-2017**	02-Jul-2017	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber VOC Vial - Sulfuric Acid (EP080)							
TB1/180617	**18-Jun-2017**	**21-Jun-2017**	02-Jul-2017	✓	**21-Jun-2017**	02-Jul-2017	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
TB1/180617	**18-Jun-2017**	**21-Jun-2017**	02-Jul-2017	✓	**21-Jun-2017**	02-Jul-2017	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Matrix Spikes (MS) - Continued							
Total Fluoride	EK040T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Total Metals by ICP-MS - Suite A	EG020A-T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite B	EG020B-T	1	1	**100.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite B	EG020B-T	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite B	EG020B-T	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH in soil using a 0.01M CaCl2 extract	EA001	SOIL	In house: Referenced to Rayment and Lyons 4B3 (mod.) or 4B4 (mod.) 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM (2013) Schedule B(3)
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	SOIL	In house: Referenced to USEPA SW846, Method 3060A. Hexavalent chromium is extracted by alkaline digestion. The digest is determined by photometrically by automatic discrete analyser, following pH adjustment. The instrument uses colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Cyanide by Segmented Flow Analyser	EK026SF	SOIL	In house: Referenced to APHA 4500-CN C / ASTM D7511. Caustic leachates of soil samples are introduced into an automated segmented flow analyser. Complex bound cyanide is decomposed in a continuously flowing stream, at a pH of 3.8, by the effect of UV light. A UV-B lamp (312 nm) and a decomposition spiral of borosilicate glass are used to filter out UV light with a wavelength of less than 290 nm thus preventing the conversion of thiocyanate into cyanide. The hydrogen cyanide present at a pH of 3.8 is separated by gas dialysis. The hydrogen cyanide is then determined photometrically, based on the reaction of cyanide with chloramine-T to form cyanogen chloride. This then reacts with 4-pyridine carboxylic acid and 1,3-dimethylbarbituric acid to give a red colour which is measured at 600 nm. This method is compliant with NEPM (2013) Schedule B(3)
Total Fluoride	EK040T	SOIL	(In-house) Total fluoride is determined by ion specific electrode (ISE) in a solution obtained after a Sodium Carbonate / Potassium Carbonate fusion dissolution.
PCB - VIC EPA 448.3 Screen	EP066-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
TRH - Semivolatile Fraction	EP071-EM	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40.
Volatile Organic Compounds - Ultra-trace	EP074-UT	SOIL	In house: Referenced to USEPA SW 846 - 8260B Extracts are analysed by Purge and Trap, Capillary GC/MS in partial SIM/Scan mode. Quantification is by comparison against an established multi-point calibration curves. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)

Analytical Methods	Method	Matrix	Method Descriptions
Volatile Organic Compounds - Ultra-trace - Summations	EP074-UT-SUM	SOIL	Summation of MAHs and VHCs
Semivolatile Organic Compounds - Waste Classification	EP075-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (2013) Schedule B(3) (Method 502)
SVOC - Waste Classification (Sums)	EP075-EM-SUM	SOIL	Summations for EP075 (EM variation)
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite B	EG020B-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
NaOH leach for CN in Soils	CN-PR	SOIL	In house: APHA 4500 CN. Samples are extracted by end-over-end tumbling with NaOH.
pH in soil using a 0.01M CaCl2 extract	EA001-PR	SOIL	In house: Referenced to Rayment and Higginson 4B1, 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Alkaline digestion for Hexavalent Chromium	EG048PR	SOIL	In house: Referenced to USEPA SW846, Method 3060A.
Total Fluoride	EK040T-PR	SOIL	In house: Samples are fused with Sodium Carbonate / Potassium Carbonate flux.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils - Ultra-trace.	ORG16-UT	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids - VIC EPA Screen	ORG17-EM	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EM1708010**

Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLFA NAZARIO	Contact	: Steven McGrath
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: onazario@pb.com.au	E-mail	:
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9600
Facsimile	: +61 03 9861 1144	Facsimile	: +61-3-8549 9601
Project	: 2135645A	Page	: 1 of 3
Order number	:	Quote number	: EM2016PARBRIVIC0006 (ME-525-16)
C-O-C number	: 85408	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Site 26		
Sampler	: AH		

Dates

Date Samples Received	: 20-Jun-2017 15:05	Issue Date	: 20-Jun-2017
Client Requested Due Date	: 27-Jun-2017	Scheduled Reporting Date	: **27-Jun-2017**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 1	Temperature	: 4.3°C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 7 / 7

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.
- **Analytical work for this work order will be conducted at ALS Springvale.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA055-103 Moisture Content	SOIL - P-16 WRG 621
EM1708010-001	18-Jun-2017 00:00	TP17-26-07/0.6	✓	✓
EM1708010-002	18-Jun-2017 00:00	TP17-26-05/0.6	✓	✓
EM1708010-003	19-Jun-2017 00:00	TP17-26-03/0.6	✓	✓
EM1708010-006	18-Jun-2017 00:00	DUP A - 26/0.6	✓	✓
EM1708010-007	18-Jun-2017 00:00	DUP B - 26/0.6	✓	✓

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG020T Total Recoverable Metals by ICPMS (including	WATER - W-18 TRH(C6 - C9)/BTEXN
EM1708010-004	19-Jun-2017 00:00	RB1/190617	✓	
EM1708010-005	18-Jun-2017 00:00	TB1/180617		✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ALL INVOICES

- A4 - AU Tax Invoice (INV)	Email	apinvoices@pb.com.au

OLFA NAZARIO

- *AU Certificate of Analysis - NATA (COA)	Email	onazario@pb.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	onazario@pb.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	onazario@pb.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	onazario@pb.com.au
- AU IWRG 621 2009 Guideline Report (COA_GL_IWRG_621)	Email	onazario@pb.com.au
- Chain of Custody (CoC) (COC)	Email	onazario@pb.com.au
- EDI Format - ENMRG (ENMRG)	Email	onazario@pb.com.au
- EDI Format - ESDAT (ESDAT)	Email	onazario@pb.com.au

OLIVIA HENDERSON

- *AU Certificate of Analysis - NATA (COA)	Email	ohenderson@pb.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	ohenderson@pb.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	ohenderson@pb.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	ohenderson@pb.com.au
- AU IWRG 621 2009 Guideline Report (COA_GL_IWRG_621)	Email	ohenderson@pb.com.au
- Chain of Custody (CoC) (COC)	Email	ohenderson@pb.com.au
- EDI Format - ENMRG (ENMRG)	Email	ohenderson@pb.com.au
- EDI Format - ESDAT (ESDAT)	Email	ohenderson@pb.com.au

WSP | PARSONS BRINCKERHOFF

White Page - Laboratory Copy
Yellow Page - Project File Copy
Pink Page - Remains in Book

ABN 80 078 004 798

❑ **Adelaide** Level 1, 1 King William Street, GPO Box 398 Adelaide SA 5001 Tel: (08) 8405 4300 Fax: (08) 8405 4301

❑ **Brisbane** Level 3, Northbank Plaza 69 Ann Street, GPO Box 2907 Brisbane QLD 4001 Tel: (07) 3854 6200 Fax: (07) 3854 6500

❑ **Melbourne** Level 15, 28 Freshwater Place, Tel: (03) 9861 1111 Fax: (03) 9861 1144

❑ **Sydney** Level 27, Ernst & Young Centre 680 George Street, GPO Box 5394, Sydney NSW 2001 Tel: (02) 9272 5100 Fax: (02) 9272 5101

❑ **Perth** Level 5, 503 Murray Street, PO Box 7181 Cloisters Square WA 6850 Tel: (08) 9489 9700 Fax: (08) 9489 9777

❑ **Singleton** 188 John Street, PO Box 115 Singleton NSW 2330 Tel: (02) 6572 3377 Fax: (02) 6572 4080

❑ **Newcastle** Level 3, 51-55 Bolton Street, Suite 1 PO Box 1162 Newcastle NSW, 2300 Tel: (02) 4929 8300 Fax: (02) 4929 8382

Chain of Custody

Order No: 85408

Job Title:	OSAR	PB Job Number: 2135645A	Job Location: Site 26
Laboratory Name:	ALS	Terms of Business	PB / Other / Checked
Address:	2-4 Westall Rd Springvale Vic		
Fax Number:			
Phone Number:	03 8549960		
Contact Name:	Steven McGrath		
Delivery Method:			
Quote Number:	ME-525-16		

Project Manager:	Olfa Nazaire	
Results Expected by/on:	Standard	
Fax Results to:	O. Nazaire	
Fax Number:		
Phone Number:		
Spreadsheet of Results Required:	(Y) / N	
Format:	ESDAT, PDF	
Turnaround Time Required:	STD	
Invoice to:	O. Nazaire	
Comments:	1/1	

Date Sampled	Time	Sample I.D.	Container Size	Sample Location	Medium*	Preservative Type (ALS I.D.)	Filtered (X)	TPH	BTEX	PAH's	OC/OP/PCBs	Metals**	IWRG621 Suite	IWRG metals	TPH/BTEX	Initials	Comments/Additional Information and/or Analysis Required
18/6/17	11:30PM	TP17-26 07/0.6	250mL	Site26	S	1							✓				
18/6/17	11:59PM	TP17-26 05/0.6	↓	↓	S	2							✓				
19/6/17	12:30AM	TP17-26-03/0.6	↓	↓	S	3							✓				
~~[illegible]~~		~~[illegible]~~	↓	↓	S								✓				
~~[illegible]~~		~~TP17-26 [illegible]~~	↓	↓	S								✓				
19/6/17	12:46AM	RB1/190617	bottle	—	W	4								✓	✓		
18/6/17	9:30PM	TB1/180617	bottle.	—	W	5									✓		
18/6/17	11:35PM	DUP A-26/0.6	250mL	Site26	S	6							✓				
18/6/17	11:30PM	DUP B-26/0.6	250mL	↓	S	7							✓				

Environmental Division
Melbourne
Work Order Reference
EM1708010

Telephone : +61-3-8549 9600

Relinquished by:	Relinquished by:	Relinquished by:
Date & Time:	Date & Time:	Date & Time:
Company:	Company:	Company:
Signature:	Signature:	Signature:
Received in Good Order & Condition by (Name): [illegible]	Received in Good Order & Condition by (Name):	Received in Good Order & Condition by (Name):
Date & Time: 20/6, 1505	Date & Time:	Date & Time:
Company: ALS	Company:	Company:
Signature:	Signature:	Signature:

Medium*: S = Soil, W = Water, V = Vapour

Legend**: (circle the following to be tested)

Metals: Al As Be Cd Co Cr Cu Fe Hg Li Mg Mn Ni Pb Se Sn V Zn

Samples on Ice: ☐ Yes ☐ No

Please fax back a signed copy when samples are received at the laboratory

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1711031**	Page	: 1 of 14
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLIVIA HENDERSON	Contact	: Steven McGrath
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9600
Project	: 2135645A	Date Samples Received	: 17-Aug-2017 17:00
Order number	: ----	Date Analysis Commenced	: 18-Aug-2017
C-O-C number	: 85412	Issue Date	: 23-Aug-2017 13:19
Sampler	: ----		
Site	: Site 26		
Quote number	: ME-525-16		
No. of samples received	: 11		
No. of samples analysed	: 11		

ilac-MRA NATA
Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	Senior Semivolatile Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	Senior Semivolatile Instrument Chemist	Melbourne Organics, Springvale, VIC
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EG020T: EM1711031-001 & 002 Total Metal results have been confirmed by re-digestion and re-analysis
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	B17-68379/0.1	B17-68379/0.7	B17-68386/0.1	B17-68386/0.7	B17-68382/0.1
			Client sampling date / time	16-Aug-2017 12:00	16-Aug-2017 12:00	16-Aug-2017 08:00	16-Aug-2017 08:00	17-Aug-2017 09:30
Compound	CAS Number	LOR	Unit	EM1711031-004	EM1711031-005	EM1711031-006	EM1711031-007	EM1711031-008
				Result	Result	Result	Result	Result
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	5.3	5.4	4.2	4.1	6.9
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	7.7	10.6	9.8	7.2	7.2
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	52	10	9
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Copper	7440-50-8	5	mg/kg	<5	<5	<5	<5	8
Lead	7439-92-1	5	mg/kg	6	8	5	<5	22
Molybdenum	7439-98-7	2	mg/kg	5	<2	<2	<2	<2
Nickel	7440-02-0	2	mg/kg	3	<2	3	<2	9
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Silver	7440-22-4	2	mg/kg	<2	<2	<2	<2	<2
Tin	7440-31-5	5	mg/kg	<5	<5	<5	<5	<5
Zinc	7440-66-6	5	mg/kg	7	11	<5	<5	27
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	<0.5	0.6	<0.5
EK026SF: Total CN by Segmented Flow Analyser								
Total Cyanide	57-12-5	1	mg/kg	<1	<1	<1	<1	<1
EK040T: Fluoride Total								
Fluoride	16984-48-8	40	mg/kg	80	60	110	90	140
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of monocyclic aromatic hydrocarbons	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B17-68379/0.1	B17-68379/0.7	B17-68386/0.1	B17-68386/0.7	B17-68382/0.1
				Client sampling date / time	16-Aug-2017 12:00	16-Aug-2017 12:00	16-Aug-2017 08:00	16-Aug-2017 08:00	17-Aug-2017 09:30
Compound	CAS Number	LOR	Unit		EM1711031-004	EM1711031-005	EM1711031-006	EM1711031-007	EM1711031-008
					Result	Result	Result	Result	Result
EP074H: Naphthalene									
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP074I: Volatile Halogenated Compounds									
Vinyl chloride	75-01-4	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.1-Dichloroethene	75-35-4	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Methylene chloride	75-09-2	0.4	mg/kg		<0.4	<0.4	<0.4	<0.4	<0.4
trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Chloroform	67-66-3	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.1.1-Trichloroethane	71-55-6	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Carbon Tetrachloride	56-23-5	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
1.2-Dichloroethane	107-06-2	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Trichloroethene	79-01-6	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.1.2-Trichloroethane	79-00-5	0.04	mg/kg		<0.04	<0.04	<0.04	<0.04	<0.04
Tetrachloroethene	127-18-4	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Hexachlorobutadiene	87-68-3	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Chlorobenzene	108-90-7	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.4-Dichlorobenzene	106-46-7	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.2-Dichlorobenzene	95-50-1	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
^ Sum of volatile chlorinated hydrocarbons	----	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
^ Sum of other chlorinated hydrocarbons	----	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
EP075A: Phenolic Compounds (Halogenated)									
2-Chlorophenol	95-57-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
2.4-Dichlorophenol	120-83-2	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
2.6-Dichlorophenol	87-65-0	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Pentachlorophenol	87-86-5	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Sum of Phenols (halogenated)	----	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B17-68379/0.1	B17-68379/0.7	B17-68386/0.1	B17-68386/0.7	B17-68382/0.1
				Client sampling date / time	16-Aug-2017 12:00	16-Aug-2017 12:00	16-Aug-2017 08:00	16-Aug-2017 08:00	17-Aug-2017 09:30
Compound	CAS Number	LOR	Unit		EM1711031-004	EM1711031-005	EM1711031-006	EM1711031-007	EM1711031-008
					Result	Result	Result	Result	Result
EP075A: Phenolic Compounds (Halogenated) - Continued									
EP075A: Phenolic Compounds (Non-halogenated)									
Phenol	108-95-2	1	mg/kg		<1	<1	<1	<1	<1
2-Methylphenol	95-48-7	1	mg/kg		<1	<1	<1	<1	<1
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	1	mg/kg		<1	<1	<1	<1	<1
2.4-Dimethylphenol	105-67-9	1	mg/kg		<1	<1	<1	<1	<1
2.4-Dinitrophenol	51-28-5	5	mg/kg		<5	<5	<5	<5	<5
4-Nitrophenol	100-02-7	5	mg/kg		<5	<5	<5	<5	<5
2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg		<5	<5	<5	<5	<5
Dinoseb	88-85-7	5	mg/kg		<5	<5	<5	<5	<5
2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg		<5	<5	<5	<5	<5
^ Sum of Phenols (non-halogenated)	----	1	mg/kg		<1	<1	<1	<1	<1
EP075B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP075I: Organochlorine Pesticides									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B17-68379/0.1	B17-68379/0.7	B17-68386/0.1	B17-68386/0.7	B17-68382/0.1
				Client sampling date / time	16-Aug-2017 12:00	16-Aug-2017 12:00	16-Aug-2017 08:00	16-Aug-2017 08:00	17-Aug-2017 09:30
Compound	CAS Number	LOR	Unit		EM1711031-004	EM1711031-005	EM1711031-006	EM1711031-007	EM1711031-008
					Result	Result	Result	Result	Result
EP075l: Organochlorine Pesticides - Continued									
alpha-BHC	319-84-6	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
beta-BHC	319-85-7	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
gamma-BHC	58-89-9	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
delta-BHC	319-86-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Heptachlor	76-44-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Aldrin	309-00-2	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Heptachlor epoxide	1024-57-3	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
cis-Chlordane	5103-71-9	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
trans-Chlordane	5103-74-2	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Endosulfan 1	959-98-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	**0.09**
Endrin aldehyde	7421-93-4	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Endrin	72-20-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Endosulfan 2	33213-65-9	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
4.4`-DDT	50-29-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
^ Sum of organochlorine pesticides	----	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	**0.09**
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	**0.09**
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ Chlordane	57-74-9	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
^ Sum of other organochlorine pesticides	----	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B17-68379/0.1	B17-68379/0.7	B17-68386/0.1	B17-68386/0.7	B17-68382/0.1
				Client sampling date / time	16-Aug-2017 12:00	16-Aug-2017 12:00	16-Aug-2017 08:00	16-Aug-2017 08:00	17-Aug-2017 09:30
Compound	CAS Number	LOR	Unit		EM1711031-004	EM1711031-005	EM1711031-006	EM1711031-007	EM1711031-008
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		<50	<50	<50	<50	<50
>C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	<50
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**75.5**	**77.3**	**90.9**	**80.5**	**74.3**
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		**77.5**	**75.1**	**83.8**	**71.8**	**75.1**
Toluene-D8	2037-26-5	0.1	%		**76.9**	**74.8**	**72.6**	**70.6**	**71.4**
4-Bromofluorobenzene	460-00-4	0.1	%		**74.2**	**72.1**	**76.9**	**74.4**	**75.4**
EP075S: Acid Extractable Surrogates									
Phenol-d6	13127-88-3	0.025	%		**110**	**110**	**114**	**102**	**103**
2-Chlorophenol-D4	93951-73-6	0.025	%		**92.6**	**92.5**	**97.6**	**87.9**	**87.6**
2.4.6-Tribromophenol	118-79-6	0.025	%		**88.6**	**90.0**	**85.5**	**80.8**	**83.1**
EP075T: Base/Neutral Extractable Surrogates									
Nitrobenzene-D5	4165-60-0	0.025	%		**87.2**	**91.7**	**99.9**	**87.6**	**87.1**
1.2-Dichlorobenzene-D4	2199-69-1	0.025	%		**90.3**	**94.8**	**98.9**	**90.0**	**91.6**
2-Fluorobiphenyl	321-60-8	0.025	%		**92.0**	**93.7**	**96.8**	**91.2**	**87.6**
Anthracene-d10	1719-06-8	0.025	%		**108**	**110**	**114**	**108**	**103**
4-Terphenyl-d14	1718-51-0	0.025	%		**114**	**110**	**110**	**112**	**91.9**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	B17-68382/0.5	B17-68382/1.2	B17-68382/2.0	----	----
			Client sampling date / time	17-Aug-2017 09:35	17-Aug-2017 09:40	17-Aug-2017 09:50	----	----
Compound	CAS Number	LOR	Unit	EM1711031-009	EM1711031-010	EM1711031-011	--------	--------
				Result	Result	Result	----	----
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	**7.0**	**6.3**	**5.8**	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**20.7**	**15.9**	**13.6**	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	**8**	<5	**11**	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	----	----
Copper	7440-50-8	5	mg/kg	**6**	**6**	<5	----	----
Lead	7439-92-1	5	mg/kg	**17**	**13**	**6**	----	----
Molybdenum	7439-98-7	2	mg/kg	<2	<2	<2	----	----
Nickel	7440-02-0	2	mg/kg	**8**	**6**	**4**	----	----
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	----	----
Silver	7440-22-4	2	mg/kg	<2	<2	<2	----	----
Tin	7440-31-5	5	mg/kg	<5	<5	<5	----	----
Zinc	7440-66-6	5	mg/kg	**25**	**13**	**7**	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	----	----
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
EK026SF: Total CN by Segmented Flow Analyser								
Total Cyanide	57-12-5	1	mg/kg	<1	<1	<1	----	----
EK040T: Fluoride Total								
Fluoride	16984-48-8	40	mg/kg	**170**	**160**	**130**	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	<0.1	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Sum of monocyclic aromatic hydrocarbons	----	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	B17-68382/0.5	B17-68382/1.2	B17-68382/2.0	----	----
			Client sampling date / time	17-Aug-2017 09:35	17-Aug-2017 09:40	17-Aug-2017 09:50	----	----
Compound	CAS Number	LOR	Unit	EM1711031-009	EM1711031-010	EM1711031-011	--------	--------
				Result	Result	Result	----	----
EP074H: Naphthalene								
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	----	----
EP074I: Volatile Halogenated Compounds								
Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	<0.01	<0.01	----	----
Methylene chloride	75-09-2	0.4	mg/kg	<0.4	<0.4	<0.4	----	----
trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	<0.01	<0.01	----	----
Chloroform	67-66-3	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	<0.01	<0.01	----	----
Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	<0.01	<0.01	----	----
1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
Trichloroethene	79-01-6	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	<0.04	<0.04	----	----
Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	<0.01	<0.01	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	<0.01	<0.01	----	----
^ Sum of volatile chlorinated hydrocarbons	----	0.01	mg/kg	<0.01	<0.01	<0.01	----	----
^ Sum of other chlorinated hydrocarbons	----	0.01	mg/kg	<0.01	<0.01	<0.01	----	----
EP075A: Phenolic Compounds (Halogenated)								
2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
^ Sum of Phenols (halogenated)	----	0.03	mg/kg	<0.03	<0.03	<0.03	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B17-68382/0.5	B17-68382/1.2	B17-68382/2.0	----	----
				Client sampling date / time	17-Aug-2017 09:35	17-Aug-2017 09:40	17-Aug-2017 09:50	----	----
Compound	CAS Number	LOR	Unit		EM1711031-009	EM1711031-010	EM1711031-011	--------	--------
					Result	Result	Result	----	----
EP075A: Phenolic Compounds (Halogenated) - Continued									
EP075A: Phenolic Compounds (Non-halogenated)									
Phenol	108-95-2	1	mg/kg		<1	<1	<1	----	----
2-Methylphenol	95-48-7	1	mg/kg		<1	<1	<1	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	<1	----	----
2-Nitrophenol	88-75-5	1	mg/kg		<1	<1	<1	----	----
2.4-Dimethylphenol	105-67-9	1	mg/kg		<1	<1	<1	----	----
2.4-Dinitrophenol	51-28-5	5	mg/kg		<5	<5	<5	----	----
4-Nitrophenol	100-02-7	5	mg/kg		<5	<5	<5	----	----
2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg		<5	<5	<5	----	----
Dinoseb	88-85-7	5	mg/kg		<5	<5	<5	----	----
2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg		<5	<5	<5	----	----
^ Sum of Phenols (non-halogenated)	----	1	mg/kg		<1	<1	<1	----	----
EP075B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		0.6	0.6	0.6	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		1.2	1.2	1.2	----	----
EP075I: Organochlorine Pesticides									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B17-68382/0.5	B17-68382/1.2	B17-68382/2.0	----	----
				Client sampling date / time	17-Aug-2017 09:35	17-Aug-2017 09:40	17-Aug-2017 09:50	----	----
Compound	CAS Number	LOR	Unit		EM1711031-009	EM1711031-010	EM1711031-011	--------	--------
					Result	Result	Result	----	----
EP075l: Organochlorine Pesticides - Continued									
alpha-BHC	319-84-6	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
beta-BHC	319-85-7	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
gamma-BHC	58-89-9	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
delta-BHC	319-86-8	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Heptachlor	76-44-8	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Aldrin	309-00-2	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Heptachlor epoxide	1024-57-3	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
cis-Chlordane	5103-71-9	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
trans-Chlordane	5103-74-2	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Endosulfan 1	959-98-8	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Dieldrin	60-57-1	0.03	mg/kg		**0.14**	**0.04**	<0.03	----	----
Endrin aldehyde	7421-93-4	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Endrin	72-20-8	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Endosulfan 2	33213-65-9	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Endosulfan sulfate	1031-07-8	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
4.4`-DDT	50-29-3	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Methoxychlor	72-43-5	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
^ Sum of organochlorine pesticides	----	0.03	mg/kg		**0.14**	**0.04**	<0.03	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.03	mg/kg		**0.14**	**0.04**	<0.03	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
^ Chlordane	57-74-9	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
^ Sum of other organochlorine pesticides	----	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	----	----
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B17-68382/0.5	B17-68382/1.2	B17-68382/2.0	----	----
				Client sampling date / time	17-Aug-2017 09:35	17-Aug-2017 09:40	17-Aug-2017 09:50	----	----
Compound	CAS Number	LOR	Unit		EM1711031-009	EM1711031-010	EM1711031-011	--------	--------
					Result	Result	Result	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	----	----
>C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	----	----
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		82.9	77.8	79.5	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		82.7	73.2	81.7	----	----
Toluene-D8	2037-26-5	0.1	%		80.8	78.5	86.1	----	----
4-Bromofluorobenzene	460-00-4	0.1	%		83.7	81.6	87.3	----	----
EP075S: Acid Extractable Surrogates									
Phenol-d6	13127-88-3	0.025	%		115	109	86.8	----	----
2-Chlorophenol-D4	93951-73-6	0.025	%		100	90.5	78.0	----	----
2.4.6-Tribromophenol	118-79-6	0.025	%		97.1	87.3	76.7	----	----
EP075T: Base/Neutral Extractable Surrogates									
Nitrobenzene-D5	4165-60-0	0.025	%		97.9	88.3	79.4	----	----
1.2-Dichlorobenzene-D4	2199-69-1	0.025	%		96.1	90.8	82.2	----	----
2-Fluorobiphenyl	321-60-8	0.025	%		105	93.6	90.0	----	----
Anthracene-d10	1719-06-8	0.025	%		114	110	102	----	----
4-Terphenyl-d14	1718-51-0	0.025	%		111	106	111	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	B17-68386 RINSAT	B17-68382 RINSAT	TRIP BLANK	----	----
				Client sampling date / time	16-Aug-2017 14:00	16-Aug-2017 13:00	17-Aug-2017 00:00	----	----
Compound	CAS Number	LOR	Unit		EM1711031-001	EM1711031-002	EM1711031-003	--------	--------
					Result	Result	Result	----	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		**0.002**	**0.002**	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	<0.0001	----	----	----
Copper	7440-50-8	0.001	mg/L		**0.001**	**0.001**	----	----	----
Lead	7439-92-1	0.001	mg/L		**0.002**	**0.002**	----	----	----
Molybdenum	7439-98-7	0.001	mg/L		<0.001	<0.001	----	----	----
Nickel	7440-02-0	0.001	mg/L		**0.001**	**0.004**	----	----	----
Selenium	7782-49-2	0.01	mg/L		<0.01	<0.01	----	----	----
Silver	7440-22-4	0.001	mg/L		<0.001	<0.001	----	----	----
Tin	7440-31-5	0.001	mg/L		<0.001	<0.001	----	----	----
Zinc	7440-66-6	0.005	mg/L		**0.011**	**0.012**	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		----	----	<20	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		----	----	<20	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		----	----	<20	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		----	----	<1	----	----
Toluene	108-88-3	2	µg/L		----	----	<2	----	----
Ethylbenzene	100-41-4	2	µg/L		----	----	<2	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		----	----	<2	----	----
ortho-Xylene	95-47-6	2	µg/L		----	----	<2	----	----
^ Total Xylenes	1330-20-7	2	µg/L		----	----	<2	----	----
^ Sum of BTEX	----	1	µg/L		----	----	<1	----	----
Naphthalene	91-20-3	5	µg/L		----	----	<5	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		----	----	**98.1**	----	----
Toluene-D8	2037-26-5	2	%		----	----	**86.3**	----	----
4-Bromofluorobenzene	460-00-4	2	%		----	----	**111**	----	----

Surrogate Control Limits

Sub-Matrix: **SOIL**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	41	122
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	59	119
Toluene-D8	2037-26-5	55	117
4-Bromofluorobenzene	460-00-4	59	123
EP075S: Acid Extractable Surrogates			
Phenol-d6	13127-88-3	28	134
2-Chlorophenol-D4	93951-73-6	27	123
2.4.6-Tribromophenol	118-79-6	25	149
EP075T: Base/Neutral Extractable Surrogates			
Nitrobenzene-D5	4165-60-0	29	125
1.2-Dichlorobenzene-D4	2199-69-1	31	117
2-Fluorobiphenyl	321-60-8	44	136
Anthracene-d10	1719-06-8	53	133
4-Terphenyl-d14	1718-51-0	59	141

Sub-Matrix: **WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	129
Toluene-D8	2037-26-5	70	125
4-Bromofluorobenzene	460-00-4	71	129

Automated Guideline Comparison Report

EPA Victoria Publication IWRG 621 (2009) - Table 2: Soil Hazard Categorisation

Work Order	: **EM1711031**	Page	: 1 of 14
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLIVIA HENDERSON		
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: ohenderson@pb.com.au	E-mail	: steven.mcgrath@alsglobal.com
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9600
Facsimile	: +61 03 9861 1144	Facsimile	: +61-3-8549 9601
Project	: 2135645A	Date Received	: 17-Aug-2017 17:00
Order number	: ----	Date Analysed	: 18-Aug-2017
C-O-C number	: 85412	Date Issued	: 23-Aug-2017 13:19
No. of samples received	: 11		
No. of samples analysed	: 11	Quote number	: ME-525-16

General Comments

This guideline comparison report **only** provides evaluation of total concentration data against upper limit thresholds for the 'Fill Material', 'C', 'B' Categories in Table 2 of EPA Publication IWRG621.

This guideline comparison report is **NOT** a soil classification report. Classification of soils as Fill Material, Category C, Category B or Category A requires consideration of a number of other factors including preliminary site investigation, sampling density and statistical calculations, as set out in EPA Publication IWRG 702.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

This guideline comparison report only provides evaluation data where chemical parameters specifically listed within the IWRG621 (2009) guideline are analysed by ALS using the **P-16 package in full**.

Red shading is applied where the result is equal to or greater than the guideline upper limit and/or equal to or lower than the guideline lower limit. Red shading is not applied to the 'Summary of Thresholds Reached or Exceeded'.

For the 'Summary of Thresholds Reached or Exceeded' to accurately function, all samples must be analysed and included in the 'Analytical Results' section of the following report. Please verify that all required IDs are listed and analysed.

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Summary of Thresholds Reached or Exceeded

EPA Victoria Publication IWRG 621 (2009)

Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Client Sample ID	*ALS Sample ID*	*Compound*	*Method*	*LOR*	*Limits*	*Result*
B17-68386/0.1	**EM1711031-006**	Arsenic	EG005T	5	*< 20 mg/kg*	**52 mg/kg**

Analytical Results

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B: Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	B17-68379/0.1	B17-68379/0.7	B17-68386/0.1	B17-68386/0.7	B17-68382/0.1
Client sample ID										
Sampling date/time						16-Aug-2017 12:00	16-Aug-2017 12:00	16-Aug-2017 08:00	16-Aug-2017 08:00	17-Aug-2017 09:30
						EM1711031-004	EM1711031-005	EM1711031-006	EM1711031-007	EM1711031-008
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	2	12.5	**5.3**	**5.4**	**4.2**	**4.1**	**6.9**
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	2000	<5	<5	**52**	**10**	**9**
Cadmium	EG005T	1	mg/kg	----	400	<1	<1	<1	<1	<1
Copper	EG005T	5	mg/kg	----	20000	<5	<5	<5	<5	**8**
Lead	EG005T	5	mg/kg	----	6000	**6**	**8**	**5**	<5	**22**
Molybdenum	EG005T	2	mg/kg	----	4000	**5**	<2	<2	<2	<2
Nickel	EG005T	2	mg/kg	----	12000	**3**	<2	**3**	<2	**9**
Selenium	EG005T	5	mg/kg	----	200	<5	<5	<5	<5	<5
Silver	EG005T	2	mg/kg	----	720	<2	<2	<2	<2	<2
Zinc	EG005T	5	mg/kg	----	140000	**7**	**11**	<5	<5	**27**
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	300	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	2000	<0.5	<0.5	<0.5	**0.6**	<0.5
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	10000	<1	<1	<1	<1	<1
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	40000	**80**	**60**	**110**	**90**	**140**
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	16	<0.2	<0.2	<0.2	<0.2	<0.2
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	240	<0.2	<0.2	<0.2	<0.2	<0.2
EP074I: Volatile Halogenated Compounds										
Vinyl chloride	EP074-UT	0.02	mg/kg	----	4.8	<0.02	<0.02	<0.02	<0.02	<0.02
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	11	<0.02	<0.02	<0.02	<0.02	<0.02
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	50	<0.01	<0.01	<0.01	<0.01	<0.01
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	320	<0.03	<0.03	<0.03	<0.03	<0.03
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	2200	<1	<1	<1	<1	<1
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	20	<0.5	<0.5	<0.5	<0.5	<0.5

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B: Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	**B17-68379/0.1** 16-Aug-2017 12:00 **EM1711031-004**	**B17-68379/0.7** 16-Aug-2017 12:00 **EM1711031-005**	**B17-68386/0.1** 16-Aug-2017 08:00 **EM1711031-006**	**B17-68386/0.7** 16-Aug-2017 08:00 **EM1711031-007**	**B17-68382/0.1** 17-Aug-2017 09:30 **EM1711031-008**
Client sample ID										
Sampling date/time										
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	400	<0.5	<0.5	<0.5	<0.5	<0.5
EP075I: Organochlorine Pesticides										
Heptachlor	EP075-EM	0.03	mg/kg	----	4.8	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	4.8	<0.03	<0.03	<0.03	<0.03	**0.09**
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50	<0.05	<0.05	<0.05	<0.05	<0.05
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	16	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	50	<0.03	<0.03	<0.03	<0.03	<0.03
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	2600	<10	<10	<10	<10	<10
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	40000	<50	<50	<50	<50	<50

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category C: Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

				Client sample ID		B17-68379/0.1	B17-68379/0.7	B17-68386/0.1	B17-68386/0.7	B17-68382/0.1
				Sampling date/time	Guideline	16-Aug-2017 12:00	16-Aug-2017 12:00	16-Aug-2017 08:00	16-Aug-2017 08:00	17-Aug-2017 09:30
Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	EM1711031-004	EM1711031-005	EM1711031-006	EM1711031-007	EM1711031-008
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	4	9	**5.3**	**5.4**	**4.2**	**4.1**	**6.9**
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	500	<5	<5	**52**	**10**	**9**
Cadmium	EG005T	1	mg/kg	----	100	<1	<1	<1	<1	<1
Copper	EG005T	5	mg/kg	----	5000	<5	<5	<5	<5	**8**
Lead	EG005T	5	mg/kg	----	1500	**6**	**8**	**5**	<5	**22**
Molybdenum	EG005T	2	mg/kg	----	1000	**5**	<2	<2	<2	<2
Nickel	EG005T	2	mg/kg	----	3000	**3**	<2	**3**	<2	**9**
Selenium	EG005T	5	mg/kg	----	50	<5	<5	<5	<5	<5
Silver	EG005T	2	mg/kg	----	180	<2	<2	<2	<2	<2
Tin	EG005T	5	mg/kg	----	500	<5	<5	<5	<5	<5
Zinc	EG005T	5	mg/kg	----	35000	**7**	**11**	<5	<5	**27**
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	75	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	500	<0.5	<0.5	<0.5	**0.6**	<0.5
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	2500	<1	<1	<1	<1	<1
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	10000	**80**	**60**	**110**	**90**	**140**
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	4	<0.2	<0.2	<0.2	<0.2	<0.2
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	70	<0.2	<0.2	<0.2	<0.2	<0.2
EP074I: Volatile Halogenated Compounds										
Vinyl chloride	EP074-UT	0.02	mg/kg	----	1.2	<0.02	<0.02	<0.02	<0.02	<0.02
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	2.8	<0.02	<0.02	<0.02	<0.02	<0.02
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	10	<0.01	<0.01	<0.01	<0.01	<0.01
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	10	<0.03	<0.03	<0.03	<0.03	<0.03
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	560	<1	<1	<1	<1	<1
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	5	<0.5	<0.5	<0.5	<0.5	<0.5

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category C: Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	**B17-68379/0.1** 16-Aug-2017 12:00 **EM1711031-004**	**B17-68379/0.7** 16-Aug-2017 12:00 **EM1711031-005**	**B17-68386/0.1** 16-Aug-2017 08:00 **EM1711031-006**	**B17-68386/0.7** 16-Aug-2017 08:00 **EM1711031-007**	**B17-68382/0.1** 17-Aug-2017 09:30 **EM1711031-008**
Client sample ID										
Sampling date/time										
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	100	<0.5	<0.5	<0.5	<0.5	<0.5
EP075I: Organochlorine Pesticides										
Heptachlor	EP075-EM	0.03	mg/kg	----	1.2	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	1.2	<0.03	<0.03	<0.03	<0.03	**0.09**
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50	<0.05	<0.05	<0.05	<0.05	<0.05
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	4	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	10	<0.03	<0.03	<0.03	<0.03	<0.03
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	650	<10	<10	<10	<10	<10
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	10000	<50	<50	<50	<50	<50

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material: Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

			Client sample ID	Guideline	Guideline	**B17-68379/0.1**	**B17-68379/0.7**	**B17-68386/0.1**	**B17-68386/0.7**	**B17-68382/0.1**
			Sampling date/time			16-Aug-2017 12:00	16-Aug-2017 12:00	16-Aug-2017 08:00	16-Aug-2017 08:00	17-Aug-2017 09:30
Compound	*Method*	*LOR*	*Unit*	Lower Limit	Upper Limit	**EM1711031-004**	**EM1711031-005**	**EM1711031-006**	**EM1711031-007**	**EM1711031-008**
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	4	9	**5.3**	**5.4**	**4.2**	**4.1**	**6.9**
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	20	<5	<5	**52**	**10**	**9**
Cadmium	EG005T	1	mg/kg	----	3	<1	<1	<1	<1	<1
Copper	EG005T	5	mg/kg	----	100	<5	<5	<5	<5	**8**
Lead	EG005T	5	mg/kg	----	300	**6**	**8**	**5**	<5	**22**
Molybdenum	EG005T	2	mg/kg	----	40	**5**	<2	<2	<2	<2
Nickel	EG005T	2	mg/kg	----	60	**3**	<2	**3**	<2	**9**
Selenium	EG005T	5	mg/kg	----	10	<5	<5	<5	<5	<5
Silver	EG005T	2	mg/kg	----	10	<2	<2	<2	<2	<2
Tin	EG005T	5	mg/kg	----	50	<5	<5	<5	<5	<5
Zinc	EG005T	5	mg/kg	----	200	**7**	**11**	<5	<5	**27**
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	1	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	1	<0.5	<0.5	<0.5	**0.6**	<0.5
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	50	<1	<1	<1	<1	<1
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	450	**80**	**60**	**110**	**90**	**140**
EP066: Polychlorinated Biphenyls (PCB)										
Total Polychlorinated biphenyls	EP066-EM	0.1	mg/kg	----	2	<0.1	<0.1	<0.1	<0.1	<0.1
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	1	<0.2	<0.2	<0.2	<0.2	<0.2
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	7	<0.2	<0.2	<0.2	<0.2	<0.2
EP074I: Volatile Halogenated Compounds										
Sum of volatile chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	1	<0.01	<0.01	<0.01	<0.01	<0.01
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	1	<0.03	<0.03	<0.03	<0.03	<0.03
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	60	<1	<1	<1	<1	<1
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	1	<0.5	<0.5	<0.5	<0.5	<0.5

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material: Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	*Client sample ID* **B17-68379/0.1**	**B17-68379/0.7**	**B17-68386/0.1**	**B17-68386/0.7**	**B17-68382/0.1**
						Sampling date/time 16-Aug-2017 12:00	16-Aug-2017 12:00	16-Aug-2017 08:00	16-Aug-2017 08:00	17-Aug-2017 09:30
						EM1711031-004	**EM1711031-005**	**EM1711031-006**	**EM1711031-007**	**EM1711031-008**
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	20	<0.5	<0.5	<0.5	<0.5	<0.5
EP075I: Organochlorine Pesticides										
Sum of organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	1	<0.03	<0.03	<0.03	<0.03	**0.09**
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	100	<10	<10	<10	<10	<10
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	1000	<50	<50	<50	<50	<50

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B: Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	*Client sample ID* **B17-68382/0.5**	**B17-68382/1.2**	**B17-68382/2.0**	**----**	**----**
						Sampling date/time 17-Aug-2017 09:35	17-Aug-2017 09:40	17-Aug-2017 09:50	----	----
						EM1711031-009	**EM1711031-010**	**EM1711031-011**	--------	--------
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	2	12.5	**7.0**	**6.3**	**5.8**	----	----
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	2000	**8**	<5	**11**	----	----
Cadmium	EG005T	1	mg/kg	----	400	<1	<1	<1	----	----
Copper	EG005T	5	mg/kg	----	20000	**6**	**6**	<5	----	----
Lead	EG005T	5	mg/kg	----	6000	**17**	**13**	**6**	----	----
Molybdenum	EG005T	2	mg/kg	----	4000	<2	<2	<2	----	----
Nickel	EG005T	2	mg/kg	----	12000	**8**	**6**	**4**	----	----
Selenium	EG005T	5	mg/kg	----	200	<5	<5	<5	----	----
Silver	EG005T	2	mg/kg	----	720	<2	<2	<2	----	----
Zinc	EG005T	5	mg/kg	----	140000	**25**	**13**	**7**	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	300	<0.1	<0.1	<0.1	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	2000	<0.5	<0.5	<0.5	----	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	10000	<1	<1	<1	----	----
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	40000	**170**	**160**	**130**	----	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	16	<0.2	<0.2	<0.2	----	----
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	240	<0.2	<0.2	<0.2	----	----
EP074I: Volatile Halogenated Compounds										
Vinyl chloride	EP074-UT	0.02	mg/kg	----	4.8	<0.02	<0.02	<0.02	----	----
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	11	<0.02	<0.02	<0.02	----	----
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	50	<0.01	<0.01	<0.01	----	----
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	320	<0.03	<0.03	<0.03	----	----
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	2200	<1	<1	<1	----	----
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	20	<0.5	<0.5	<0.5	----	----
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	400	<0.5	<0.5	<0.5	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B: Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	**B17-68382/0.5** 17-Aug-2017 09:35 **EM1711031-009**	**B17-68382/1.2** 17-Aug-2017 09:40 **EM1711031-010**	**B17-68382/2.0** 17-Aug-2017 09:50 **EM1711031-011**	**----** ---- --------	**----** ---- --------
Client sample ID										
Sampling date/time										
EP075I: Organochlorine Pesticides										
Heptachlor	EP075-EM	0.03	mg/kg	----	4.8	<0.03	<0.03	<0.03	----	----
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	4.8	**0.14**	**0.04**	<0.03	----	----
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50	<0.05	<0.05	<0.05	----	----
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	16	<0.03	<0.03	<0.03	----	----
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	50	<0.03	<0.03	<0.03	----	----
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	2600	<10	<10	<10	----	----
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	40000	<50	<50	<50	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category C: Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	*Client sample ID* **B17-68382/0.5**	**B17-68382/1.2**	**B17-68382/2.0**	**----**	**----**
						Sampling date/time 17-Aug-2017 09:35	17-Aug-2017 09:40	17-Aug-2017 09:50	----	----
						EM1711031-009	**EM1711031-010**	**EM1711031-011**	--------	--------
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	4	9	**7.0**	**6.3**	**5.8**	----	----
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	500	**8**	<5	**11**	----	----
Cadmium	EG005T	1	mg/kg	----	100	<1	<1	<1	----	----
Copper	EG005T	5	mg/kg	----	5000	**6**	**6**	<5	----	----
Lead	EG005T	5	mg/kg	----	1500	**17**	**13**	**6**	----	----
Molybdenum	EG005T	2	mg/kg	----	1000	<2	<2	<2	----	----
Nickel	EG005T	2	mg/kg	----	3000	**8**	**6**	**4**	----	----
Selenium	EG005T	5	mg/kg	----	50	<5	<5	<5	----	----
Silver	EG005T	2	mg/kg	----	180	<2	<2	<2	----	----
Tin	EG005T	5	mg/kg	----	500	<5	<5	<5	----	----
Zinc	EG005T	5	mg/kg	----	35000	**25**	**13**	**7**	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	75	<0.1	<0.1	<0.1	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	500	<0.5	<0.5	<0.5	----	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	2500	<1	<1	<1	----	----
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	10000	**170**	**160**	**130**	----	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	4	<0.2	<0.2	<0.2	----	----
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	70	<0.2	<0.2	<0.2	----	----
EP074I: Volatile Halogenated Compounds										
Vinyl chloride	EP074-UT	0.02	mg/kg	----	1.2	<0.02	<0.02	<0.02	----	----
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	2.8	<0.02	<0.02	<0.02	----	----
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	10	<0.01	<0.01	<0.01	----	----
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	10	<0.03	<0.03	<0.03	----	----
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	560	<1	<1	<1	----	----
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	5	<0.5	<0.5	<0.5	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category C: Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	*Client sample ID* / *Sampling date/time* / Guideline Lower Limit	Guideline Upper Limit	**B17-68382/0.5** 17-Aug-2017 09:35 **EM1711031-009**	**B17-68382/1.2** 17-Aug-2017 09:40 **EM1711031-010**	**B17-68382/2.0** 17-Aug-2017 09:50 **EM1711031-011**	**----** ---- --------	**----** ---- --------
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	100	<0.5	<0.5	<0.5	**----**	**----**
EP075I: Organochlorine Pesticides										
Heptachlor	EP075-EM	0.03	mg/kg	----	1.2	<0.03	<0.03	<0.03	**----**	**----**
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	1.2	**0.14**	**0.04**	<0.03	**----**	**----**
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50	<0.05	<0.05	<0.05	**----**	**----**
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	4	<0.03	<0.03	<0.03	**----**	**----**
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	10	<0.03	<0.03	<0.03	**----**	**----**
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	650	<10	<10	<10	**----**	**----**
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	10000	<50	<50	<50	**----**	**----**

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material: Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

				Client sample ID	Guideline	Guideline	**B17-68382/0.5**	**B17-68382/1.2**	**B17-68382/2.0**	----	----
				Sampling date/time			17-Aug-2017 09:35	17-Aug-2017 09:40	17-Aug-2017 09:50	----	----
Compound	*Method*	*LOR*	*Unit*		Lower Limit	Upper Limit	**EM1711031-009**	**EM1711031-010**	**EM1711031-011**	--------	--------
EA001: pH in soil using 0.01M CaCl extract											
pH (CaCl2)	EA001	0.1	pH Unit		4	9	**7.0**	**6.3**	**5.8**	----	----
EG005T: Total Metals by ICP-AES											
Arsenic	EG005T	5	mg/kg		----	20	**8**	<5	**11**	----	----
Cadmium	EG005T	1	mg/kg		----	3	<1	<1	<1	----	----
Copper	EG005T	5	mg/kg		----	100	**6**	**6**	<5	----	----
Lead	EG005T	5	mg/kg		----	300	**17**	**13**	**6**	----	----
Molybdenum	EG005T	2	mg/kg		----	40	<2	<2	<2	----	----
Nickel	EG005T	2	mg/kg		----	60	**8**	**6**	**4**	----	----
Selenium	EG005T	5	mg/kg		----	10	<5	<5	<5	----	----
Silver	EG005T	2	mg/kg		----	10	<2	<2	<2	----	----
Tin	EG005T	5	mg/kg		----	50	<5	<5	<5	----	----
Zinc	EG005T	5	mg/kg		----	200	**25**	**13**	**7**	----	----
EG035T: Total Recoverable Mercury by FIMS											
Mercury	EG035T	0.1	mg/kg		----	1	<0.1	<0.1	<0.1	----	----
EG048: Hexavalent Chromium (Alkaline Digest)											
Hexavalent Chromium	EG048G	0.5	mg/kg		----	1	<0.5	<0.5	<0.5	----	----
EK026SF: Total CN by Segmented Flow Analyser											
Total Cyanide	EK026SF	1	mg/kg		----	50	<1	<1	<1	----	----
EK040T: Fluoride Total											
Fluoride	EK040T	40	mg/kg		----	450	**170**	**160**	**130**	----	----
EP066: Polychlorinated Biphenyls (PCB)											
Total Polychlorinated biphenyls	EP066-EM	0.1	mg/kg		----	2	<0.1	<0.1	<0.1	----	----
EP074A: Monocyclic Aromatic Hydrocarbons											
Benzene	EP074-UT	0.2	mg/kg		----	1	<0.2	<0.2	<0.2	----	----
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg		----	7	<0.2	<0.2	<0.2	----	----
EP074I: Volatile Halogenated Compounds											
Sum of volatile chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg		----	1	<0.01	<0.01	<0.01	----	----
EP075A: Phenolic Compounds (Halogenated)											
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg		----	1	<0.03	<0.03	<0.03	----	----
EP075A: Phenolic Compounds (Non-halogenated)											
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg		----	60	<1	<1	<1	----	----
EP075B: Polynuclear Aromatic Hydrocarbons											
Benzo(a)pyrene	EP075-EM	0.5	mg/kg		----	1	<0.5	<0.5	<0.5	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material: Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	**B17-68382/0.5** 17-Aug-2017 09:35 **EM1711031-009**	**B17-68382/1.2** 17-Aug-2017 09:40 **EM1711031-010**	**B17-68382/2.0** 17-Aug-2017 09:50 **EM1711031-011**	**----** ---- --------	**----** ---- --------
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	20	<0.5	<0.5	<0.5	**----**	**----**
EP075I: Organochlorine Pesticides										
Sum of organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	1	**0.14**	**0.04**	<0.03	**----**	**----**
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	100	<10	<10	<10	**----**	**----**
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	1000	<50	<50	<50	**----**	**----**

Note: Red shading is applied where the result is equal to or greater than the guideline upper limit and/or equal to or lower than the guideline lower limit.

QUALITY CONTROL REPORT

Work Order	: **EM1711031**	Page	: 1 of 14
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLIVIA HENDERSON	Contact	: Steven McGrath
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9600
Project	: 2135645A	Date Samples Received	: 17-Aug-2017
Order number	: ----	Date Analysis Commenced	: 18-Aug-2017
C-O-C number	: 85412	Issue Date	: 23-Aug-2017
Sampler	: ----		
Site	: Site 26		
Quote number	: ME-525-16		
No. of samples received	: 11		
No. of samples analysed	: 11		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	Senior Semivolatile Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	Senior Semivolatile Instrument Chemist	Melbourne Organics, Springvale, VIC
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA001: pH in soil using 0.01M CaCl extract (QC Lot: 1061700)									
EM1711027-047	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	5.3	5.4	1.87	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1061631)									
EM1711013-003	Anonymous	EA055: Moisture Content	----	1	%	12.1	12.4	2.07	0% - 50%
EM1711013-014	Anonymous	EA055: Moisture Content	----	1	%	9.5	9.3	1.98	No Limit
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1061632)									
EM1711031-009	B17-68382/0.5	EA055: Moisture Content	----	1	%	20.7	22.0	6.27	0% - 20%
EM1711041-001	Anonymous	EA055: Moisture Content	----	1	%	4.1	4.6	11.4	No Limit
EG005T: Total Metals by ICP-AES (QC Lot: 1061584)									
EM1710962-068	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	20	19	0.00	No Limit
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	7	7	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	9	7	25.8	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	22	14	41.0	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Tin	7440-31-5	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	18	16	8.26	No Limit
EM1711031-006	B17-68386/0.1	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	3	3	0.00	No Limit
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	52	86	48.4	0% - 50%
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG005T: Total Metals by ICP-AES (QC Lot: 1061584) - continued									
EM1711031-006	B17-68386/0.1	EG005T: Lead	7439-92-1	5	mg/kg	5	6	19.6	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Tin	7440-31-5	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1061585)									
EM1710962-068	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EM1711031-006	B17-68386/0.1	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EG048: Hexavalent Chromium (Alkaline Digest) (QC Lot: 1063886)									
EM1711027-001	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1711031-008	B17-68382/0.1	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EK026SF: Total CN by Segmented Flow Analyser (QC Lot: 1061305)									
EM1710987-001	Anonymous	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.00	No Limit
EM1711027-013	Anonymous	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.00	No Limit
EK026SF: Total CN by Segmented Flow Analyser (QC Lot: 1061306)									
EM1711031-011	B17-68382/2.0	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.00	No Limit
EK040T: Fluoride Total (QC Lot: 1061377)									
EM1711031-004	B17-68379/0.1	EK040T: Fluoride	16984-48-8	40	mg/kg	80	60	20.3	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 1061650)									
EM1711031-004	B17-68379/0.1	EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 1061320)									
EM1711031-004	B17-68379/0.1	EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074H: Naphthalene (QC Lot: 1061320)									
EM1711031-004	B17-68379/0.1	EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EP074I: Volatile Halogenated Compounds (QC Lot: 1061320)									
EM1711031-004	B17-68379/0.1	EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074I: Volatile Halogenated Compounds (QC Lot: 1061320) - continued									
EM1711031-004	B17-68379/0.1	EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	<0.04	0.00	No Limit
		EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	<0.4	0.00	No Limit
EP075A: Phenolic Compounds (Halogenated) (QC Lot: 1061648)									
EM1711031-004	B17-68379/0.1	EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP075A: Phenolic Compounds (Non-halogenated) (QC Lot: 1061648)									
EM1711031-004	B17-68379/0.1	EP075-EM: Phenol	108-95-2	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	0.00	No Limit
EP075B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1061648)									
EM1711031-004	B17-68379/0.1	EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1061648) - continued									
EM1711031-004	B17-68379/0.1	EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP075I: Organochlorine Pesticides (QC Lot: 1061648)									
EM1711031-004	B17-68379/0.1	EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1061320)									
EM1711031-004	B17-68379/0.1	EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1061649)									
EM1711031-004	B17-68379/0.1	EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1061320)									
EM1711031-004	B17-68379/0.1	EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1061320) - continued									
EM1711031-004	B17-68379/0.1	EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1061649)									
EM1711031-004	B17-68379/0.1	EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG020T: Total Metals by ICP-MS (QC Lot: 1063905)									
EM1711049-005	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	0.0001	<0.0001	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.007	0.006	18.6	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.006	0.005	0.00	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.003	0.002	53.6	No Limit
		EG020A-T: Tin	7440-31-5	0.001	mg/L	0.004	0.004	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.027	0.029	6.78	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EM1711004-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	0.0001	0.0001	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.031	0.032	4.66	0% - 20%
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.016	0.017	0.00	0% - 50%
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.028	0.027	0.00	0% - 20%
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	0.013	0.013	0.00	0% - 50%
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.021	0.023	8.64	0% - 20%
		EG020A-T: Tin	7440-31-5	0.001	mg/L	0.008	0.006	21.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.229	0.234	2.17	0% - 20%
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EG020T: Total Metals by ICP-MS (QC Lot: 1063906)									
EM1711004-001	Anonymous	EG020B-T: Silver	7440-22-4	0.001	mg/L	0.007	0.002	108	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1066400)									
EM1710962-033	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1063536)									
EM1711025-039	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EM1711039-023	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1063536)									
EM1711025-039	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EM1711039-023	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 1063536)									
EM1711025-039	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080: BTEXN (QC Lot: 1063536) - continued									
EM1711025-039	Anonymous	EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
EM1711039-023	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 1061584)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	100	79	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	92.8	85	109
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	97.2	78	108
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	95.6	78	106
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	7.9 mg/kg	103	86	112
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	96.0	82	111
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	94.9	93	109
EG005T: Silver	7440-22-4	2	mg/kg	<2	2.1 mg/kg	81.6	80	108
EG005T: Tin	7440-31-5	5	mg/kg	<5	5.2 mg/kg	104	88	116
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	100	82	111
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1061585)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	87.3	77	104
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 1063886)								
EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	40 mg/kg	89.5	80	120
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 1061305)								
EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	20 mg/kg	91.4	80	110
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 1061306)								
EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	20 mg/kg	91.4	80	110
EK040T: Fluoride Total (QCLot: 1061377)								
EK040T: Fluoride	16984-48-8	40	mg/kg	<40	950 mg/kg	98.1	77	106
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 1061650)								
EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	78.6	63	133
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 1061320)								
EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	2.1 mg/kg	89.6	74	118
EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	2.1 mg/kg	90.3	70	118
EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2.1 mg/kg	87.4	69	117
EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4.2 mg/kg	86.6	68	116
EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	2.1 mg/kg	89.6	71	117
EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2.1 mg/kg	85.7	70	116
EP074H: Naphthalene (QCLot: 1061320)								
EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	0.6 mg/kg	94.6	74	116
EP074I: Volatile Halogenated Compounds (QCLot: 1061320)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP074I: Volatile Halogenated Compounds (QCLot: 1061320) - continued								
EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	0.1 mg/kg	88.4	49	133
EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	0.1 mg/kg	89.7	62	127
EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	2.1 mg/kg	83.9	65	131
EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	0.1 mg/kg	87.2	68	124
EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	0.1 mg/kg	85.6	74	118
EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	0.1 mg/kg	87.9	72	118
EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	0.1 mg/kg	83.4	67	119
EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	0.1 mg/kg	92.0	65	119
EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	0.1 mg/kg	91.4	70	122
EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	0.1 mg/kg	84.7	72	124
EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	0.1 mg/kg	90.6	74	122
EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	0.1 mg/kg	86.3	58	120
EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	0.1 mg/kg	91.6	70	119
EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	0.1 mg/kg	90.5	71	125
EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	0.1 mg/kg	92.1	61	125
EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	0.1 mg/kg	89.4	70	122
EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	0.1 mg/kg	85.6	61	118
EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	0.1 mg/kg	87.4	67	117
EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	0.1 mg/kg	88.5	53	127
EP075A: Phenolic Compounds (Halogenated) (QCLot: 1061648)								
EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	2 mg/kg	95.8	43	119
EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	2 mg/kg	69.8	44	131
EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	2 mg/kg	94.5	43	122
EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	2 mg/kg	74.7	50	129
EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	2 mg/kg	88.2	44	128
EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	2 mg/kg	72.7	44	126
EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	2 mg/kg	78.9	46	126
EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/5 8-90-2	0.05	mg/kg	<0.05	4 mg/kg	88.2	44	124
EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	4 mg/kg	63.2	36	124
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 1061648)								
EP075-EM: Phenol	108-95-2	1	mg/kg	<1	2 mg/kg	82.8	41	120
EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	2 mg/kg	105	41	131
EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	4 mg/kg	83.3	43	130
EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	2 mg/kg	69.8	49	130
EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	2 mg/kg	80.0	37	119
EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	12 mg/kg	69.9	23	125
EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	12 mg/kg	81.4	49	133
EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	12 mg/kg	60.1	47	125

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 1061648) - continued								
EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	12 mg/kg	52.9	48	123
EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	10 mg/kg	47.6	12	132
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 1061648)								
EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	2 mg/kg	98.6	44	122
EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	2 mg/kg	87.3	54	126
EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	2 mg/kg	90.8	46	126
EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	2 mg/kg	93.4	51	125
EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	2 mg/kg	104	57	127
EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	2 mg/kg	114	55	127
EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	2 mg/kg	108	57	131
EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	2 mg/kg	101	57	131
EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	2 mg/kg	109	56	132
EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	2 mg/kg	110	58	134
EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	4 mg/kg	97.2	55	133
EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	2 mg/kg	100	51	135
EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	2 mg/kg	90.4	55	137
EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	2 mg/kg	91.7	54	136
EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	2 mg/kg	88.7	55	137
EP075I: Organochlorine Pesticides (QCLot: 1061648)								
EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	2 mg/kg	96.4	54	130
EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	2 mg/kg	91.6	54	130
EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	2 mg/kg	95.5	54	134
EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	2 mg/kg	95.4	54	132
EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	2 mg/kg	104	55	131
EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	2 mg/kg	104	54	128
EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	2 mg/kg	107	54	128
EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	2 mg/kg	108	56	130
EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	2 mg/kg	108	56	130
EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	2 mg/kg	107	55	131
EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	2 mg/kg	110	53	133
EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	2 mg/kg	84.5	54	130
EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	2 mg/kg	110	57	133
EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	2 mg/kg	86.4	28	174
EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	2 mg/kg	104	40	148
EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	2 mg/kg	108	56	138
EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	2 mg/kg	107	57	135
EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	2 mg/kg	105	51	133
EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	2 mg/kg	98.6	51	133

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP075I: Organochlorine Pesticides (QCLot: 1061648) - continued								
EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	2 mg/kg	99.6	48	136
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1061320)								
EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	39.6 mg/kg	86.8	69	114
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1061649)								
EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	837 mg/kg	94.6	72	130
EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	3061 mg/kg	96.1	77	126
EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	1592 mg/kg	94.0	75	119
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1061320)								
EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	48.9 mg/kg	86.3	69	112
EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1061649)								
EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	1222 mg/kg	95.0	75	123
EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	3919 mg/kg	100	77	127
EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	316 mg/kg	87.8	43	123

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 1063905)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	104	90	110
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	104	86	111
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	102	87	108
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	102	88	109
EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	110	88	114
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	102	87	111
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	100	85	113
EG020A-T: Tin	7440-31-5	0.001	mg/L	<0.001	0.1 mg/L	112	88	113
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	104	87	113
EG020T: Total Metals by ICP-MS (QCLot: 1063906)								
EG020B-T: Silver	7440-22-4	0.001	mg/L	<0.001	0.02 mg/L	102	78	129
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1066400)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	97.4	81	114
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1063536)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	360 µg/L	88.9	67	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1063536)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	86.6	65	125
EP080: BTEXN (QCLot: 1063536)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080: BTEXN (QCLot: 1063536) - continued								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	85.6	76	120
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	90.9	76	124
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	92.5	72	124
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	99.6	72	130
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	102	78	128
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	93.8	71	129

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG005T: Total Metals by ICP-AES (QCLot: 1061584)							
EM1710962-070	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	81.3	78	124
		EG005T: Cadmium	7440-43-9	50 mg/kg	88.0	84	116
		EG005T: Copper	7440-50-8	50 mg/kg	102	82	124
		EG005T: Lead	7439-92-1	50 mg/kg	# Not Determined	76	124
		EG005T: Molybdenum	7439-98-7	50 mg/kg	96.9	79	117
		EG005T: Nickel	7440-02-0	50 mg/kg	79.5	78	120
		EG005T: Selenium	7782-49-2	50 mg/kg	79.7	71	125
		EG005T: Zinc	7440-66-6	50 mg/kg	103	74	128
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1061585)							
EM1710962-070	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	78.0	76	116
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 1063886)							
EM1711027-013	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	40 mg/kg	87.6	58	114
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 1061305)							
EM1710987-002	Anonymous	EK026SF: Total Cyanide	57-12-5	20 mg/kg	89.9	77	113
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 1061306)							
EM1711036-003	Anonymous	EK026SF: Total Cyanide	57-12-5	20 mg/kg	89.8	77	113
EK040T: Fluoride Total (QCLot: 1061377)							
EM1711031-005	B17-68379/0.7	EK040T: Fluoride	16984-48-8	400 mg/kg	114	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 1061650)							
EM1711031-006	B17-68386/0.1	EP066-EM: Total Polychlorinated biphenyls	---	1 mg/kg	87.6	36	152

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 1061320)							
EM1711031-005	B17-68379/0.7	EP074-UT: Benzene	71-43-2	2 mg/kg	83.0	50	138
		EP074-UT: Toluene	108-88-3	2 mg/kg	82.9	56	134
EP074I: Volatile Halogenated Compounds (QCLot: 1061320)							
EM1711031-005	B17-68379/0.7	EP074-UT: 1.1-Dichloroethene	75-35-4	2 mg/kg	96.7	26	141
		EP074-UT: Trichloroethene	79-01-6	2 mg/kg	87.8	50	134
		EP074-UT: Chlorobenzene	108-90-7	2 mg/kg	92.7	28	134
EP075A: Phenolic Compounds (Halogenated) (QCLot: 1061648)							
EM1711031-005	B17-68379/0.7	EP075-EM: 2-Chlorophenol	95-57-8	1 mg/kg	105	34	118
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	1 mg/kg	76.5	41	139
		EP075-EM: Pentachlorophenol	87-86-5	1 mg/kg	55.1	10	144
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 1061648)							
EM1711031-005	B17-68379/0.7	EP075-EM: Phenol	108-95-2	1 mg/kg	93.0	32	134
		EP075-EM: 2-Nitrophenol	88-75-5	1 mg/kg	63.4	13	129
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 1061648)							
EM1711031-005	B17-68379/0.7	EP075-EM: Acenaphthene	83-32-9	1 mg/kg	95.0	46	138
		EP075-EM: Pyrene	129-00-0	1 mg/kg	109	27	169
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1061320)							
EM1711031-005	B17-68379/0.7	EP074-UT: C6 - C9 Fraction	---	28 mg/kg	70.4	43	111
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1061649)							
EM1711031-007	B17-68386/0.7	EP071-EM: C10 - C14 Fraction	---	837 mg/kg	96.2	53	123
		EP071-EM: C15 - C28 Fraction	---	3061 mg/kg	97.2	70	124
		EP071-EM: C29 - C36 Fraction	---	1592 mg/kg	95.1	64	118
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1061320)							
EM1711031-005	B17-68379/0.7	EP074-UT: C6 - C10 Fraction	C6_C10	33 mg/kg	67.2	42	106
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1061649)							
EM1711031-007	B17-68386/0.7	EP071-EM: >C10 - C16 Fraction	---	1222 mg/kg	96.5	65	123
		EP071-EM: >C16 - C34 Fraction	---	3919 mg/kg	101	67	121
		EP071-EM: >C34 - C40 Fraction	---	316 mg/kg	90.6	44	126

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 1063905)							
EM1711004-001	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	102	82	118
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	91.3	75	129
		EG020A-T: Copper	7440-50-8	1 mg/L	85.5	81	115
		EG020A-T: Lead	7439-92-1	1 mg/L	87.7	83	121

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EG020T: Total Metals by ICP-MS (QCLot: 1063905) - continued							
EM1711004-001	Anonymous	EG020A-T: Nickel	7440-02-0	1 mg/L	92.2	80	118
		EG020A-T: Zinc	7440-66-6	1 mg/L	89.5	74	116
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1066400)							
EM1710998-004	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	97.5	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1063536)							
EM1711039-018	Anonymous	EP080: C6 - C9 Fraction	----	280 µg/L	77.4	43	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1063536)							
EM1711039-018	Anonymous	EP080: C6 - C10 Fraction	C6_C10	330 µg/L	75.0	44	122
EP080: BTEXN (QCLot: 1063536)							
EM1711039-018	Anonymous	EP080: Benzene	71-43-2	20 µg/L	93.1	68	130
		EP080: Toluene	108-88-3	20 µg/L	95.0	72	132

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM1711031**	Page	: 1 of 11
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLIVIA HENDERSON	Telephone	: +61-3-8549 9600
Project	: 2135645A	Date Samples Received	: 17-Aug-2017
Site	: Site 26	Issue Date	: 23-Aug-2017
Sampler	: ----	No. of samples received	: 11
Order number	: ----	No. of samples analysed	: 11

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EG005T: Total Metals by ICP-AES	EM1710962--070	Anonymous	**Lead**	7439-92-1	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA001: pH in soil using 0.01M CaCl extract							
Soil Glass Jar - Unpreserved (EA001)							
B17-68379/0.1, B17-68379/0.7, B17-68386/0.1, B17-68386/0.7	**16-Aug-2017**	**21-Aug-2017**	23-Aug-2017	✓	**21-Aug-2017**	21-Aug-2017	✓
Soil Glass Jar - Unpreserved (EA001)							
B17-68382/0.1, B17-68382/0.5, B17-68382/1.2, B17-68382/2.0	**17-Aug-2017**	**21-Aug-2017**	24-Aug-2017	✓	**21-Aug-2017**	21-Aug-2017	✓
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
B17-68379/0.1, B17-68379/0.7, B17-68386/0.1, B17-68386/0.7	**16-Aug-2017**	**----**	----	----	**18-Aug-2017**	30-Aug-2017	✓
Soil Glass Jar - Unpreserved (EA055)							
B17-68382/0.1, B17-68382/0.5, B17-68382/1.2, B17-68382/2.0	**17-Aug-2017**	**----**	----	----	**18-Aug-2017**	31-Aug-2017	✓
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
B17-68379/0.1, B17-68379/0.7, B17-68386/0.1, B17-68386/0.7	**16-Aug-2017**	**21-Aug-2017**	12-Feb-2018	✓	**21-Aug-2017**	12-Feb-2018	✓
Soil Glass Jar - Unpreserved (EG005T)							
B17-68382/0.1, B17-68382/0.5, B17-68382/1.2, B17-68382/2.0	**17-Aug-2017**	**21-Aug-2017**	13-Feb-2018	✓	**21-Aug-2017**	13-Feb-2018	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T)								
B17-68379/0.1,	B17-68379/0.7,	**16-Aug-2017**	**21-Aug-2017**	13-Sep-2017	✓	**22-Aug-2017**	13-Sep-2017	✓
B17-68386/0.1,	B17-68386/0.7							
Soil Glass Jar - Unpreserved (EG035T)								
B17-68382/0.1,	B17-68382/0.5,	**17-Aug-2017**	**21-Aug-2017**	14-Sep-2017	✓	**22-Aug-2017**	14-Sep-2017	✓
B17-68382/1.2,	B17-68382/2.0							
EG048: Hexavalent Chromium (Alkaline Digest)								
Soil Glass Jar - Unpreserved (EG048G)								
B17-68379/0.1,	B17-68379/0.7,	**16-Aug-2017**	**21-Aug-2017**	13-Sep-2017	✓	**21-Aug-2017**	28-Aug-2017	✓
B17-68386/0.1,	B17-68386/0.7							
Soil Glass Jar - Unpreserved (EG048G)								
B17-68382/0.1,	B17-68382/0.5,	**17-Aug-2017**	**21-Aug-2017**	14-Sep-2017	✓	**21-Aug-2017**	28-Aug-2017	✓
B17-68382/1.2,	B17-68382/2.0							
EK026SF: Total CN by Segmented Flow Analyser								
Soil Glass Jar - Unpreserved (EK026SF)								
B17-68379/0.1,	B17-68379/0.7,	**16-Aug-2017**	**18-Aug-2017**	30-Aug-2017	✓	**21-Aug-2017**	01-Sep-2017	✓
B17-68386/0.1,	B17-68386/0.7							
Soil Glass Jar - Unpreserved (EK026SF)								
B17-68382/0.1,	B17-68382/0.5,	**17-Aug-2017**	**18-Aug-2017**	31-Aug-2017	✓	**21-Aug-2017**	01-Sep-2017	✓
B17-68382/1.2,	B17-68382/2.0							
EK040T: Fluoride Total								
Soil Glass Jar - Unpreserved (EK040T)								
B17-68379/0.1,	B17-68379/0.7,	**16-Aug-2017**	**18-Aug-2017**	13-Sep-2017	✓	**22-Aug-2017**	13-Sep-2017	✓
B17-68386/0.1,	B17-68386/0.7							
Soil Glass Jar - Unpreserved (EK040T)								
B17-68382/0.1,	B17-68382/0.5,	**17-Aug-2017**	**18-Aug-2017**	14-Sep-2017	✓	**22-Aug-2017**	14-Sep-2017	✓
B17-68382/1.2,	B17-68382/2.0							
EP066: Polychlorinated Biphenyls (PCB)								
Soil Glass Jar - Unpreserved (EP066-EM)								
B17-68379/0.1,	B17-68379/0.7,	**16-Aug-2017**	**18-Aug-2017**	30-Aug-2017	✓	**21-Aug-2017**	27-Sep-2017	✓
B17-68386/0.1,	B17-68386/0.7							
Soil Glass Jar - Unpreserved (EP066-EM)								
B17-68382/0.1,	B17-68382/0.5,	**17-Aug-2017**	**18-Aug-2017**	31-Aug-2017	✓	**21-Aug-2017**	27-Sep-2017	✓
B17-68382/1.2,	B17-68382/2.0							
EP074A: Monocyclic Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP074-UT)								
B17-68379/0.1,	B17-68379/0.7,	**16-Aug-2017**	**18-Aug-2017**	23-Aug-2017	✓	**18-Aug-2017**	23-Aug-2017	✓
B17-68386/0.1,	B17-68386/0.7							
Soil Glass Jar - Unpreserved (EP074-UT)								
B17-68382/0.1,	B17-68382/0.5,	**17-Aug-2017**	**18-Aug-2017**	24-Aug-2017	✓	**18-Aug-2017**	24-Aug-2017	✓
B17-68382/1.2,	B17-68382/2.0							

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074H: Naphthalene								
Soil Glass Jar - Unpreserved (EP074-UT)								
B17-68379/0.1,	B17-68379/0.7,	**16-Aug-2017**	**18-Aug-2017**	23-Aug-2017	✓	**18-Aug-2017**	23-Aug-2017	✓
B17-68386/0.1,	B17-68386/0.7							
Soil Glass Jar - Unpreserved (EP074-UT)								
B17-68382/0.1,	B17-68382/0.5,	**17-Aug-2017**	**18-Aug-2017**	24-Aug-2017	✓	**18-Aug-2017**	24-Aug-2017	✓
B17-68382/1.2,	B17-68382/2.0							
EP074I: Volatile Halogenated Compounds								
Soil Glass Jar - Unpreserved (EP074-UT)								
B17-68379/0.1,	B17-68379/0.7,	**16-Aug-2017**	**18-Aug-2017**	23-Aug-2017	✓	**18-Aug-2017**	23-Aug-2017	✓
B17-68386/0.1,	B17-68386/0.7							
Soil Glass Jar - Unpreserved (EP074-UT)								
B17-68382/0.1,	B17-68382/0.5,	**17-Aug-2017**	**18-Aug-2017**	24-Aug-2017	✓	**18-Aug-2017**	24-Aug-2017	✓
B17-68382/1.2,	B17-68382/2.0							
EP075A: Phenolic Compounds (Halogenated)								
Soil Glass Jar - Unpreserved (EP075-EM)								
B17-68379/0.1,	B17-68379/0.7,	**16-Aug-2017**	**18-Aug-2017**	30-Aug-2017	✓	**21-Aug-2017**	27-Sep-2017	✓
B17-68386/0.1,	B17-68386/0.7							
Soil Glass Jar - Unpreserved (EP075-EM)								
B17-68382/0.1,	B17-68382/0.5,	**17-Aug-2017**	**18-Aug-2017**	31-Aug-2017	✓	**21-Aug-2017**	27-Sep-2017	✓
B17-68382/1.2,	B17-68382/2.0							
EP075A: Phenolic Compounds (Non-halogenated)								
Soil Glass Jar - Unpreserved (EP075-EM)								
B17-68379/0.1,	B17-68379/0.7,	**16-Aug-2017**	**18-Aug-2017**	30-Aug-2017	✓	**21-Aug-2017**	27-Sep-2017	✓
B17-68386/0.1,	B17-68386/0.7							
Soil Glass Jar - Unpreserved (EP075-EM)								
B17-68382/0.1,	B17-68382/0.5,	**17-Aug-2017**	**18-Aug-2017**	31-Aug-2017	✓	**21-Aug-2017**	27-Sep-2017	✓
B17-68382/1.2,	B17-68382/2.0							
EP075B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075-EM)								
B17-68379/0.1,	B17-68379/0.7,	**16-Aug-2017**	**18-Aug-2017**	30-Aug-2017	✓	**21-Aug-2017**	27-Sep-2017	✓
B17-68386/0.1,	B17-68386/0.7							
Soil Glass Jar - Unpreserved (EP075-EM)								
B17-68382/0.1,	B17-68382/0.5,	**17-Aug-2017**	**18-Aug-2017**	31-Aug-2017	✓	**21-Aug-2017**	27-Sep-2017	✓
B17-68382/1.2,	B17-68382/2.0							
EP075I: Organochlorine Pesticides								
Soil Glass Jar - Unpreserved (EP075-EM)								
B17-68379/0.1,	B17-68379/0.7,	**16-Aug-2017**	**18-Aug-2017**	30-Aug-2017	✓	**21-Aug-2017**	27-Sep-2017	✓
B17-68386/0.1,	B17-68386/0.7							
Soil Glass Jar - Unpreserved (EP075-EM)								
B17-68382/0.1,	B17-68382/0.5,	**17-Aug-2017**	**18-Aug-2017**	31-Aug-2017	✓	**21-Aug-2017**	27-Sep-2017	✓
B17-68382/1.2,	B17-68382/2.0							

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP074-UT)								
B17-68379/0.1,	B17-68379/0.7,	**16-Aug-2017**	**18-Aug-2017**	23-Aug-2017	✓	**18-Aug-2017**	23-Aug-2017	✓
B17-68386/0.1,	B17-68386/0.7							
Soil Glass Jar - Unpreserved (EP071-EM)								
B17-68379/0.1,	B17-68379/0.7,	**16-Aug-2017**	**18-Aug-2017**	30-Aug-2017	✓	**21-Aug-2017**	27-Sep-2017	✓
B17-68386/0.1,	B17-68386/0.7							
Soil Glass Jar - Unpreserved (EP074-UT)								
B17-68382/0.1,	B17-68382/0.5,	**17-Aug-2017**	**18-Aug-2017**	24-Aug-2017	✓	**18-Aug-2017**	24-Aug-2017	✓
B17-68382/1.2,	B17-68382/2.0							
Soil Glass Jar - Unpreserved (EP071-EM)								
B17-68382/0.1,	B17-68382/0.5,	**17-Aug-2017**	**18-Aug-2017**	31-Aug-2017	✓	**21-Aug-2017**	27-Sep-2017	✓
B17-68382/1.2,	B17-68382/2.0							
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Soil Glass Jar - Unpreserved (EP074-UT)								
B17-68379/0.1,	B17-68379/0.7,	**16-Aug-2017**	**18-Aug-2017**	23-Aug-2017	✓	**18-Aug-2017**	23-Aug-2017	✓
B17-68386/0.1,	B17-68386/0.7							
Soil Glass Jar - Unpreserved (EP071-EM)								
B17-68379/0.1,	B17-68379/0.7,	**16-Aug-2017**	**18-Aug-2017**	30-Aug-2017	✓	**21-Aug-2017**	27-Sep-2017	✓
B17-68386/0.1,	B17-68386/0.7							
Soil Glass Jar - Unpreserved (EP074-UT)								
B17-68382/0.1,	B17-68382/0.5,	**17-Aug-2017**	**18-Aug-2017**	24-Aug-2017	✓	**18-Aug-2017**	24-Aug-2017	✓
B17-68382/1.2,	B17-68382/2.0							
Soil Glass Jar - Unpreserved (EP071-EM)								
B17-68382/0.1,	B17-68382/0.5,	**17-Aug-2017**	**18-Aug-2017**	31-Aug-2017	✓	**21-Aug-2017**	27-Sep-2017	✓
B17-68382/1.2,	B17-68382/2.0							

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS								
Clear Plastic Bottle - Nitric Acid; Unspecified (EG020B-T)								
B17-68386 RINSAT,	B17-68382 RINSAT	**16-Aug-2017**	**21-Aug-2017**	12-Feb-2018	✓	**21-Aug-2017**	12-Feb-2018	✓
EG035T: Total Recoverable Mercury by FIMS								
Clear Plastic Bottle - Nitric Acid; Unspecified (EG035T)								
B17-68386 RINSAT,	B17-68382 RINSAT	**16-Aug-2017**	**----**	----	----	**22-Aug-2017**	13-Sep-2017	✓
EP080/071: Total Petroleum Hydrocarbons								
Amber VOC Vial - Sulfuric Acid (EP080)								
TRIP BLANK		**17-Aug-2017**	**21-Aug-2017**	31-Aug-2017	✓	**21-Aug-2017**	31-Aug-2017	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Amber VOC Vial - Sulfuric Acid (EP080)								
TRIP BLANK		**17-Aug-2017**	**21-Aug-2017**	31-Aug-2017	✓	**21-Aug-2017**	31-Aug-2017	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
TRIP BLANK	**17-Aug-2017**	**21-Aug-2017**	31-Aug-2017	✓	**21-Aug-2017**	31-Aug-2017	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	4	36	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	3	27	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	2	27	**7.41**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	2	27	**7.41**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	2	27	**7.41**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Matrix Spikes (MS) - Continued							
Total Fluoride	EK040T	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Total Mercury by FIMS	EG035T	1	7	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite B	EG020B-T	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Total Mercury by FIMS	EG035T	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite B	EG020B-T	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Total Mercury by FIMS	EG035T	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite B	EG020B-T	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Total Mercury by FIMS	EG035T	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH in soil using a 0.01M CaCl2 extract	EA001	SOIL	In house: Referenced to Rayment and Lyons (2011) 4B3 (mod.) or 4B4 (mod.) 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM (2013) Schedule B(3)
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	SOIL	In house: Referenced to USEPA SW846, Method 3060A. Hexavalent chromium is extracted by alkaline digestion. The digest is determined by photometrically by automatic discrete analyser, following pH adjustment. The instrument uses colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Cyanide by Segmented Flow Analyser	EK026SF	SOIL	In house: Referenced to APHA 4500-CN C / ASTM D7511. Caustic leachates of soil samples are introduced into an automated segmented flow analyser. Complex bound cyanide is decomposed in a continuously flowing stream, at a pH of 3.8, by the effect of UV light. A UV-B lamp (312 nm) and a decomposition spiral of borosilicate glass are used to filter out UV light with a wavelength of less than 290 nm thus preventing the conversion of thiocyanate into cyanide. The hydrogen cyanide present at a pH of 3.8 is separated by gas dialysis. The hydrogen cyanide is then determined photometrically, based on the reaction of cyanide with chloramine-T to form cyanogen chloride. This then reacts with 4-pyridine carboxylic acid and 1,3-dimethylbarbituric acid to give a red colour which is measured at 600 nm. This method is compliant with NEPM (2013) Schedule B(3)
Total Fluoride	EK040T	SOIL	(In-house) Total fluoride is determined by ion specific electrode (ISE) in a solution obtained after a Sodium Carbonate / Potassium Carbonate fusion dissolution.
PCB - VIC EPA 448.3 Screen	EP066-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
TRH - Semivolatile Fraction	EP071-EM	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40.
Volatile Organic Compounds - Ultra-trace	EP074-UT	SOIL	In house: Referenced to USEPA SW 846 - 8260B Extracts are analysed by Purge and Trap, Capillary GC/MS in partial SIM/Scan mode. Quantification is by comparison against an established multi-point calibration curves. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)

Analytical Methods	Method	Matrix	Method Descriptions
Volatile Organic Compounds - Ultra-trace - Summations	EP074-UT-SUM	SOIL	Summation of MAHs and VHCs
Semivolatile Organic Compounds - Waste Classification	EP075-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (2013) Schedule B(3) (Method 502)
SVOC - Waste Classification (Sums)	EP075-EM-SUM	SOIL	Summations for EP075 (EM variation)
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite B	EG020B-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
NaOH leach for CN in Soils	CN-PR	SOIL	In house: APHA 4500 CN. Samples are extracted by end-over-end tumbling with NaOH.
pH in soil using a 0.01M CaCl2 extract	EA001-PR	SOIL	In house: Referenced to Rayment and Higginson 4B1, 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Alkaline digestion for Hexavalent Chromium	EG048PR	SOIL	In house: Referenced to USEPA SW846, Method 3060A.
Total Fluoride	EK040T-PR	SOIL	In house: Samples are fused with Sodium Carbonate / Potassium Carbonate flux.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils - Ultra-trace.	ORG16-UT	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids - VIC EPA Screen	ORG17-EM	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

Preparation Methods	Method	Matrix	Method Descriptions
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

WSP | PARSONS BRINCKERHOFF

White Page - Laboratory Copy
Yellow Page - Project File Copy
Pink Page - Remains in Book

ABN 80 078 004 798

Adelaide Level 1, 1 King William Street, GPO Box 398 Adelaide SA 5001 Tel: (08) 8405 4300 Fax: (08) 8405 4301

Brisbane Level 3, Northbank Plaza 69 Ann Street, GPO Box 2907 Brisbane QLD 4001 Tel: (07) 3854 6200 Fax: (07) 3854 6500

Melbourne Level 15, 28 Freshwater Place, Tel: (03) 9861 1111 Fax: (03) 9861 1144

Sydney Level 27, Ernst & Young Centre 680 George Street, GPO Box 5394, Sydney NSW 2001 Tel: (02) 9272 5100 Fax: (02) 9272 5101

Perth Level 5, 503 Murray Street, PO Box 7181 Cloisters Square WA 6850 Tel: (08) 9489 9700 Fax: (08) 9489 9777

Singleton 188 John Street, PO Box 115 Singleton NSW 2330 Tel: (02) 6572 3377 Fax: (02) 6572 4080

Newcastle Level 3, 51-55 Bolton Street, Suite 1 PO Box 1162 Newcastle NSW, 2300 Tel: (02) 4929 8300 Fax: (02) 4929 8382

Chain of Custody

Order No: 85412

Job Title: MORDIALLOC BYPASS

PB Job Number: 213564SA

Job Location: Site 26

Project Manager: Olivia Henderson

Laboratory Name: ALS

Results Expected by/on: Standard

Address: 2-4 Westall Rd, Springvale

Terms of Business	PB	Other	Checked

Fax Results to:

Fax Number:

Phone Number: 8549 9609

Contact Name: GRAEME

Phone Number:

Spreadsheet of Results Required: (Y) N

Format: ESDAT, PDF

Delivery Method:

Turnaround Time Required: Std

Quote Number:

Invoice to: Olivia Henderson

Comments: 1/1

	Date Sampled	Time	Sample I.D.	Container Size	Sample Location	Medium*	Preservative Type	Filtered (X)	TPH	BTEX	PAH's	OC/OP/PCB's	Metals**	IWRG 621 Suite	IWRG metals	TPH BTEX	Initials	Comments/Additional Information and/or Analysis Required
1	16-8-17	2200	B17-68386 RINSATE	60ml	Site 26	W								/	/			
2	17-8-17	100	B17-68382 RINSATE	60ml		W									/			
3	17-5-17	[illegible]	EM1706213	250ml		W									/	/		
4	16-8-17	1200	B17-68379/0.1	250ml										/				
5	16-8-17	1200	B17-68379/0.7	250ml										/				
6	16-8-17	0800	B17-68386/0.1	250ml										/				
7	16-8-17	0800	B17-68386/0.7	250ml										/				
8	17-8-17	0930	B17-68382/0.1	250ml										/				
9	17-8-17	0935	B17-68382/0.5	250ml										/				
10	17-8-17	0940	B17-68382/1.2	250ml										/				
11	17-8-17	0950	B17-68382/2.0	250ml										/				

Environmental Division
Melbourne
Work Order Reference
EM1711031

Telephone : +61-3-8549 9600

Relinquished by:	Relinquished by:	Relinquished by:
Paul Physick		
Date & Time: 17-8-17 1700	Date & Time:	Date & Time:
Company: WSP	Company:	Company:
Signature:	Signature:	Signature:
Received in Good Order & Condition by (Name): Marcus	Received in Good Order & Condition by (Name):	Received in Good Order & Condition by (Name):
Date & Time: 17/8 1700	Date & Time:	Date & Time:
Company: AL	Company:	Company:
Signature:	Signature:	Signature:

Medium*: S = Soil, W = Water, V = Vapour

Legend**: (circle the following to be tested)

Metals: Al As Be Cd Co Cr Cu Fe Hg Li Mg Mn Ni Pb Se Sn V Zn

Samples on Ice: ☐ Yes ☐ No

Please fax back a signed copy when samples are received at the laboratory

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1715033**	Page	: 1 of 2
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLIVIA HENDERSON	Contact	: Graeme Jablonskas
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9609
Project	: 2135645A OSAR	Date Samples Received	: 30-Aug-2017 17:00
Order number	: ----	Date Analysis Commenced	: 01-Nov-2017
C-O-C number	: ----	Issue Date	: 02-Nov-2017 17:25
Sampler	: ----		
Site	: Site 26		
Quote number	: ME-525-16		
No. of samples received	: 3		
No. of samples analysed	: 3		

ilac-MRA NATA
Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- This is a rebatch of EM1711735.

Analytical Results

Sub-Matrix: **SOIL** (Matrix: **SOIL**)			Client sample ID	**B17-68388 0.4**	**B17-68388 0.7**	**B17-68388 1.0**	**----**	**----**
			Client sampling date / time	30-Aug-2017 00:00	30-Aug-2017 00:00	30-Aug-2017 00:00	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**EM1715033-001**	**EM1715033-002**	**EM1715033-003**	**--------**	**--------**
				Result	Result	Result	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**8.8**	**11.8**	**24.5**	**----**	**----**
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	**16**	**----**	**----**
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	**----**	**----**
Copper	7440-50-8	5	mg/kg	**81**	**7**	<5	**----**	**----**
Lead	7439-92-1	5	mg/kg	**15**	**9**	**10**	**----**	**----**
Molybdenum	7439-98-7	2	mg/kg	**4**	<2	<2	**----**	**----**
Nickel	7440-02-0	2	mg/kg	**24**	<2	**11**	**----**	**----**
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	**----**	**----**
Silver	7440-22-4	2	mg/kg	<2	<2	<2	**----**	**----**
Tin	7440-31-5	5	mg/kg	<5	<5	<5	**----**	**----**
Zinc	7440-66-6	5	mg/kg	**156**	**28**	**9**	**----**	**----**
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	**0.1**	**----**	**----**

QUALITY CONTROL REPORT

Work Order	: **EM1715033**	Page	: 1 of 4
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLIVIA HENDERSON	Contact	: Graeme Jablonskas
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9609
Project	: 2135645A OSAR	Date Samples Received	: 30-Aug-2017
Order number	: ----	Date Analysis Commenced	: 01-Nov-2017
C-O-C number	: ----	Issue Date	: 02-Nov-2017
Sampler	: ----		
Site	: Site 26		
Quote number	: ME-525-16		
No. of samples received	: 3		
No. of samples analysed	: 3		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1215458)									
EM1715022-030	Anonymous	EA055: Moisture Content	----	1	%	20.0	20.5	2.16	0% - 20%
EM1715022-042	Anonymous	EA055: Moisture Content	----	1	%	11.7	11.4	2.30	0% - 50%
EG005T: Total Metals by ICP-AES (QC Lot: 1216039)									
EM1715002-002	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	6	6	0.00	No Limit
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	8	7	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	18	17	0.00	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Tin	7440-31-5	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	27	25	8.62	No Limit
EM1715033-001	B17-68388 0.4	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	4	4	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	24	17	35.1	0% - 50%
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	81	54	39.4	0% - 50%
		EG005T: Lead	7439-92-1	5	mg/kg	15	16	0.00	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Tin	7440-31-5	5	mg/kg	<5	5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	156	166	5.80	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1216040)									

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1216040) - continued									
EM1715002-002	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EM1715033-001	B17-68388 0.4	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 1216039)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	91.7	79	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	92.3	85	109
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	90.7	78	108
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	90.1	78	106
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	7.9 mg/kg	89.2	86	112
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	95.3	82	111
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	100.0	93	109
EG005T: Silver	7440-22-4	2	mg/kg	<2	2.1 mg/kg	80.8	80	108
EG005T: Tin	7440-31-5	5	mg/kg	<5	5.2 mg/kg	92.0	88	116
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	96.1	82	111
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1216040)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	96.0	77	104

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 1216039)							
EM1715002-013	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	94.2	78	124
		EG005T: Cadmium	7440-43-9	50 mg/kg	99.7	84	116
		EG005T: Copper	7440-50-8	50 mg/kg	102	82	124
		EG005T: Lead	7439-92-1	50 mg/kg	93.6	76	124
		EG005T: Molybdenum	7439-98-7	50 mg/kg	96.0	79	117
		EG005T: Nickel	7440-02-0	50 mg/kg	97.1	78	120
		EG005T: Selenium	7782-49-2	50 mg/kg	86.4	71	125
		EG005T: Zinc	7440-66-6	50 mg/kg	97.9	74	128
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1216040)							
EM1715002-013	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	87.2	76	116

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM1715033**	Page	: 1 of 4
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLIVIA HENDERSON	Telephone	: +61-3-8549 9609
Project	: 2135645A OSAR	Date Samples Received	: 30-Aug-2017
Site	: Site 26	Issue Date	: 02-Nov-2017
Sampler	: ----	No. of samples received	: 3
Order number	: ----	No. of samples analysed	: 3

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **Analysis Holding Time Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA055: Moisture Content (Dried @ 105-110°C)						
Soil Glass Jar - Unpreserved						
B17-68388 0.4, B17-68388 0.7, B17-68388 1.0	----	----	----	01-Nov-2017	13-Sep-2017	**49**
EG035T: Total Recoverable Mercury by FIMS						
Soil Glass Jar - Unpreserved						
B17-68388 0.4, B17-68388 0.7, B17-68388 1.0	02-Nov-2017	27-Sep-2017	**36**	02-Nov-2017	27-Sep-2017	**36**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
B17-68388 0.4, B17-68388 0.7, B17-68388 1.0	**30-Aug-2017**	**----**	----	----	**01-Nov-2017**	13-Sep-2017	×
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
B17-68388 0.4, B17-68388 0.7, B17-68388 1.0	**30-Aug-2017**	**02-Nov-2017**	26-Feb-2018	✓	**02-Nov-2017**	26-Feb-2018	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
B17-68388 0.4, B17-68388 0.7, B17-68388 1.0	**30-Aug-2017**	**02-Nov-2017**	27-Sep-2017	×	**02-Nov-2017**	27-Sep-2017	×

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Total Mercury by FIMS	EG035T	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Total Mercury by FIMS	EG035T	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Total Mercury by FIMS	EG035T	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)

Rebatch

Client / Client code: PARBRIVIC
Project: 2135645A OSAR
Project Manger: OLIVIA HENDERSON (inc Olfa Nazario)
Date /time sample rec: Wednesday, 30 August 2017
Date/time Instructions rec: Wed 1/11/2017 1:06 PM
Due date: Std

CS Contact: gj
Additional Information:

Environmental Division
Melbourne
Work Order Reference
EM1715033

Telephone : +61-3-8549 9600
MS: 3873

New Lab ID	Sample information						Number of Containers	Analysis										Shortest Holding time expiry
								Standard					Leach					
	Client ID	Sampling Date / Time	Previous Work Order Reference	Previous ALS ID	Tray Number(s)	Container		IWRG621 Metals(ex Cr6+)										
1	B17-68388 0.4	30/08/2017 0:00	EM1711735	6	HS1557	J	1	X										
2	B17-68388 0.7	30/08/2017 0:00	EM1711735	7	HS1557	J	1	X										
3	B17-68388 1.0	30/08/2017 0:00	EM1711735	8	HS1557	J	1	X										
							3											

COC Melbourne

From: Nazario, Olfa <Olfa.Nazario@wsp.com>
Sent: Wednesday, 1 November 2017 1:06 PM
To: Graeme Jablonskas
Subject: RE: EM1711735

Hi Graeme,
Can you submit for metals analysis please.
Thanks

Olfa Nazario
Environmental Scientist, Contaminated Land Management

T: +61 3 98612375

Olfa.Nazario@wsp.com

WSP Australia Pty Limited
Level 15, 28 Freshwater Place
Southbank, VIC
3006 Australia

wsp.com

From: Graeme Jablonskas [mailto:Graeme.Jablonskas@alsglobal.com]
Sent: Wednesday, 1 November 2017 12:49 PM
To: Nazario, Olfa <Olfa.Nazario@wsp.com>
Subject: RE: EM1711735

Hi Olfa

We still have the samples. However, we are well the over holding time for nearly all parameters except for the metals. Do you still want to continue?

Kind Regards

Graeme Jablonskas
Senior Project Manager – Springvale
Environmental

T +61 3 8549 9600 D +61 3 8549 9609
F +61 3 8549 9626
graeme.jablonskas@alsglobal.com
2-4 Westall Rd
Springvale Vic 3171
Australia

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From: Nazario, Olfa [mailto:Olfa.Nazario@wsp.com]
Sent: Wednesday, 1 November 2017 12:32 PM
To: Graeme Jablonskas <Graeme.Jablonskas@alsglobal.com>
Subject: EM1711735

Hi Graeme,

For this work order, is it possible to send B17-68388 samples (Lab ID 6, 7, 8) for analysis of IWRG621?

I am not sure why no analysis was requested but could just be a mishap by the field staff.

Regards

Olfa Nazario
Environmental Scientist, Contaminated Land Management

T: +61 3 98612375

Olfa.Nazario@wsp.com

WSP Australia Pty Limited
Level 15, 28 Freshwater Place
Southbank, VIC
3006 Australia

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ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1707764**	Page	: 1 of 14
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLFA NAZARIO	Contact	: Steven McGrath
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9600
Project	: 2135645A	Date Samples Received	: 15-Jun-2017 17:05
Order number	: ----	Date Analysis Commenced	: 16-Jun-2017
C-O-C number	: 85406	Issue Date	: 21-Jun-2017 15:44
Sampler	: AH		
Site	: Site 26		
Quote number	: ME-525-16		
No. of samples received	: 11		
No. of samples analysed	: 11		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	Senior Semivolatile Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP074/EP080: Poor Matrix Spike recovery for particular sample EM1707687_01 due to matrix interferences.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TP17-26-53/0.6	TP17-26-52/0.6	TP17-26-58/0.6	TP17-26-56/0.6	TP17-26-55/0.6
			Client sampling date / time	14-Jun-2017 00:00	14-Jun-2017 00:00	14-Jun-2017 00:00	14-Jun-2017 00:00	14-Jun-2017 00:00
Compound	CAS Number	LOR	Unit	EM1707764-001	EM1707764-002	EM1707764-003	EM1707764-004	EM1707764-005
				Result	Result	Result	Result	Result
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	5.3	6.8	6.4	7.7	7.1
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1	%	5.5	10.9	15.3	14.5	12.3
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	20	<5	11
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Copper	7440-50-8	5	mg/kg	<5	<5	13	<5	<5
Lead	7439-92-1	5	mg/kg	<5	6	35	5	5
Molybdenum	7439-98-7	2	mg/kg	<2	<2	<2	<2	<2
Nickel	7440-02-0	2	mg/kg	<2	2	14	2	5
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Silver	7440-22-4	2	mg/kg	<2	<2	<2	<2	<2
Tin	7440-31-5	5	mg/kg	<5	<5	<5	<5	<5
Zinc	7440-66-6	5	mg/kg	<5	<5	34	<5	<5
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
EK026SF: Total CN by Segmented Flow Analyser								
Total Cyanide	57-12-5	1	mg/kg	<1	<1	<1	<1	<1
EK040T: Fluoride Total								
Fluoride	16984-48-8	40	mg/kg	70	<40	80	40	190
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of monocyclic aromatic hydrocarbons	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP17-26-53/0.6	TP17-26-52/0.6	TP17-26-58/0.6	TP17-26-56/0.6	TP17-26-55/0.6
				Client sampling date / time	14-Jun-2017 00:00	14-Jun-2017 00:00	14-Jun-2017 00:00	14-Jun-2017 00:00	14-Jun-2017 00:00
Compound	CAS Number	LOR	Unit		EM1707764-001	EM1707764-002	EM1707764-003	EM1707764-004	EM1707764-005
					Result	Result	Result	Result	Result
EP074H: Naphthalene									
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP074I: Volatile Halogenated Compounds									
Vinyl chloride	75-01-4	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.1-Dichloroethene	75-35-4	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Methylene chloride	75-09-2	0.4	mg/kg		<0.4	<0.4	<0.4	<0.4	<0.4
trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Chloroform	67-66-3	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.1.1-Trichloroethane	71-55-6	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Carbon Tetrachloride	56-23-5	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
1.2-Dichloroethane	107-06-2	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Trichloroethene	79-01-6	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.1.2-Trichloroethane	79-00-5	0.04	mg/kg		<0.04	<0.04	<0.04	<0.04	<0.04
Tetrachloroethene	127-18-4	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Hexachlorobutadiene	87-68-3	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Chlorobenzene	108-90-7	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.4-Dichlorobenzene	106-46-7	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.2-Dichlorobenzene	95-50-1	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
^ Sum of volatile chlorinated hydrocarbons	----	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
^ Sum of other chlorinated hydrocarbons	----	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
EP075A: Phenolic Compounds (Halogenated)									
2-Chlorophenol	95-57-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
2.4-Dichlorophenol	120-83-2	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
2.6-Dichlorophenol	87-65-0	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Pentachlorophenol	87-86-5	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Sum of Phenols (halogenated)	----	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TP17-26-53/0.6	TP17-26-52/0.6	TP17-26-58/0.6	TP17-26-56/0.6	TP17-26-55/0.6
			Client sampling date / time	14-Jun-2017 00:00	14-Jun-2017 00:00	14-Jun-2017 00:00	14-Jun-2017 00:00	14-Jun-2017 00:00
Compound	CAS Number	LOR	Unit	EM1707764-001	EM1707764-002	EM1707764-003	EM1707764-004	EM1707764-005
				Result	Result	Result	Result	Result
EP075A: Phenolic Compounds (Halogenated) - Continued								
EP075A: Phenolic Compounds (Non-halogenated)								
Phenol	108-95-2	1	mg/kg	<1	<1	<1	<1	<1
2-Methylphenol	95-48-7	1	mg/kg	<1	<1	<1	<1	<1
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	<1	<1	<1
2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	<1	<1	<1
2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	<5	<5	<5	<5
4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	<5	<5	<5
2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	<5	<5	<5
Dinoseb	88-85-7	5	mg/kg	<5	<5	<5	<5	<5
2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	<5	<5	<5
^ Sum of Phenols (non-halogenated)	----	1	mg/kg	<1	<1	<1	<1	<1
EP075B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP075I: Organochlorine Pesticides								

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP17-26-53/0.6	TP17-26-52/0.6	TP17-26-58/0.6	TP17-26-56/0.6	TP17-26-55/0.6
				Client sampling date / time	14-Jun-2017 00:00	14-Jun-2017 00:00	14-Jun-2017 00:00	14-Jun-2017 00:00	14-Jun-2017 00:00
Compound	CAS Number	LOR	Unit		EM1707764-001	EM1707764-002	EM1707764-003	EM1707764-004	EM1707764-005
					Result	Result	Result	Result	Result
EP075l: Organochlorine Pesticides - Continued									
alpha-BHC	319-84-6	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
beta-BHC	319-85-7	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
gamma-BHC	58-89-9	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
delta-BHC	319-86-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Heptachlor	76-44-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Aldrin	309-00-2	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Heptachlor epoxide	1024-57-3	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
cis-Chlordane	5103-71-9	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
trans-Chlordane	5103-74-2	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Endosulfan 1	959-98-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Endrin aldehyde	7421-93-4	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Endrin	72-20-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Endosulfan 2	33213-65-9	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
4.4`-DDT	50-29-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
^ Sum of organochlorine pesticides	----	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ Chlordane	57-74-9	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
^ Sum of other organochlorine pesticides	----	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP17-26-53/0.6	TP17-26-52/0.6	TP17-26-58/0.6	TP17-26-56/0.6	TP17-26-55/0.6
				Client sampling date / time	14-Jun-2017 00:00	14-Jun-2017 00:00	14-Jun-2017 00:00	14-Jun-2017 00:00	14-Jun-2017 00:00
Compound	CAS Number	LOR	Unit		EM1707764-001	EM1707764-002	EM1707764-003	EM1707764-004	EM1707764-005
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		<50	<50	<50	<50	<50
>C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	<50
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**76.2**	**83.7**	**76.4**	**78.1**	**74.6**
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		**78.3**	**80.0**	**87.6**	**77.8**	**83.2**
Toluene-D8	2037-26-5	0.1	%		**88.6**	**87.8**	**99.9**	**88.1**	**93.4**
4-Bromofluorobenzene	460-00-4	0.1	%		**76.2**	**78.2**	**81.7**	**76.2**	**83.9**
EP075S: Acid Extractable Surrogates									
Phenol-d6	13127-88-3	0.025	%		**71.6**	**83.7**	**74.2**	**83.0**	**87.0**
2-Chlorophenol-D4	93951-73-6	0.025	%		**64.7**	**82.4**	**66.9**	**80.7**	**80.8**
2.4.6-Tribromophenol	118-79-6	0.025	%		**81.4**	**94.5**	**84.7**	**94.3**	**85.5**
EP075T: Base/Neutral Extractable Surrogates									
Nitrobenzene-D5	4165-60-0	0.025	%		**72.6**	**87.8**	**74.9**	**85.5**	**90.6**
1.2-Dichlorobenzene-D4	2199-69-1	0.025	%		**74.6**	**88.4**	**76.5**	**87.0**	**84.8**
2-Fluorobiphenyl	321-60-8	0.025	%		**71.0**	**86.4**	**72.9**	**88.3**	**88.1**
Anthracene-d10	1719-06-8	0.025	%		**98.1**	**110**	**93.2**	**107**	**96.0**
4-Terphenyl-d14	1718-51-0	0.025	%		**98.3**	**110**	**92.7**	**107**	**97.2**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TP17-26-63/0.6	TP17-26-62/0.6	TP17-26-6/0.6	----	----
			Client sampling date / time	15-Jun-2017 00:00	15-Jun-2017 00:00	15-Jun-2017 00:00	----	----
Compound	CAS Number	LOR	Unit	EM1707764-008	EM1707764-009	EM1707764-010	--------	--------
				Result	Result	Result	----	----
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	**5.6**	**6.2**	**6.2**	----	----
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1	%	**14.8**	**19.7**	**15.7**	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	**9**	<5	<5	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	----	----
Copper	7440-50-8	5	mg/kg	<5	<5	<5	----	----
Lead	7439-92-1	5	mg/kg	**9**	**10**	**6**	----	----
Molybdenum	7439-98-7	2	mg/kg	<2	<2	<2	----	----
Nickel	7440-02-0	2	mg/kg	**5**	**9**	**6**	----	----
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	----	----
Silver	7440-22-4	2	mg/kg	<2	<2	<2	----	----
Tin	7440-31-5	5	mg/kg	<5	<5	<5	----	----
Zinc	7440-66-6	5	mg/kg	**17**	**7**	<5	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	----	----
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
EK026SF: Total CN by Segmented Flow Analyser								
Total Cyanide	57-12-5	1	mg/kg	<1	<1	<1	----	----
EK040T: Fluoride Total								
Fluoride	16984-48-8	40	mg/kg	**90**	**150**	**110**	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	<0.1	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Sum of monocyclic aromatic hydrocarbons	----	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TP17-26-63/0.6	TP17-26-62/0.6	TP17-26-6/0.6	----	----
			Client sampling date / time	15-Jun-2017 00:00	15-Jun-2017 00:00	15-Jun-2017 00:00	----	----
Compound	CAS Number	LOR	Unit	EM1707764-008	EM1707764-009	EM1707764-010	--------	--------
				Result	Result	Result	----	----
EP074H: Naphthalene								
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	----	----
EP074I: Volatile Halogenated Compounds								
Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	<0.01	<0.01	----	----
Methylene chloride	75-09-2	0.4	mg/kg	<0.4	<0.4	<0.4	----	----
trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	<0.01	<0.01	----	----
Chloroform	67-66-3	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	<0.01	<0.01	----	----
Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	<0.01	<0.01	----	----
1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
Trichloroethene	79-01-6	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	<0.04	<0.04	----	----
Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	<0.01	<0.01	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	<0.01	<0.01	----	----
^ Sum of volatile chlorinated hydrocarbons	----	0.01	mg/kg	<0.01	<0.01	<0.01	----	----
^ Sum of other chlorinated hydrocarbons	----	0.01	mg/kg	<0.01	<0.01	<0.01	----	----
EP075A: Phenolic Compounds (Halogenated)								
2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
^ Sum of Phenols (halogenated)	----	0.03	mg/kg	<0.03	<0.03	<0.03	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP17-26-63/0.6	TP17-26-62/0.6	TP17-26-6/0.6	----	----
				Client sampling date / time	15-Jun-2017 00:00	15-Jun-2017 00:00	15-Jun-2017 00:00	----	----
Compound	CAS Number	LOR	Unit		EM1707764-008	EM1707764-009	EM1707764-010	--------	--------
					Result	Result	Result	----	----
EP075A: Phenolic Compounds (Halogenated) - Continued									
EP075A: Phenolic Compounds (Non-halogenated)									
Phenol	108-95-2	1	mg/kg		<1	<1	<1	----	----
2-Methylphenol	95-48-7	1	mg/kg		<1	<1	<1	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	<1	----	----
2-Nitrophenol	88-75-5	1	mg/kg		<1	<1	<1	----	----
2.4-Dimethylphenol	105-67-9	1	mg/kg		<1	<1	<1	----	----
2.4-Dinitrophenol	51-28-5	5	mg/kg		<5	<5	<5	----	----
4-Nitrophenol	100-02-7	5	mg/kg		<5	<5	<5	----	----
2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg		<5	<5	<5	----	----
Dinoseb	88-85-7	5	mg/kg		<5	<5	<5	----	----
2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg		<5	<5	<5	----	----
^ Sum of Phenols (non-halogenated)	----	1	mg/kg		<1	<1	<1	----	----
EP075B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		0.6	0.6	0.6	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		1.2	1.2	1.2	----	----
EP075I: Organochlorine Pesticides									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TP17-26-63/0.6	TP17-26-62/0.6	TP17-26-6/0.6	----	----
			Client sampling date / time	15-Jun-2017 00:00	15-Jun-2017 00:00	15-Jun-2017 00:00	----	----
Compound	CAS Number	LOR	Unit	EM1707764-008	EM1707764-009	EM1707764-010	--------	--------
				Result	Result	Result	----	----
EP075l: Organochlorine Pesticides - Continued								
alpha-BHC	319-84-6	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
beta-BHC	319-85-7	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
gamma-BHC	58-89-9	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
delta-BHC	319-86-8	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
Heptachlor	76-44-8	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
Aldrin	309-00-2	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Dieldrin	60-57-1	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
Endrin	72-20-8	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Methoxychlor	72-43-5	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
^ Sum of organochlorine pesticides	----	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
^ Chlordane	57-74-9	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
^ Sum of other organochlorine pesticides	----	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	----	----
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	----	----
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	----	----
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	----	----
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	<50	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP17-26-63/0.6	TP17-26-62/0.6	TP17-26-6/0.6	----	----
				Client sampling date / time	15-Jun-2017 00:00	15-Jun-2017 00:00	15-Jun-2017 00:00	----	----
Compound	CAS Number	LOR	Unit		EM1707764-008	EM1707764-009	EM1707764-010	--------	--------
					Result	Result	Result	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	----	----
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		<50	<50	<50	----	----
>C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	----	----
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**72.0**	**80.5**	**75.5**	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		**78.1**	**89.3**	**87.6**	----	----
Toluene-D8	2037-26-5	0.1	%		**94.2**	**104**	**96.7**	----	----
4-Bromofluorobenzene	460-00-4	0.1	%		**81.9**	**82.5**	**85.2**	----	----
EP075S: Acid Extractable Surrogates									
Phenol-d6	13127-88-3	0.025	%		**70.5**	**83.1**	**82.8**	----	----
2-Chlorophenol-D4	93951-73-6	0.025	%		**67.1**	**81.7**	**79.3**	----	----
2.4.6-Tribromophenol	118-79-6	0.025	%		**70.7**	**85.1**	**82.0**	----	----
EP075T: Base/Neutral Extractable Surrogates									
Nitrobenzene-D5	4165-60-0	0.025	%		**78.8**	**91.3**	**89.2**	----	----
1.2-Dichlorobenzene-D4	2199-69-1	0.025	%		**73.3**	**86.7**	**83.3**	----	----
2-Fluorobiphenyl	321-60-8	0.025	%		**74.1**	**88.6**	**86.4**	----	----
Anthracene-d10	1719-06-8	0.025	%		**79.3**	**89.9**	**93.0**	----	----
4-Terphenyl-d14	1718-51-0	0.025	%		**78.8**	**95.4**	**94.1**	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	RB1/140617	TB2/140617	RB2/150617	----	----
				Client sampling date / time	14-Jun-2017 00:00	14-Jun-2017 00:00	15-Jun-2017 00:00	----	----
Compound	CAS Number	LOR	Unit		EM1707764-006	EM1707764-007	EM1707764-011	--------	--------
					Result	Result	Result	----	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	----	<0.001	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	----	<0.0001	----	----
Copper	7440-50-8	0.001	mg/L		<0.001	----	<0.001	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	----	<0.001	----	----
Molybdenum	7439-98-7	0.001	mg/L		<0.001	----	<0.001	----	----
Nickel	7440-02-0	0.001	mg/L		<0.001	----	<0.001	----	----
Selenium	7782-49-2	0.01	mg/L		<0.01	----	<0.01	----	----
Silver	7440-22-4	0.001	mg/L		<0.001	----	<0.001	----	----
Tin	7440-31-5	0.001	mg/L		<0.001	----	<0.001	----	----
Zinc	7440-66-6	0.005	mg/L		<0.005	----	<0.005	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	----	<0.0001	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		----	<20	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		----	<20	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		----	<20	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		----	<1	----	----	----
Toluene	108-88-3	2	µg/L		----	<2	----	----	----
Ethylbenzene	100-41-4	2	µg/L		----	<2	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		----	<2	----	----	----
ortho-Xylene	95-47-6	2	µg/L		----	<2	----	----	----
^ Total Xylenes	1330-20-7	2	µg/L		----	<2	----	----	----
^ Sum of BTEX	----	1	µg/L		----	<1	----	----	----
Naphthalene	91-20-3	5	µg/L		----	<5	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		----	102	----	----	----
Toluene-D8	2037-26-5	2	%		----	100	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		----	108	----	----	----

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	41	122
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	59	119
Toluene-D8	2037-26-5	55	117
4-Bromofluorobenzene	460-00-4	59	123
EP075S: Acid Extractable Surrogates			
Phenol-d6	13127-88-3	28	134
2-Chlorophenol-D4	93951-73-6	27	123
2.4.6-Tribromophenol	118-79-6	25	149
EP075T: Base/Neutral Extractable Surrogates			
Nitrobenzene-D5	4165-60-0	29	125
1.2-Dichlorobenzene-D4	2199-69-1	31	117
2-Fluorobiphenyl	321-60-8	44	136
Anthracene-d10	1719-06-8	53	133
4-Terphenyl-d14	1718-51-0	59	141

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	129
Toluene-D8	2037-26-5	70	125
4-Bromofluorobenzene	460-00-4	71	129

Automated Guideline Comparison Report

EPA Victoria Publication IWRG 621 (2009) - Table 2: Soil Hazard Categorisation

Work Order	: **EM1707764**	Page	: 1 of 14
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLFA NAZARIO		
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: onazario@pb.com.au	E-mail	: ----
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9600
Facsimile	: +61 03 9861 1144	Facsimile	: +61-3-8549 9601
Project	: 2135645A	Date Received	: 15-Jun-2017 17:05
Order number	: ----	Date Analysed	: 16-Jun-2017
C-O-C number	: 85406	Date Issued	: 21-Jun-2017 15:45
No. of samples received	: 11		
No. of samples analysed	: 11	Quote number	: ME-525-16

General Comments

This guideline comparison report **only** provides evaluation of total concentration data against upper limit thresholds for the 'Fill Material', 'C', 'B' Categories in Table 2 of EPA Publication IWRG621.

This guideline comparison report is **NOT** a soil classification report. Classification of soils as Fill Material, Category C, Category B or Category A requires consideration of a number of other factors including preliminary site investigation, sampling density and statistical calculations, as set out in EPA Publication IWRG 702.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

This guideline comparison report only provides evaluation data where chemical parameters specifically listed within the IWRG621 (2009) guideline are analysed by ALS using the **P-16 package in full**.

Red shading is applied where the result is equal to or greater than the guideline upper limit and/or equal to or lower than the guideline lower limit. Red shading is not applied to the 'Summary of Thresholds Reached or Exceeded'.

For the 'Summary of Thresholds Reached or Exceeded' to accurately function, all samples must be analysed and included in the 'Analytical Results' section of the following report. Please verify that all required IDs are listed and analysed.

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Summary of Thresholds Reached or Exceeded

EPA Victoria Publication IWRG 621 (2009)

Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Client Sample ID	*ALS Sample ID*	*Compound*	*Method*	*LOR*	*Limits*	*Result*
TP17-26-58/0.6	**EM1707764-003**	Arsenic	EG005T	5	*< 20 mg/kg*	**20 mg/kg**

Analytical Results

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Client sample ID: TP17-26-53/0.6	TP17-26-52/0.6	TP17-26-58/0.6	TP17-26-56/0.6	TP17-26-55/0.6
			Sampling date/time			14-Jun-2017	14-Jun-2017	14-Jun-2017	14-Jun-2017	14-Jun-2017
						EM1707764-001	EM1707764-002	EM1707764-003	EM1707764-004	EM1707764-005
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	2	12.5	**5.3**	**6.8**	**6.4**	**7.7**	**7.1**
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	2000	<5	<5	**20**	<5	**11**
Cadmium	EG005T	1	mg/kg	----	400	<1	<1	<1	<1	<1
Copper	EG005T	5	mg/kg	----	20000	<5	<5	**13**	<5	<5
Lead	EG005T	5	mg/kg	----	6000	<5	**6**	**35**	**5**	**5**
Molybdenum	EG005T	2	mg/kg	----	4000	<2	<2	<2	<2	<2
Nickel	EG005T	2	mg/kg	----	12000	<2	**2**	**14**	**2**	**5**
Selenium	EG005T	5	mg/kg	----	200	<5	<5	<5	<5	<5
Silver	EG005T	2	mg/kg	----	720	<2	<2	<2	<2	<2
Zinc	EG005T	5	mg/kg	----	140000	<5	<5	**34**	<5	<5
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	300	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	2000	<0.5	<0.5	<0.5	<0.5	<0.5
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	10000	<1	<1	<1	<1	<1
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	40000	**70**	<40	**80**	**40**	**190**
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	16	<0.2	<0.2	<0.2	<0.2	<0.2
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	240	<0.2	<0.2	<0.2	<0.2	<0.2
EP074I: Volatile Halogenated Compounds										
Vinyl chloride	EP074-UT	0.02	mg/kg	----	4.8	<0.02	<0.02	<0.02	<0.02	<0.02
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	11	<0.02	<0.02	<0.02	<0.02	<0.02
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	50	<0.01	<0.01	<0.01	<0.01	<0.01
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	320	<0.03	<0.03	<0.03	<0.03	<0.03
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	2200	<1	<1	<1	<1	<1
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	20	<0.5	<0.5	<0.5	<0.5	<0.5

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	TP17-26-53/0.6	TP17-26-52/0.6	TP17-26-58/0.6	TP17-26-56/0.6	TP17-26-55/0.6
Client sample ID										
Sampling date/time						14-Jun-2017	14-Jun-2017	14-Jun-2017	14-Jun-2017	14-Jun-2017
						EM1707764-001	EM1707764-002	EM1707764-003	EM1707764-004	EM1707764-005
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	400	<0.5	<0.5	<0.5	<0.5	<0.5
EP075I: Organochlorine Pesticides										
Heptachlor	EP075-EM	0.03	mg/kg	----	4.8	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	4.8	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50	<0.05	<0.05	<0.05	<0.05	<0.05
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	16	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	50	<0.03	<0.03	<0.03	<0.03	<0.03
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	2600	<10	<10	<10	<10	<10
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	40000	<50	<50	<50	<50	<50

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Client sample ID: TP17-26-53/0.6	TP17-26-52/0.6	TP17-26-58/0.6	TP17-26-56/0.6	TP17-26-55/0.6
						Sampling date/time: 14-Jun-2017	14-Jun-2017	14-Jun-2017	14-Jun-2017	14-Jun-2017
						EM1707764-001	EM1707764-002	EM1707764-003	EM1707764-004	EM1707764-005
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	4	9	**5.3**	**6.8**	**6.4**	**7.7**	**7.1**
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	500	<5	<5	**20**	<5	**11**
Cadmium	EG005T	1	mg/kg	----	100	<1	<1	<1	<1	<1
Copper	EG005T	5	mg/kg	----	5000	<5	<5	**13**	<5	<5
Lead	EG005T	5	mg/kg	----	1500	<5	**6**	**35**	**5**	**5**
Molybdenum	EG005T	2	mg/kg	----	1000	<2	<2	<2	<2	<2
Nickel	EG005T	2	mg/kg	----	3000	<2	**2**	**14**	**2**	**5**
Selenium	EG005T	5	mg/kg	----	50	<5	<5	<5	<5	<5
Silver	EG005T	2	mg/kg	----	180	<2	<2	<2	<2	<2
Tin	EG005T	5	mg/kg	----	500	<5	<5	<5	<5	<5
Zinc	EG005T	5	mg/kg	----	35000	<5	<5	**34**	<5	<5
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	75	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	500	<0.5	<0.5	<0.5	<0.5	<0.5
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	2500	<1	<1	<1	<1	<1
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	10000	**70**	<40	**80**	**40**	**190**
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	4	<0.2	<0.2	<0.2	<0.2	<0.2
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	70	<0.2	<0.2	<0.2	<0.2	<0.2
EP074I: Volatile Halogenated Compounds										
Vinyl chloride	EP074-UT	0.02	mg/kg	----	1.2	<0.02	<0.02	<0.02	<0.02	<0.02
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	2.8	<0.02	<0.02	<0.02	<0.02	<0.02
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	10	<0.01	<0.01	<0.01	<0.01	<0.01
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	10	<0.03	<0.03	<0.03	<0.03	<0.03
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	560	<1	<1	<1	<1	<1
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	5	<0.5	<0.5	<0.5	<0.5	<0.5

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

				Client sample ID	Guideline Lower Limit	Guideline Upper Limit	TP17-26-53/0.6	TP17-26-52/0.6	TP17-26-58/0.6	TP17-26-56/0.6	TP17-26-55/0.6
				Sampling date/time			14-Jun-2017	14-Jun-2017	14-Jun-2017	14-Jun-2017	14-Jun-2017
Compound	*Method*	*LOR*	*Unit*				EM1707764-001	EM1707764-002	EM1707764-003	EM1707764-004	EM1707764-005
EP075B: Polynuclear Aromatic Hydrocarbons - Continued											
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	100		<0.5	<0.5	<0.5	<0.5	<0.5
EP075I: Organochlorine Pesticides											
Heptachlor	EP075-EM	0.03	mg/kg	----	1.2		<0.03	<0.03	<0.03	<0.03	<0.03
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	1.2		<0.03	<0.03	<0.03	<0.03	<0.03
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50		<0.05	<0.05	<0.05	<0.05	<0.05
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	4		<0.03	<0.03	<0.03	<0.03	<0.03
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	10		<0.03	<0.03	<0.03	<0.03	<0.03
EP080/071: Total Petroleum Hydrocarbons											
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	650		<10	<10	<10	<10	<10
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	10000		<50	<50	<50	<50	<50

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Client sample ID: TP17-26-53/0.6	TP17-26-52/0.6	TP17-26-58/0.6	TP17-26-56/0.6	TP17-26-55/0.6
			Sampling date/time			14-Jun-2017	14-Jun-2017	14-Jun-2017	14-Jun-2017	14-Jun-2017
						EM1707764-001	EM1707764-002	EM1707764-003	EM1707764-004	EM1707764-005
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	4	9	**5.3**	**6.8**	**6.4**	**7.7**	**7.1**
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	20	<5	<5	**20**	<5	**11**
Cadmium	EG005T	1	mg/kg	----	3	<1	<1	<1	<1	<1
Copper	EG005T	5	mg/kg	----	100	<5	<5	**13**	<5	<5
Lead	EG005T	5	mg/kg	----	300	<5	**6**	**35**	**5**	**5**
Molybdenum	EG005T	2	mg/kg	----	40	<2	<2	<2	<2	<2
Nickel	EG005T	2	mg/kg	----	60	<2	**2**	**14**	**2**	**5**
Selenium	EG005T	5	mg/kg	----	10	<5	<5	<5	<5	<5
Silver	EG005T	2	mg/kg	----	10	<2	<2	<2	<2	<2
Tin	EG005T	5	mg/kg	----	50	<5	<5	<5	<5	<5
Zinc	EG005T	5	mg/kg	----	200	<5	<5	**34**	<5	<5
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	1	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	1	<0.5	<0.5	<0.5	<0.5	<0.5
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	50	<1	<1	<1	<1	<1
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	450	**70**	<40	**80**	**40**	**190**
EP066: Polychlorinated Biphenyls (PCB)										
Total Polychlorinated biphenyls	EP066-EM	0.1	mg/kg	----	2	<0.1	<0.1	<0.1	<0.1	<0.1
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	1	<0.2	<0.2	<0.2	<0.2	<0.2
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	7	<0.2	<0.2	<0.2	<0.2	<0.2
EP074I: Volatile Halogenated Compounds										
Sum of volatile chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	1	<0.01	<0.01	<0.01	<0.01	<0.01
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	1	<0.03	<0.03	<0.03	<0.03	<0.03
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	60	<1	<1	<1	<1	<1
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	1	<0.5	<0.5	<0.5	<0.5	<0.5

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

				Client sample ID	Guideline Lower Limit	Guideline Upper Limit	TP17-26-53/0.6	TP17-26-52/0.6	TP17-26-58/0.6	TP17-26-56/0.6	TP17-26-55/0.6
				Sampling date/time			14-Jun-2017	14-Jun-2017	14-Jun-2017	14-Jun-2017	14-Jun-2017
Compound	*Method*	*LOR*	*Unit*				EM1707764-001	EM1707764-002	EM1707764-003	EM1707764-004	EM1707764-005
EP075B: Polynuclear Aromatic Hydrocarbons - Continued											
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg		----	20	<0.5	<0.5	<0.5	<0.5	<0.5
EP075I: Organochlorine Pesticides											
Sum of organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg		----	1	<0.03	<0.03	<0.03	<0.03	<0.03
EP080/071: Total Petroleum Hydrocarbons											
C6 - C9 Fraction	EP074-UT	10	mg/kg		----	100	<10	<10	<10	<10	<10
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg		----	1000	<50	<50	<50	<50	<50

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Client sample ID: TP17-26-63/0.6	TP17-26-62/0.6	TP17-26-6/0.6	----	----
						Sampling date/time: 15-Jun-2017	15-Jun-2017	15-Jun-2017	----	----
						EM1707764-008	EM1707764-009	EM1707764-010	--------	--------
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	2	12.5	**5.6**	**6.2**	**6.2**	----	----
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	2000	**9**	<5	<5	----	----
Cadmium	EG005T	1	mg/kg	----	400	<1	<1	<1	----	----
Copper	EG005T	5	mg/kg	----	20000	<5	<5	<5	----	----
Lead	EG005T	5	mg/kg	----	6000	**9**	**10**	**6**	----	----
Molybdenum	EG005T	2	mg/kg	----	4000	<2	<2	<2	----	----
Nickel	EG005T	2	mg/kg	----	12000	**5**	**9**	**6**	----	----
Selenium	EG005T	5	mg/kg	----	200	<5	<5	<5	----	----
Silver	EG005T	2	mg/kg	----	720	<2	<2	<2	----	----
Zinc	EG005T	5	mg/kg	----	140000	**17**	**7**	<5	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	300	<0.1	<0.1	<0.1	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	2000	<0.5	<0.5	<0.5	----	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	10000	<1	<1	<1	----	----
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	40000	**90**	**150**	**110**	----	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	16	<0.2	<0.2	<0.2	----	----
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	240	<0.2	<0.2	<0.2	----	----
EP074I: Volatile Halogenated Compounds										
Vinyl chloride	EP074-UT	0.02	mg/kg	----	4.8	<0.02	<0.02	<0.02	----	----
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	11	<0.02	<0.02	<0.02	----	----
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	50	<0.01	<0.01	<0.01	----	----
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	320	<0.03	<0.03	<0.03	----	----
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	2200	<1	<1	<1	----	----
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	20	<0.5	<0.5	<0.5	----	----
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	400	<0.5	<0.5	<0.5	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Client sample ID: TP17-26-63/0.6	TP17-26-62/0.6	TP17-26-6/0.6	----	----
						Sampling date/time: 15-Jun-2017	15-Jun-2017	15-Jun-2017	----	----
						EM1707764-008	EM1707764-009	EM1707764-010	--------	--------
EP075I: Organochlorine Pesticides										
Heptachlor	EP075-EM	0.03	mg/kg	----	4.8	<0.03	<0.03	<0.03	----	----
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	4.8	<0.03	<0.03	<0.03	----	----
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50	<0.05	<0.05	<0.05	----	----
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	16	<0.03	<0.03	<0.03	----	----
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	50	<0.03	<0.03	<0.03	----	----
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	2600	<10	<10	<10	----	----
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	40000	<50	<50	<50	----	----

Soil Hazard Categorisation and Management
Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Client sample ID: TP17-26-63/0.6	TP17-26-62/0.6	TP17-26-6/0.6	----	----
			Sampling date/time			15-Jun-2017	15-Jun-2017	15-Jun-2017	----	----
						EM1707764-008	EM1707764-009	EM1707764-010	--------	--------
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	4	9	**5.6**	**6.2**	**6.2**	----	----
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	500	**9**	<5	<5	----	----
Cadmium	EG005T	1	mg/kg	----	100	<1	<1	<1	----	----
Copper	EG005T	5	mg/kg	----	5000	<5	<5	<5	----	----
Lead	EG005T	5	mg/kg	----	1500	**9**	**10**	**6**	----	----
Molybdenum	EG005T	2	mg/kg	----	1000	<2	<2	<2	----	----
Nickel	EG005T	2	mg/kg	----	3000	**5**	**9**	**6**	----	----
Selenium	EG005T	5	mg/kg	----	50	<5	<5	<5	----	----
Silver	EG005T	2	mg/kg	----	180	<2	<2	<2	----	----
Tin	EG005T	5	mg/kg	----	500	<5	<5	<5	----	----
Zinc	EG005T	5	mg/kg	----	35000	**17**	**7**	<5	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	75	<0.1	<0.1	<0.1	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	500	<0.5	<0.5	<0.5	----	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	2500	<1	<1	<1	----	----
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	10000	**90**	**150**	**110**	----	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	4	<0.2	<0.2	<0.2	----	----
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	70	<0.2	<0.2	<0.2	----	----
EP074I: Volatile Halogenated Compounds										
Vinyl chloride	EP074-UT	0.02	mg/kg	----	1.2	<0.02	<0.02	<0.02	----	----
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	2.8	<0.02	<0.02	<0.02	----	----
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	10	<0.01	<0.01	<0.01	----	----
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	10	<0.03	<0.03	<0.03	----	----
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	560	<1	<1	<1	----	----
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	5	<0.5	<0.5	<0.5	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

				Client sample ID	Guideline Lower Limit	Guideline Upper Limit	TP17-26-63/0.6	TP17-26-62/0.6	TP17-26-6/0.6	----	----
				Sampling date/time			15-Jun-2017	15-Jun-2017	15-Jun-2017	----	----
Compound	*Method*	*LOR*	*Unit*				EM1707764-008	EM1707764-009	EM1707764-010	--------	--------
EP075B: Polynuclear Aromatic Hydrocarbons - Continued											
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	100	<0.5	<0.5	<0.5	----	----
EP075I: Organochlorine Pesticides											
Heptachlor	EP075-EM	0.03	mg/kg	----	1.2	<0.03	<0.03	<0.03	----	----
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	1.2	<0.03	<0.03	<0.03	----	----
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50	<0.05	<0.05	<0.05	----	----
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	4	<0.03	<0.03	<0.03	----	----
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	10	<0.03	<0.03	<0.03	----	----
EP080/071: Total Petroleum Hydrocarbons											
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	650	<10	<10	<10	----	----
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	10000	<50	<50	<50	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Client sample ID: TP17-26-63/0.6	TP17-26-62/0.6	TP17-26-6/0.6	----	----
						Sampling date/time: 15-Jun-2017	15-Jun-2017	15-Jun-2017	----	----
						EM1707764-008	EM1707764-009	EM1707764-010	--------	--------
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	4	9	**5.6**	**6.2**	**6.2**	----	----
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	20	**9**	<5	<5	----	----
Cadmium	EG005T	1	mg/kg	----	3	<1	<1	<1	----	----
Copper	EG005T	5	mg/kg	----	100	<5	<5	<5	----	----
Lead	EG005T	5	mg/kg	----	300	**9**	**10**	**6**	----	----
Molybdenum	EG005T	2	mg/kg	----	40	<2	<2	<2	----	----
Nickel	EG005T	2	mg/kg	----	60	**5**	**9**	**6**	----	----
Selenium	EG005T	5	mg/kg	----	10	<5	<5	<5	----	----
Silver	EG005T	2	mg/kg	----	10	<2	<2	<2	----	----
Tin	EG005T	5	mg/kg	----	50	<5	<5	<5	----	----
Zinc	EG005T	5	mg/kg	----	200	**17**	**7**	<5	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	1	<0.1	<0.1	<0.1	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	1	<0.5	<0.5	<0.5	----	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	50	<1	<1	<1	----	----
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	450	**90**	**150**	**110**	----	----
EP066: Polychlorinated Biphenyls (PCB)										
Total Polychlorinated biphenyls	EP066-EM	0.1	mg/kg	----	2	<0.1	<0.1	<0.1	----	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	1	<0.2	<0.2	<0.2	----	----
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	7	<0.2	<0.2	<0.2	----	----
EP074I: Volatile Halogenated Compounds										
Sum of volatile chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	1	<0.01	<0.01	<0.01	----	----
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	1	<0.03	<0.03	<0.03	----	----
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	60	<1	<1	<1	----	----
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	1	<0.5	<0.5	<0.5	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

				Client sample ID	Guideline Lower Limit	Guideline Upper Limit	TP17-26-63/0.6	TP17-26-62/0.6	TP17-26-6/0.6	----	----
				Sampling date/time			15-Jun-2017	15-Jun-2017	15-Jun-2017	----	----
Compound	*Method*	*LOR*	*Unit*				EM1707764-008	EM1707764-009	EM1707764-010	--------	--------
EP075B: Polynuclear Aromatic Hydrocarbons - Continued											
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	20		<0.5	<0.5	<0.5	----	----
EP075I: Organochlorine Pesticides											
Sum of organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	1		<0.03	<0.03	<0.03	----	----
EP080/071: Total Petroleum Hydrocarbons											
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	100		<10	<10	<10	----	----
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	1000		<50	<50	<50	----	----

Note: Red shading is applied where the result is equal to or greater than the guideline upper limit and/or equal to or lower than the guideline lower limit.

QUALITY CONTROL REPORT

Work Order	: **EM1707764**	Page	: 1 of 16
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLFA NAZARIO	Contact	: Steven McGrath
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9600
Project	: 2135645A	Date Samples Received	: 15-Jun-2017
Order number	: ----	Date Analysis Commenced	: 16-Jun-2017
C-O-C number	: 85406	Issue Date	: 21-Jun-2017
Sampler	: AH		
Site	: Site 26		
Quote number	: ME-525-16		
No. of samples received	: 11		
No. of samples analysed	: 11		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	Senior Semivolatile Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA001: pH in soil using 0.01M CaCl extract (QC Lot: 951075)									
EM1707721-008	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	6.9	6.9	0.00	0% - 20%
EM1707764-010	TP17-26-6/0.6	EA001: pH (CaCl2)	----	0.1	pH Unit	6.2	6.2	0.00	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 949299)									
EM1707758-007	Anonymous	EA055: Moisture Content	----	1	%	16.8	16.3	3.04	0% - 50%
EM1707765-001	Anonymous	EA055: Moisture Content	----	1	%	17.3	14.3	19.3	0% - 50%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 951096)									
EM1707661-046	Anonymous	EA055: Moisture Content	----	1	%	21.0	21.8	3.51	0% - 20%
EM1707835-002	Anonymous	EA055: Moisture Content	----	1	%	25.2	26.9	6.61	0% - 20%
EG005T: Total Metals by ICP-AES (QC Lot: 951663)									
EM1707764-001	TP17-26-53/0.6	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Tin	7440-31-5	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.00	No Limit
EM1707772-006	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	80	86	7.85	0% - 20%
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	8	6	27.7	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG005T: Total Metals by ICP-AES (QC Lot: 951663) - continued									
EM1707772-006	Anonymous	EG005T: Copper	7440-50-8	5	mg/kg	46	33	34.2	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	24	12	71.1	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Tin	7440-31-5	5	mg/kg	5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	244	200	19.9	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 951664)									
EM1707764-001	TP17-26-53/0.6	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EM1707772-006	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EG048: Hexavalent Chromium (Alkaline Digest) (QC Lot: 951056)									
EM1707714-001	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1707764-001	TP17-26-53/0.6	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EK026SF: Total CN by Segmented Flow Analyser (QC Lot: 952047)									
EM1707721-009	Anonymous	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.00	No Limit
EM1707764-008	TP17-26-63/0.6	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.00	No Limit
EK040T: Fluoride Total (QC Lot: 948390)									
EM1707756-001	Anonymous	EK040T: Fluoride	16984-48-8	40	mg/kg	40	<40	0.00	No Limit
EM1707764-004	TP17-26-56/0.6	EK040T: Fluoride	16984-48-8	40	mg/kg	40	<40	0.00	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 948303)									
EM1707721-001	Anonymous	EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EM1707764-004	TP17-26-56/0.6	EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 948305)									
EM1707721-005	Anonymous	EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1707764-009	TP17-26-62/0.6	EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074H: Naphthalene (QC Lot: 948305)									
EM1707721-005	Anonymous	EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EM1707764-009	TP17-26-62/0.6	EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EP074I: Volatile Halogenated Compounds (QC Lot: 948305)									

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074I: Volatile Halogenated Compounds (QC Lot: 948305) - continued									
EM1707721-005	Anonymous	EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	<0.04	0.00	No Limit
		EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	<0.4	0.00	No Limit
EM1707764-009	TP17-26-62/0.6	EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	<0.04	0.00	No Limit
		EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	<0.4	0.00	No Limit
EP075A: Phenolic Compounds (Halogenated) (QC Lot: 948301)									
EM1707721-001	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075A: Phenolic Compounds (Halogenated) (QC Lot: 948301) - continued									
EM1707721-001	Anonymous	EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EM1707764-004	TP17-26-56/0.6	EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP075A: Phenolic Compounds (Non-halogenated) (QC Lot: 948301)									
EM1707721-001	Anonymous	EP075-EM: Phenol	108-95-2	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	0.00	No Limit
EM1707764-004	TP17-26-56/0.6	EP075-EM: Phenol	108-95-2	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075B: Polynuclear Aromatic Hydrocarbons (QC Lot: 948301)									
EM1707721-001	Anonymous	EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1707764-004	TP17-26-56/0.6	EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP075I: Organochlorine Pesticides (QC Lot: 948301)									
EM1707721-001	Anonymous	EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075I: Organochlorine Pesticides (QC Lot: 948301) - continued									
EM1707721-001	Anonymous	EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EM1707764-004	TP17-26-56/0.6	EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 948302)									
EM1707721-001	Anonymous	EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EM1707764-004	TP17-26-56/0.6	EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 948305)									
EM1707721-005	Anonymous	EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EM1707764-009	TP17-26-62/0.6	EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 948302)									
EM1707721-001	Anonymous	EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EM1707764-004	TP17-26-56/0.6	EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 948305)									
EM1707721-005	Anonymous	EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
		EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	0.00	No Limit
EM1707764-009	TP17-26-62/0.6	EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
		EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG020T: Total Metals by ICP-MS (QC Lot: 948328)									
EM1707749-015	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	0.0016	0.0015	0.00	0% - 50%
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.085	0.088	3.08	0% - 20%
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.002	0.002	0.00	No Limit
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.093	0.094	0.00	0% - 20%
		EG020A-T: Tin	7440-31-5	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.491	0.502	2.20	0% - 20%
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EG020T: Total Metals by ICP-MS (QC Lot: 948329)									
EM1707764-006	RB1/140617	EG020B-T: Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 953617)									
EM1707764-006	RB1/140617	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EM1707796-006	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 947728)									
EM1707687-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	170000	164000	3.71	0% - 20%
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 947728)									
EM1707687-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	164000	158000	3.72	0% - 20%
EP080: BTEXN (QC Lot: 947728)									
EM1707687-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<100	<100	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	96600	87600	9.81	0% - 20%

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080: BTEXN (QC Lot: 947728) - continued									
EM1707687-001	Anonymous	EP080: Ethylbenzene	100-41-4	2	µg/L	7680	7370	4.06	0% - 20%
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	32800	31600	3.63	0% - 20%
		EP080: ortho-Xylene	95-47-6	2	µg/L	14800	14400	3.19	0% - 20%
		EP080: Naphthalene	91-20-3	5	µg/L	<100	<100	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 951663)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	91.0	79	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	86.6	85	109
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	90.2	84	116
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	87.7	85	107
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	7.9 mg/kg	101	86	112
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	91.4	89	111
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	102	93	109
EG005T: Silver	7440-22-4	2	mg/kg	<2	2.1 mg/kg	93.1	80	108
EG005T: Tin	7440-31-5	5	mg/kg	<5	5.2 mg/kg	105	92	114
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	95.7	89	111
EG035T: Total Recoverable Mercury by FIMS (QCLot: 951664)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	96.9	85	103
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 951056)								
EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	40 mg/kg	86.9	80	120
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 952047)								
EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	20 mg/kg	97.2	80	110
EK040T: Fluoride Total (QCLot: 948390)								
EK040T: Fluoride	16984-48-8	40	mg/kg	<40	950 mg/kg	82.5	76	108
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 948303)								
EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	100.0	63	133
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 948305)								
EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	2.1 mg/kg	91.8	74	118
EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	2.1 mg/kg	106	70	118
EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2.1 mg/kg	91.7	69	117
EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4.2 mg/kg	92.1	68	116
EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	2.1 mg/kg	92.2	71	117
EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2.1 mg/kg	92.9	70	116
EP074H: Naphthalene (QCLot: 948305)								
EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	0.6 mg/kg	92.0	74	116
EP074I: Volatile Halogenated Compounds (QCLot: 948305)								
EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	0.1 mg/kg	89.8	49	133
EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	0.1 mg/kg	93.4	62	127

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP074I: Volatile Halogenated Compounds (QCLot: 948305) - continued								
EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	2.1 mg/kg	88.2	65	131
EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	0.1 mg/kg	90.2	68	124
EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	0.1 mg/kg	92.7	74	118
EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	0.1 mg/kg	86.1	72	118
EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	0.1 mg/kg	93.7	67	119
EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	0.1 mg/kg	93.3	65	119
EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	0.1 mg/kg	106	70	122
EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	0.1 mg/kg	91.0	72	124
EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	0.1 mg/kg	106	74	122
EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	0.1 mg/kg	91.4	58	120
EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	0.1 mg/kg	93.4	70	119
EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	0.1 mg/kg	96.1	71	125
EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	0.1 mg/kg	99.8	61	125
EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	0.1 mg/kg	91.8	70	122
EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	0.1 mg/kg	91.8	61	118
EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	0.1 mg/kg	93.2	67	117
EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	0.1 mg/kg	93.3	53	127
EP075A: Phenolic Compounds (Halogenated) (QCLot: 948301)								
EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	0.5 mg/kg	95.2	43	119
EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	0.5 mg/kg	113	44	131
EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	0.5 mg/kg	89.1	43	122
EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	0.5 mg/kg	122	50	129
EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	0.5 mg/kg	80.9	44	128
EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	0.5 mg/kg	105	44	126
EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	0.5 mg/kg	103	46	126
EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/5 8-90-2	0.05	mg/kg	<0.05	1 mg/kg	99.8	44	124
EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	1 mg/kg	# 130	36	124
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 948301)								
EP075-EM: Phenol	108-95-2	1	mg/kg	<1	0.5 mg/kg	# 123	41	120
EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	0.5 mg/kg	95.7	41	131
EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	1 mg/kg	102	43	130
EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	0.5 mg/kg	115	49	130
EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	0.5 mg/kg	78.2	37	119
EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	3 mg/kg	40.6	23	125
EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	3 mg/kg	117	49	133
EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	3 mg/kg	62.0	47	125
EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	3 mg/kg	104	48	123
EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	2.5 mg/kg	46.5	12	132

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 948301)								
EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	0.5 mg/kg	91.6	44	122
EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	0.5 mg/kg	99.8	54	126
EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	0.5 mg/kg	89.8	46	126
EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	0.5 mg/kg	101	51	125
EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	0.5 mg/kg	103	57	127
EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	0.5 mg/kg	73.1	55	127
EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	0.5 mg/kg	108	57	131
EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	0.5 mg/kg	111	57	131
EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	0.5 mg/kg	91.1	56	132
EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	0.5 mg/kg	105	58	134
EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	1 mg/kg	115	55	133
EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	0.5 mg/kg	113	51	135
EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	0.5 mg/kg	95.4	55	137
EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	0.5 mg/kg	92.7	54	136
EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	0.5 mg/kg	97.0	55	137
EP075I: Organochlorine Pesticides (QCLot: 948301)								
EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	0.5 mg/kg	99.8	54	130
EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	0.5 mg/kg	111	54	130
EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	0.5 mg/kg	103	54	134
EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	0.5 mg/kg	103	54	132
EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	0.5 mg/kg	105	55	131
EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	0.5 mg/kg	110	54	128
EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	0.5 mg/kg	112	54	128
EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	0.5 mg/kg	109	56	130
EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	0.5 mg/kg	107	56	130
EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	0.5 mg/kg	109	55	131
EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	0.5 mg/kg	104	53	133
EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	93.0	54	130
EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	0.5 mg/kg	115	57	133
EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	0.5 mg/kg	119	28	174
EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	0.5 mg/kg	118	40	148
EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	0.5 mg/kg	106	56	138
EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	107	57	135
EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	0.5 mg/kg	112	51	133
EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	0.5 mg/kg	106	51	133
EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	0.5 mg/kg	102	48	136
EP080/071: Total Petroleum Hydrocarbons (QCLot: 948302)								
EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	837 mg/kg	98.8	72	130

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 948302) - continued								
EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	3061 mg/kg	95.8	77	126
EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	1592 mg/kg	92.7	75	119
EP080/071: Total Petroleum Hydrocarbons (QCLot: 948305)								
EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	39.6 mg/kg	91.6	69	114
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 948302)								
EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	1222 mg/kg	100	75	123
EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	3919 mg/kg	94.5	77	127
EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	316 mg/kg	98.8	43	123
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 948305)								
EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	48.9 mg/kg	93.2	69	112
EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	----	----	----

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 948328)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	100.0	94	113
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	94.4	88	110
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	99.0	87	112
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	93.3	88	113
EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	102	89	114
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	95.0	91	111
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	98.8	86	110
EG020A-T: Tin	7440-31-5	0.001	mg/L	<0.001	0.1 mg/L	101	88	113
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	99.7	88	112
EG020T: Total Metals by ICP-MS (QCLot: 948329)								
EG020B-T: Silver	7440-22-4	0.001	mg/L	<0.001	0.02 mg/L	107	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 953617)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	87.6	87	113
EP080/071: Total Petroleum Hydrocarbons (QCLot: 947728)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	360 µg/L	102	67	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 947728)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	98.2	65	125
EP080: BTEXN (QCLot: 947728)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	103	76	120
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	108	76	124
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	107	72	124

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080: BTEXN (QCLot: 947728) - continued								
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	105	72	130
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	104	78	128
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	95.9	71	129

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG005T: Total Metals by ICP-AES (QCLot: 951663)							
EM1707764-002	TP17-26-52/0.6	EG005T: Arsenic	7440-38-2	50 mg/kg	97.1	78	124
		EG005T: Cadmium	7440-43-9	50 mg/kg	102	84	116
		EG005T: Copper	7440-50-8	50 mg/kg	101	82	124
		EG005T: Lead	7439-92-1	50 mg/kg	99.6	76	124
		EG005T: Molybdenum	7439-98-7	50 mg/kg	91.0	79	117
		EG005T: Nickel	7440-02-0	50 mg/kg	99.6	78	120
		EG005T: Selenium	7782-49-2	50 mg/kg	93.7	71	125
		EG005T: Zinc	7440-66-6	50 mg/kg	99.8	74	128
EG035T: Total Recoverable Mercury by FIMS (QCLot: 951664)							
EM1707764-002	TP17-26-52/0.6	EG035T: Mercury	7439-97-6	5 mg/kg	87.6	76	116
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 951056)							
EM1707721-001	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	40 mg/kg	94.0	58	114
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 952047)							
EM1707761-001	Anonymous	EK026SF: Total Cyanide	57-12-5	20 mg/kg	98.2	77	113
EK040T: Fluoride Total (QCLot: 948390)							
EM1707756-002	Anonymous	EK040T: Fluoride	16984-48-8	400 mg/kg	104	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 948303)							
EM1707721-005	Anonymous	EP066-EM: Total Polychlorinated biphenyls	----	1 mg/kg	97.1	36	152
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 948305)							
EM1707721-007	Anonymous	EP074-UT: Benzene	71-43-2	2 mg/kg	105	50	138
		EP074-UT: Toluene	108-88-3	2 mg/kg	117	56	134
EP074I: Volatile Halogenated Compounds (QCLot: 948305)							
EM1707721-007	Anonymous	EP074-UT: 1.1-Dichloroethene	75-35-4	2 mg/kg	116	26	141

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP074I: Volatile Halogenated Compounds (QCLot: 948305) - continued							
EM1707721-007	Anonymous	EP074-UT: Trichloroethene	79-01-6	2 mg/kg	99.7	50	134
		EP074-UT: Chlorobenzene	108-90-7	2 mg/kg	106	28	134
EP075A: Phenolic Compounds (Halogenated) (QCLot: 948301)							
EM1707721-003	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	0.5 mg/kg	74.0	34	118
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.5 mg/kg	78.2	41	139
		EP075-EM: Pentachlorophenol	87-86-5	0.5 mg/kg	10.7	10	144
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 948301)							
EM1707721-003	Anonymous	EP075-EM: Phenol	108-95-2	0.5 mg/kg	74.4	32	134
		EP075-EM: 2-Nitrophenol	88-75-5	0.5 mg/kg	82.4	13	129
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 948301)							
EM1707721-003	Anonymous	EP075-EM: Acenaphthene	83-32-9	0.5 mg/kg	79.1	46	138
		EP075-EM: Pyrene	129-00-0	0.5 mg/kg	92.1	27	169
EP080/071: Total Petroleum Hydrocarbons (QCLot: 948302)							
EM1707721-004	Anonymous	EP071-EM: C10 - C14 Fraction	----	837 mg/kg	99.4	53	123
		EP071-EM: C15 - C28 Fraction	----	3061 mg/kg	96.6	70	124
		EP071-EM: C29 - C36 Fraction	----	1592 mg/kg	93.4	64	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 948305)							
EM1707721-007	Anonymous	EP074-UT: C6 - C9 Fraction	----	28 mg/kg	90.9	43	111
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 948302)							
EM1707721-004	Anonymous	EP071-EM: >C10 - C16 Fraction	----	1222 mg/kg	101	65	123
		EP071-EM: >C16 - C34 Fraction	----	3919 mg/kg	95.3	67	121
		EP071-EM: >C34 - C40 Fraction	----	316 mg/kg	95.3	44	126
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 948305)							
EM1707721-007	Anonymous	EP074-UT: C6 - C10 Fraction	C6_C10	33 mg/kg	90.9	42	106

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 948328)							
EM1707749-015	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	92.7	82	118
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	89.6	75	129
		EG020A-T: Copper	7440-50-8	1 mg/L	86.5	81	115
		EG020A-T: Lead	7439-92-1	1 mg/L	88.3	83	121
		EG020A-T: Nickel	7440-02-0	1 mg/L	90.0	80	118
		EG020A-T: Zinc	7440-66-6	1 mg/L	92.4	74	116
EG035T: Total Recoverable Mercury by FIMS (QCLot: 953617)							
EM1707764-011	RB2/150617	EG035T: Mercury	7439-97-6	0.01 mg/L	88.9	70	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP080/071: Total Petroleum Hydrocarbons (QCLot: 947728)							
EM1707687-001	Anonymous	EP080: C6 - C9 Fraction	----	280 µg/L	# Not Determined	43	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 947728)							
EM1707687-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	330 µg/L	# Not Determined	44	122
EP080: BTEXN (QCLot: 947728)							
EM1707687-001	Anonymous	EP080: Benzene	71-43-2	20 µg/L	# 54.8	68	130
		EP080: Toluene	108-88-3	20 µg/L	# Not Determined	72	132

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM1707764**	Page	: 1 of 12
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLFA NAZARIO	Telephone	: +61-3-8549 9600
Project	: 2135645A	Date Samples Received	: 15-Jun-2017
Site	: Site 26	Issue Date	: 21-Jun-2017
Sampler	: AH	No. of samples received	: 11
Order number	: ----	No. of samples analysed	: 11

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **Laboratory Control outliers exist - please see following pages for full details.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Laboratory Control Spike (LCS) Recoveries							
EP075A: Phenolic Compounds (Halogenated)	QC-948301-001	----	**Pentachlorophenol**	87-86-5	130 %	36-124%	**Recovery greater than upper control limit**
EP075A: Phenolic Compounds (Non-halogenated)	QC-948301-001	----	**Phenol**	108-95-2	123 %	41-120%	**Recovery greater than upper control limit**

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EP080/071: Total Petroleum Hydrocarbons	EM1707687--001	Anonymous	**C6 - C9 Fraction**	----	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2	EM1707687--001	Anonymous	**C6 - C10 Fraction**	C6_C10	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP080: BTEXN	EM1707687--001	Anonymous	**Benzene**	71-43-2	54.8 %	68-130%	**Recovery less than lower data quality objective**
EP080: BTEXN	EM1707687--001	Anonymous	**Toluene**	108-88-3	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA001: pH in soil using 0.01M CaCl extract							
Soil Glass Jar - Unpreserved (EA001)							
TP17-26-53/0.6, TP17-26-52/0.6, TP17-26-58/0.6, TP17-26-56/0.6, TP17-26-55/0.6	**14-Jun-2017**	**20-Jun-2017**	21-Jun-2017	✓	**20-Jun-2017**	20-Jun-2017	✓
Soil Glass Jar - Unpreserved (EA001)							
TP17-26-63/0.6, TP17-26-62/0.6, TP17-26-6/0.6	**15-Jun-2017**	**20-Jun-2017**	22-Jun-2017	✓	**20-Jun-2017**	20-Jun-2017	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content								
Soil Glass Jar - Unpreserved (EA055)								
TP17-26-53/0.6, TP17-26-58/0.6, TP17-26-55/0.6	TP17-26-52/0.6, TP17-26-56/0.6,	**14-Jun-2017**	**----**	----	----	**16-Jun-2017**	28-Jun-2017	✓
Soil Glass Jar - Unpreserved (EA055)								
TP17-26-63/0.6, TP17-26-6/0.6	TP17-26-62/0.6,	**15-Jun-2017**	**----**	----	----	**19-Jun-2017**	29-Jun-2017	✓
EG005T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T)								
TP17-26-53/0.6, TP17-26-58/0.6, TP17-26-55/0.6	TP17-26-52/0.6, TP17-26-56/0.6,	**14-Jun-2017**	**19-Jun-2017**	11-Dec-2017	✓	**20-Jun-2017**	11-Dec-2017	✓
Soil Glass Jar - Unpreserved (EG005T)								
TP17-26-63/0.6, TP17-26-6/0.6	TP17-26-62/0.6,	**15-Jun-2017**	**19-Jun-2017**	12-Dec-2017	✓	**20-Jun-2017**	12-Dec-2017	✓
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T)								
TP17-26-53/0.6, TP17-26-58/0.6, TP17-26-55/0.6	TP17-26-52/0.6, TP17-26-56/0.6,	**14-Jun-2017**	**19-Jun-2017**	12-Jul-2017	✓	**20-Jun-2017**	12-Jul-2017	✓
Soil Glass Jar - Unpreserved (EG035T)								
TP17-26-63/0.6, TP17-26-6/0.6	TP17-26-62/0.6,	**15-Jun-2017**	**19-Jun-2017**	13-Jul-2017	✓	**20-Jun-2017**	13-Jul-2017	✓
EG048: Hexavalent Chromium (Alkaline Digest)								
Soil Glass Jar - Unpreserved (EG048G)								
TP17-26-53/0.6, TP17-26-58/0.6, TP17-26-55/0.6	TP17-26-52/0.6, TP17-26-56/0.6,	**14-Jun-2017**	**19-Jun-2017**	12-Jul-2017	✓	**19-Jun-2017**	26-Jun-2017	✓
Soil Glass Jar - Unpreserved (EG048G)								
TP17-26-63/0.6, TP17-26-6/0.6	TP17-26-62/0.6,	**15-Jun-2017**	**19-Jun-2017**	13-Jul-2017	✓	**19-Jun-2017**	26-Jun-2017	✓
EK026SF: Total CN by Segmented Flow Analyser								
Soil Glass Jar - Unpreserved (EK026SF)								
TP17-26-53/0.6, TP17-26-58/0.6, TP17-26-55/0.6	TP17-26-52/0.6, TP17-26-56/0.6,	**14-Jun-2017**	**19-Jun-2017**	28-Jun-2017	✓	**20-Jun-2017**	03-Jul-2017	✓
Soil Glass Jar - Unpreserved (EK026SF)								
TP17-26-63/0.6, TP17-26-6/0.6	TP17-26-62/0.6,	**15-Jun-2017**	**19-Jun-2017**	29-Jun-2017	✓	**20-Jun-2017**	03-Jul-2017	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EK040T: Fluoride Total							
Soil Glass Jar - Unpreserved (EK040T)							
TP17-26-53/0.6, TP17-26-52/0.6, TP17-26-58/0.6, TP17-26-56/0.6, TP17-26-55/0.6	**14-Jun-2017**	**16-Jun-2017**	12-Jul-2017	✓	**19-Jun-2017**	12-Jul-2017	✓
Soil Glass Jar - Unpreserved (EK040T)							
TP17-26-63/0.6, TP17-26-62/0.6, TP17-26-6/0.6	**15-Jun-2017**	**16-Jun-2017**	13-Jul-2017	✓	**19-Jun-2017**	13-Jul-2017	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066-EM)							
TP17-26-53/0.6, TP17-26-52/0.6, TP17-26-58/0.6, TP17-26-56/0.6, TP17-26-55/0.6	**14-Jun-2017**	**16-Jun-2017**	28-Jun-2017	✓	**16-Jun-2017**	26-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP066-EM)							
TP17-26-63/0.6, TP17-26-62/0.6, TP17-26-6/0.6	**15-Jun-2017**	**16-Jun-2017**	29-Jun-2017	✓	**16-Jun-2017**	26-Jul-2017	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074-UT)							
TP17-26-53/0.6, TP17-26-52/0.6, TP17-26-58/0.6, TP17-26-56/0.6, TP17-26-55/0.6	**14-Jun-2017**	**16-Jun-2017**	21-Jun-2017	✓	**17-Jun-2017**	21-Jun-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT)							
TP17-26-63/0.6, TP17-26-62/0.6, TP17-26-6/0.6	**15-Jun-2017**	**16-Jun-2017**	22-Jun-2017	✓	**17-Jun-2017**	22-Jun-2017	✓
EP074H: Naphthalene							
Soil Glass Jar - Unpreserved (EP074-UT)							
TP17-26-53/0.6, TP17-26-52/0.6, TP17-26-58/0.6, TP17-26-56/0.6, TP17-26-55/0.6	**14-Jun-2017**	**16-Jun-2017**	21-Jun-2017	✓	**17-Jun-2017**	21-Jun-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT)							
TP17-26-63/0.6, TP17-26-62/0.6, TP17-26-6/0.6	**15-Jun-2017**	**16-Jun-2017**	22-Jun-2017	✓	**17-Jun-2017**	22-Jun-2017	✓
EP074I: Volatile Halogenated Compounds							
Soil Glass Jar - Unpreserved (EP074-UT)							
TP17-26-53/0.6, TP17-26-52/0.6, TP17-26-58/0.6, TP17-26-56/0.6, TP17-26-55/0.6	**14-Jun-2017**	**16-Jun-2017**	21-Jun-2017	✓	**17-Jun-2017**	21-Jun-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT)							
TP17-26-63/0.6, TP17-26-62/0.6, TP17-26-6/0.6	**15-Jun-2017**	**16-Jun-2017**	22-Jun-2017	✓	**17-Jun-2017**	22-Jun-2017	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075A: Phenolic Compounds (Halogenated)								
Soil Glass Jar - Unpreserved (EP075-EM)								
TP17-26-53/0.6, TP17-26-58/0.6, TP17-26-55/0.6	TP17-26-52/0.6, TP17-26-56/0.6,	**14-Jun-2017**	**16-Jun-2017**	28-Jun-2017	✓	**16-Jun-2017**	26-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP075-EM)								
TP17-26-63/0.6, TP17-26-6/0.6	TP17-26-62/0.6,	**15-Jun-2017**	**16-Jun-2017**	29-Jun-2017	✓	**16-Jun-2017**	26-Jul-2017	✓
EP075A: Phenolic Compounds (Non-halogenated)								
Soil Glass Jar - Unpreserved (EP075-EM)								
TP17-26-53/0.6, TP17-26-58/0.6, TP17-26-55/0.6	TP17-26-52/0.6, TP17-26-56/0.6,	**14-Jun-2017**	**16-Jun-2017**	28-Jun-2017	✓	**16-Jun-2017**	26-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP075-EM)								
TP17-26-63/0.6, TP17-26-6/0.6	TP17-26-62/0.6,	**15-Jun-2017**	**16-Jun-2017**	29-Jun-2017	✓	**16-Jun-2017**	26-Jul-2017	✓
EP075B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075-EM)								
TP17-26-53/0.6, TP17-26-58/0.6, TP17-26-55/0.6	TP17-26-52/0.6, TP17-26-56/0.6,	**14-Jun-2017**	**16-Jun-2017**	28-Jun-2017	✓	**16-Jun-2017**	26-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP075-EM)								
TP17-26-63/0.6, TP17-26-6/0.6	TP17-26-62/0.6,	**15-Jun-2017**	**16-Jun-2017**	29-Jun-2017	✓	**16-Jun-2017**	26-Jul-2017	✓
EP075I: Organochlorine Pesticides								
Soil Glass Jar - Unpreserved (EP075-EM)								
TP17-26-53/0.6, TP17-26-58/0.6, TP17-26-55/0.6	TP17-26-52/0.6, TP17-26-56/0.6,	**14-Jun-2017**	**16-Jun-2017**	28-Jun-2017	✓	**16-Jun-2017**	26-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP075-EM)								
TP17-26-63/0.6, TP17-26-6/0.6	TP17-26-62/0.6,	**15-Jun-2017**	**16-Jun-2017**	29-Jun-2017	✓	**16-Jun-2017**	26-Jul-2017	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP071-EM)							
TP17-26-53/0.6, TP17-26-52/0.6, TP17-26-58/0.6, TP17-26-56/0.6, TP17-26-55/0.6	**14-Jun-2017**	**16-Jun-2017**	28-Jun-2017	✓	**16-Jun-2017**	26-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT)							
TP17-26-53/0.6, TP17-26-52/0.6, TP17-26-58/0.6, TP17-26-56/0.6, TP17-26-55/0.6	**14-Jun-2017**	**16-Jun-2017**	21-Jun-2017	✓	**17-Jun-2017**	21-Jun-2017	✓
Soil Glass Jar - Unpreserved (EP071-EM)							
TP17-26-63/0.6, TP17-26-62/0.6, TP17-26-6/0.6	**15-Jun-2017**	**16-Jun-2017**	29-Jun-2017	✓	**16-Jun-2017**	26-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT)							
TP17-26-63/0.6, TP17-26-62/0.6, TP17-26-6/0.6	**15-Jun-2017**	**16-Jun-2017**	22-Jun-2017	✓	**17-Jun-2017**	22-Jun-2017	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP071-EM)							
TP17-26-53/0.6, TP17-26-52/0.6, TP17-26-58/0.6, TP17-26-56/0.6, TP17-26-55/0.6	**14-Jun-2017**	**16-Jun-2017**	28-Jun-2017	✓	**16-Jun-2017**	26-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT)							
TP17-26-53/0.6, TP17-26-52/0.6, TP17-26-58/0.6, TP17-26-56/0.6, TP17-26-55/0.6	**14-Jun-2017**	**16-Jun-2017**	21-Jun-2017	✓	**17-Jun-2017**	21-Jun-2017	✓
Soil Glass Jar - Unpreserved (EP071-EM)							
TP17-26-63/0.6, TP17-26-62/0.6, TP17-26-6/0.6	**15-Jun-2017**	**16-Jun-2017**	29-Jun-2017	✓	**16-Jun-2017**	26-Jul-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT)							
TP17-26-63/0.6, TP17-26-62/0.6, TP17-26-6/0.6	**15-Jun-2017**	**16-Jun-2017**	22-Jun-2017	✓	**17-Jun-2017**	22-Jun-2017	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020B-T)							
RB1/140617	**14-Jun-2017**	**16-Jun-2017**	11-Dec-2017	✓	**19-Jun-2017**	11-Dec-2017	✓
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020B-T)							
RB2/150617	**15-Jun-2017**	**16-Jun-2017**	12-Dec-2017	✓	**19-Jun-2017**	12-Dec-2017	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T)							
RB1/140617	**14-Jun-2017**	**----**	----	----	**20-Jun-2017**	12-Jul-2017	✓
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T)							
RB2/150617	**15-Jun-2017**	**----**	----	----	**20-Jun-2017**	13-Jul-2017	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP080)							
TB2/140617	**14-Jun-2017**	**16-Jun-2017**	28-Jun-2017	✓	**16-Jun-2017**	28-Jun-2017	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber VOC Vial - Sulfuric Acid (EP080)							
TB2/140617	**14-Jun-2017**	**16-Jun-2017**	28-Jun-2017	✓	**16-Jun-2017**	28-Jun-2017	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
TB2/140617	**14-Jun-2017**	**16-Jun-2017**	28-Jun-2017	✓	**16-Jun-2017**	28-Jun-2017	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	4	35	**11.43**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Matrix Spikes (MS) - Continued							
Total Fluoride	EK040T	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite B	EG020B-T	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	10	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite B	EG020B-T	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite B	EG020B-T	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH in soil using a 0.01M CaCl2 extract	EA001	SOIL	In house: Referenced to Rayment and Lyons 4B3 (mod.) or 4B4 (mod.) 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM (2013) Schedule B(3)
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	SOIL	In house: Referenced to USEPA SW846, Method 3060A. Hexavalent chromium is extracted by alkaline digestion. The digest is determined by photometrically by automatic discrete analyser, following pH adjustment. The instrument uses colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Cyanide by Segmented Flow Analyser	EK026SF	SOIL	In house: Referenced to APHA 4500-CN C / ASTM D7511. Caustic leachates of soil samples are introduced into an automated segmented flow analyser. Complex bound cyanide is decomposed in a continuously flowing stream, at a pH of 3.8, by the effect of UV light. A UV-B lamp (312 nm) and a decomposition spiral of borosilicate glass are used to filter out UV light with a wavelength of less than 290 nm thus preventing the conversion of thiocyanate into cyanide. The hydrogen cyanide present at a pH of 3.8 is separated by gas dialysis. The hydrogen cyanide is then determined photometrically, based on the reaction of cyanide with chloramine-T to form cyanogen chloride. This then reacts with 4-pyridine carboxylic acid and 1,3-dimethylbarbituric acid to give a red colour which is measured at 600 nm. This method is compliant with NEPM (2013) Schedule B(3)
Total Fluoride	EK040T	SOIL	(In-house) Total fluoride is determined by ion specific electrode (ISE) in a solution obtained after a Sodium Carbonate / Potassium Carbonate fusion dissolution.
PCB - VIC EPA 448.3 Screen	EP066-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
TRH - Semivolatile Fraction	EP071-EM	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40.
Volatile Organic Compounds - Ultra-trace	EP074-UT	SOIL	In house: Referenced to USEPA SW 846 - 8260B Extracts are analysed by Purge and Trap, Capillary GC/MS in partial SIM/Scan mode. Quantification is by comparison against an established multi-point calibration curves. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)

Analytical Methods	Method	Matrix	Method Descriptions
Volatile Organic Compounds - Ultra-trace - Summations	EP074-UT-SUM	SOIL	Summation of MAHs and VHCs
Semivolatile Organic Compounds - Waste Classification	EP075-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (2013) Schedule B(3) (Method 502)
SVOC - Waste Classification (Sums)	EP075-EM-SUM	SOIL	Summations for EP075 (EM variation)
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite B	EG020B-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
NaOH leach for CN in Soils	CN-PR	SOIL	In house: APHA 4500 CN. Samples are extracted by end-over-end tumbling with NaOH.
pH in soil using a 0.01M CaCl2 extract	EA001-PR	SOIL	In house: Referenced to Rayment and Higginson 4B1, 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Alkaline digestion for Hexavalent Chromium	EG048PR	SOIL	In house: Referenced to USEPA SW846, Method 3060A.
Total Fluoride	EK040T-PR	SOIL	In house: Samples are fused with Sodium Carbonate / Potassium Carbonate flux.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils - Ultra-trace.	ORG16-UT	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids - VIC EPA Screen	ORG17-EM	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

Preparation Methods	Method	Matrix	Method Descriptions
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EM1707764**

Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLFA NAZARIO	Contact	: Steven McGrath
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: onazario@pb.com.au	E-mail	:
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9600
Facsimile	: +61 03 9861 1144	Facsimile	: +61-3-8549 9601
Project	: 2135645A	Page	: 1 of 3
Order number	: ----	Quote number	: EM2016PARBRIVIC0006 (ME-525-16)
C-O-C number	: 85406	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Site 26		
Sampler	: AH		

Dates

Date Samples Received	: 15-Jun-2017 17:05	Issue Date	: 15-Jun-2017
Client Requested Due Date	: 23-Jun-2017	Scheduled Reporting Date	: **23-Jun-2017**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 6.1°C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 11 / 11

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.
- **Analytical work for this work order will be conducted at ALS Springvale.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA055-103 Moisture Content	SOIL - P-16 WRG 621
EM1707764-001	14-Jun-2017 00:00	TP17-26-53/0.6	✓	✓
EM1707764-002	14-Jun-2017 00:00	TP17-26-52/0.6	✓	✓
EM1707764-003	14-Jun-2017 00:00	TP17-26-58/0.6	✓	✓
EM1707764-004	14-Jun-2017 00:00	TP17-26-56/0.6	✓	✓
EM1707764-005	14-Jun-2017 00:00	TP17-26-55/0.6	✓	✓
EM1707764-008	15-Jun-2017 00:00	TP17-26-63/0.6	✓	✓
EM1707764-009	15-Jun-2017 00:00	TP17-26-62/0.6	✓	✓
EM1707764-010	15-Jun-2017 00:00	TP17-26-6/0.6	✓	✓

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG020T Total Recoverable Metals by ICPMS (including	WATER - EG035T Total Mercury by FIMS	WATER - W-18 TRH(C6 - C9)/BTEXN
EM1707764-006	14-Jun-2017 00:00	RB1/140617	✓	✓	
EM1707764-007	14-Jun-2017 00:00	TB2/140617			✓
EM1707764-011	15-Jun-2017 00:00	RB2/150617	✓	✓	

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ALL INVOICES

- A4 - AU Tax Invoice (INV)	Email	apinvoices@pb.com.au

OLFA NAZARIO

- *AU Certificate of Analysis - NATA (COA)	Email	onazario@pb.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	onazario@pb.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	onazario@pb.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	onazario@pb.com.au
- AU IWRG 621 2009 Guideline Report (COA_GL_IWRG_621)	Email	onazario@pb.com.au
- Chain of Custody (CoC) (COC)	Email	onazario@pb.com.au
- EDI Format - ENMRG (ENMRG)	Email	onazario@pb.com.au
- EDI Format - ESDAT (ESDAT)	Email	onazario@pb.com.au

OLIVIA HENDERSON

- *AU Certificate of Analysis - NATA (COA)	Email	ohenderson@pb.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	ohenderson@pb.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	ohenderson@pb.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	ohenderson@pb.com.au
- AU IWRG 621 2009 Guideline Report (COA_GL_IWRG_621)	Email	ohenderson@pb.com.au
- Chain of Custody (CoC) (COC)	Email	ohenderson@pb.com.au
- EDI Format - ENMRG (ENMRG)	Email	ohenderson@pb.com.au
- EDI Format - ESDAT (ESDAT)	Email	ohenderson@pb.com.au

WSP | PARSONS BRINCKERHOFF

ABN 80 078 004 798

White Page - Laboratory Copy
Yellow Page - Project File Copy
Pink Page - Remains in Book

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PO Box 7181 Cloisters Square WA 6850
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Level 3, Northbank Plaza 69 Ann Street,
GPO Box 2907 Brisbane QLD 4001
Tel: (07) 3854 6200 Fax: (07) 3854 6500

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Newcastle
Level 3, 51-55 Bolton Street, Suite 1
PO Box 1162 Newcastle NSW, 2300
Tel: (02) 4929 8300 Fax: (02) 4929 8382

Sydney
Level 27, Ernst & Young Centre
680 George Street,
GPO Box 5394, Sydney NSW 2001
Tel: (02) 9272 5100 Fax: (02) 9272 5101

Chain of Custody

Order No: 85406

Job Title: OSAR

PB Job Number: 2135645A

Job Location: Site 26

Project Manager: Olfa Nazario

Laboratory Name: ALS

Results Expected by/on: STANDARD

Address: 2-4 Westall Rd, Springvale, VIC

Terms of Business	PB	Other	Checked

Fax Results to: O. Nazario

Fax Number:

Phone Number: 03 85499600

Phone Number:

Contact Name: Steven McGrath

Spreadsheet of Results Required: (Y) / N

Delivery Method:

Format: ESDAT, PDF

Quote Number: ME-525-16

Turnaround Time Required: STD

Invoice to: O. Nazario

Comments: (1)

No.	Date Sampled	Time	Sample I.D.	Container Size	Sample Location	Medium*	Preservative Type	Filtered (X)	TPH	BTEX	PAH's	OC/OP/PCB's	Metals**	/MRG62 Soil /MRG Metals	TPH/BTEX				Initials	Comments/Additional Information and/or Analysis Required
1	14/6/17	9AM	TP17-26-53/0.6	250mL	Site 26	S								✓						
2	"	10AM	TP17-26-52/0.6	250mL	Site26	S								✓						
3	"	11AM	TP17-26-58/0.6	250mL	Site 26	S								✓						
4	"	12PM	TP17-26-56/0.6	250mL	Site 26	S								✓						
5	"	1:45pm	TP17-26-55/0.6	250mL	Site26	S								✓						
6	"	2PM	RB1/140617	Bottle	—	W									✓					
7	"	2PM	TB1/140617	Bottle	—	W										✓				
8	15/6/17	12PM	TP17-26-63/0.6	250mL	Site 26	S								✓						
9	"	1:30PM	TP17-26-62/0.6	250mL	↓	S								✓						
10	"	2pm	TP17-26-6 /0.6	250mL	↓	S								✓						
11	"	2PM	RB2/140617	Bottle	—	W									✓					

Environmental Division
Melbourne
Work Order Reference
EM1707764

Telephone : +61-3-8549 9600

Relinquished by:	Relinquished by:	Relinquished by:
Date & Time:	Date & Time:	Date & Time:
Company:	Company:	Company:
Signature:	Signature:	Signature:
Received in Good Order & Condition by (Name):	Received in Good Order & Condition by (Name):	Received in Good Order & Condition by (Name):
Date & Time: 15/6 17-05	Date & Time:	Date & Time:
Company: AM	Company:	Company:
Signature:	Signature:	Signature:

Medium*: S = Soil, W = Water, V = Vapour

Legend**: (circle the following to be tested)

Metals: Al As Be Cd Co Cr Cu Fe Hg Li Mg Mn Ni Pb Se Sn V Zn

Samples on Ice: ☐ Yes ☐ No

Please fax back a signed copy when samples are received at the laboratory

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1711031**	Page	: 1 of 14
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLIVIA HENDERSON	Contact	: Steven McGrath
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9600
Project	: 2135645A	Date Samples Received	: 17-Aug-2017 17:00
Order number	: ----	Date Analysis Commenced	: 18-Aug-2017
C-O-C number	: 85412	Issue Date	: 23-Aug-2017 13:19
Sampler	: ----		
Site	: Site 26		
Quote number	: ME-525-16		
No. of samples received	: 11		
No. of samples analysed	: 11		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	Senior Semivolatile Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	Senior Semivolatile Instrument Chemist	Melbourne Organics, Springvale, VIC
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EG020T: EM1711031-001 & 002 Total Metal results have been confirmed by re-digestion and re-analysis
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	B17-68379/0.1	B17-68379/0.7	B17-68386/0.1	B17-68386/0.7	B17-68382/0.1
			Client sampling date / time	16-Aug-2017 12:00	16-Aug-2017 12:00	16-Aug-2017 08:00	16-Aug-2017 08:00	17-Aug-2017 09:30
Compound	CAS Number	LOR	Unit	EM1711031-004	EM1711031-005	EM1711031-006	EM1711031-007	EM1711031-008
				Result	Result	Result	Result	Result
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	5.3	5.4	4.2	4.1	6.9
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	7.7	10.6	9.8	7.2	7.2
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	52	10	9
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Copper	7440-50-8	5	mg/kg	<5	<5	<5	<5	8
Lead	7439-92-1	5	mg/kg	6	8	5	<5	22
Molybdenum	7439-98-7	2	mg/kg	5	<2	<2	<2	<2
Nickel	7440-02-0	2	mg/kg	3	<2	3	<2	9
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Silver	7440-22-4	2	mg/kg	<2	<2	<2	<2	<2
Tin	7440-31-5	5	mg/kg	<5	<5	<5	<5	<5
Zinc	7440-66-6	5	mg/kg	7	11	<5	<5	27
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	<0.5	0.6	<0.5
EK026SF: Total CN by Segmented Flow Analyser								
Total Cyanide	57-12-5	1	mg/kg	<1	<1	<1	<1	<1
EK040T: Fluoride Total								
Fluoride	16984-48-8	40	mg/kg	80	60	110	90	140
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of monocyclic aromatic hydrocarbons	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B17-68379/0.1	B17-68379/0.7	B17-68386/0.1	B17-68386/0.7	B17-68382/0.1
				Client sampling date / time	16-Aug-2017 12:00	16-Aug-2017 12:00	16-Aug-2017 08:00	16-Aug-2017 08:00	17-Aug-2017 09:30
Compound	CAS Number	LOR	Unit		EM1711031-004	EM1711031-005	EM1711031-006	EM1711031-007	EM1711031-008
					Result	Result	Result	Result	Result
EP074H: Naphthalene									
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP074I: Volatile Halogenated Compounds									
Vinyl chloride	75-01-4	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.1-Dichloroethene	75-35-4	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Methylene chloride	75-09-2	0.4	mg/kg		<0.4	<0.4	<0.4	<0.4	<0.4
trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Chloroform	67-66-3	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.1.1-Trichloroethane	71-55-6	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Carbon Tetrachloride	56-23-5	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
1.2-Dichloroethane	107-06-2	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Trichloroethene	79-01-6	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.1.2-Trichloroethane	79-00-5	0.04	mg/kg		<0.04	<0.04	<0.04	<0.04	<0.04
Tetrachloroethene	127-18-4	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Hexachlorobutadiene	87-68-3	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Chlorobenzene	108-90-7	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.4-Dichlorobenzene	106-46-7	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.2-Dichlorobenzene	95-50-1	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
^ Sum of volatile chlorinated hydrocarbons	----	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
^ Sum of other chlorinated hydrocarbons	----	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
EP075A: Phenolic Compounds (Halogenated)									
2-Chlorophenol	95-57-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
2.4-Dichlorophenol	120-83-2	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
2.6-Dichlorophenol	87-65-0	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Pentachlorophenol	87-86-5	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Sum of Phenols (halogenated)	----	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B17-68379/0.1	B17-68379/0.7	B17-68386/0.1	B17-68386/0.7	B17-68382/0.1
				Client sampling date / time	16-Aug-2017 12:00	16-Aug-2017 12:00	16-Aug-2017 08:00	16-Aug-2017 08:00	17-Aug-2017 09:30
Compound	CAS Number	LOR	Unit		EM1711031-004	EM1711031-005	EM1711031-006	EM1711031-007	EM1711031-008
					Result	Result	Result	Result	Result
EP075A: Phenolic Compounds (Halogenated) - Continued									
EP075A: Phenolic Compounds (Non-halogenated)									
Phenol	108-95-2	1	mg/kg		<1	<1	<1	<1	<1
2-Methylphenol	95-48-7	1	mg/kg		<1	<1	<1	<1	<1
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	1	mg/kg		<1	<1	<1	<1	<1
2.4-Dimethylphenol	105-67-9	1	mg/kg		<1	<1	<1	<1	<1
2.4-Dinitrophenol	51-28-5	5	mg/kg		<5	<5	<5	<5	<5
4-Nitrophenol	100-02-7	5	mg/kg		<5	<5	<5	<5	<5
2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg		<5	<5	<5	<5	<5
Dinoseb	88-85-7	5	mg/kg		<5	<5	<5	<5	<5
2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg		<5	<5	<5	<5	<5
^ Sum of Phenols (non-halogenated)	----	1	mg/kg		<1	<1	<1	<1	<1
EP075B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP075I: Organochlorine Pesticides									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B17-68379/0.1	B17-68379/0.7	B17-68386/0.1	B17-68386/0.7	B17-68382/0.1
				Client sampling date / time	16-Aug-2017 12:00	16-Aug-2017 12:00	16-Aug-2017 08:00	16-Aug-2017 08:00	17-Aug-2017 09:30
Compound	CAS Number	LOR	Unit		EM1711031-004	EM1711031-005	EM1711031-006	EM1711031-007	EM1711031-008
					Result	Result	Result	Result	Result
EP075l: Organochlorine Pesticides - Continued									
alpha-BHC	319-84-6	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
beta-BHC	319-85-7	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
gamma-BHC	58-89-9	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
delta-BHC	319-86-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Heptachlor	76-44-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Aldrin	309-00-2	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Heptachlor epoxide	1024-57-3	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
cis-Chlordane	5103-71-9	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
trans-Chlordane	5103-74-2	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Endosulfan 1	959-98-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	**0.09**
Endrin aldehyde	7421-93-4	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Endrin	72-20-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Endosulfan 2	33213-65-9	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
4.4`-DDT	50-29-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
^ Sum of organochlorine pesticides	----	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	**0.09**
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	**0.09**
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ Chlordane	57-74-9	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
^ Sum of other organochlorine pesticides	----	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B17-68379/0.1	B17-68379/0.7	B17-68386/0.1	B17-68386/0.7	B17-68382/0.1
				Client sampling date / time	16-Aug-2017 12:00	16-Aug-2017 12:00	16-Aug-2017 08:00	16-Aug-2017 08:00	17-Aug-2017 09:30
Compound	CAS Number	LOR	Unit		EM1711031-004	EM1711031-005	EM1711031-006	EM1711031-007	EM1711031-008
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		<50	<50	<50	<50	<50
>C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	<50
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**75.5**	**77.3**	**90.9**	**80.5**	**74.3**
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		**77.5**	**75.1**	**83.8**	**71.8**	**75.1**
Toluene-D8	2037-26-5	0.1	%		**76.9**	**74.8**	**72.6**	**70.6**	**71.4**
4-Bromofluorobenzene	460-00-4	0.1	%		**74.2**	**72.1**	**76.9**	**74.4**	**75.4**
EP075S: Acid Extractable Surrogates									
Phenol-d6	13127-88-3	0.025	%		**110**	**110**	**114**	**102**	**103**
2-Chlorophenol-D4	93951-73-6	0.025	%		**92.6**	**92.5**	**97.6**	**87.9**	**87.6**
2.4.6-Tribromophenol	118-79-6	0.025	%		**88.6**	**90.0**	**85.5**	**80.8**	**83.1**
EP075T: Base/Neutral Extractable Surrogates									
Nitrobenzene-D5	4165-60-0	0.025	%		**87.2**	**91.7**	**99.9**	**87.6**	**87.1**
1.2-Dichlorobenzene-D4	2199-69-1	0.025	%		**90.3**	**94.8**	**98.9**	**90.0**	**91.6**
2-Fluorobiphenyl	321-60-8	0.025	%		**92.0**	**93.7**	**96.8**	**91.2**	**87.6**
Anthracene-d10	1719-06-8	0.025	%		**108**	**110**	**114**	**108**	**103**
4-Terphenyl-d14	1718-51-0	0.025	%		**114**	**110**	**110**	**112**	**91.9**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	B17-68382/0.5	B17-68382/1.2	B17-68382/2.0	----	----
			Client sampling date / time	17-Aug-2017 09:35	17-Aug-2017 09:40	17-Aug-2017 09:50	----	----
Compound	CAS Number	LOR	Unit	EM1711031-009	EM1711031-010	EM1711031-011	--------	--------
				Result	Result	Result	----	----
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	**7.0**	**6.3**	**5.8**	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**20.7**	**15.9**	**13.6**	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	**8**	<5	**11**	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	----	----
Copper	7440-50-8	5	mg/kg	**6**	**6**	<5	----	----
Lead	7439-92-1	5	mg/kg	**17**	**13**	**6**	----	----
Molybdenum	7439-98-7	2	mg/kg	<2	<2	<2	----	----
Nickel	7440-02-0	2	mg/kg	**8**	**6**	**4**	----	----
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	----	----
Silver	7440-22-4	2	mg/kg	<2	<2	<2	----	----
Tin	7440-31-5	5	mg/kg	<5	<5	<5	----	----
Zinc	7440-66-6	5	mg/kg	**25**	**13**	**7**	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	----	----
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
EK026SF: Total CN by Segmented Flow Analyser								
Total Cyanide	57-12-5	1	mg/kg	<1	<1	<1	----	----
EK040T: Fluoride Total								
Fluoride	16984-48-8	40	mg/kg	**170**	**160**	**130**	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	<0.1	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Sum of monocyclic aromatic hydrocarbons	----	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	B17-68382/0.5	B17-68382/1.2	B17-68382/2.0	----	----
			Client sampling date / time	17-Aug-2017 09:35	17-Aug-2017 09:40	17-Aug-2017 09:50	----	----
Compound	CAS Number	LOR	Unit	EM1711031-009	EM1711031-010	EM1711031-011	--------	--------
				Result	Result	Result	----	----
EP074H: Naphthalene								
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	----	----
EP074I: Volatile Halogenated Compounds								
Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	<0.01	<0.01	----	----
Methylene chloride	75-09-2	0.4	mg/kg	<0.4	<0.4	<0.4	----	----
trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	<0.01	<0.01	----	----
Chloroform	67-66-3	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	<0.01	<0.01	----	----
Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	<0.01	<0.01	----	----
1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
Trichloroethene	79-01-6	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	<0.04	<0.04	----	----
Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	<0.01	<0.01	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	<0.01	<0.01	----	----
^ Sum of volatile chlorinated hydrocarbons	----	0.01	mg/kg	<0.01	<0.01	<0.01	----	----
^ Sum of other chlorinated hydrocarbons	----	0.01	mg/kg	<0.01	<0.01	<0.01	----	----
EP075A: Phenolic Compounds (Halogenated)								
2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
^ Sum of Phenols (halogenated)	----	0.03	mg/kg	<0.03	<0.03	<0.03	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B17-68382/0.5	B17-68382/1.2	B17-68382/2.0	----	----
				Client sampling date / time	17-Aug-2017 09:35	17-Aug-2017 09:40	17-Aug-2017 09:50	----	----
Compound	CAS Number	LOR	Unit		EM1711031-009	EM1711031-010	EM1711031-011	--------	--------
					Result	Result	Result	----	----
EP075A: Phenolic Compounds (Halogenated) - Continued									
EP075A: Phenolic Compounds (Non-halogenated)									
Phenol	108-95-2	1	mg/kg		<1	<1	<1	----	----
2-Methylphenol	95-48-7	1	mg/kg		<1	<1	<1	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	<1	----	----
2-Nitrophenol	88-75-5	1	mg/kg		<1	<1	<1	----	----
2.4-Dimethylphenol	105-67-9	1	mg/kg		<1	<1	<1	----	----
2.4-Dinitrophenol	51-28-5	5	mg/kg		<5	<5	<5	----	----
4-Nitrophenol	100-02-7	5	mg/kg		<5	<5	<5	----	----
2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg		<5	<5	<5	----	----
Dinoseb	88-85-7	5	mg/kg		<5	<5	<5	----	----
2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg		<5	<5	<5	----	----
^ Sum of Phenols (non-halogenated)	----	1	mg/kg		<1	<1	<1	----	----
EP075B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		0.6	0.6	0.6	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		1.2	1.2	1.2	----	----
EP075I: Organochlorine Pesticides									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B17-68382/0.5	B17-68382/1.2	B17-68382/2.0	----	----
				Client sampling date / time	17-Aug-2017 09:35	17-Aug-2017 09:40	17-Aug-2017 09:50	----	----
Compound	CAS Number	LOR	Unit		EM1711031-009	EM1711031-010	EM1711031-011	--------	--------
					Result	Result	Result	----	----
EP075l: Organochlorine Pesticides - Continued									
alpha-BHC	319-84-6	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
beta-BHC	319-85-7	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
gamma-BHC	58-89-9	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
delta-BHC	319-86-8	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Heptachlor	76-44-8	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Aldrin	309-00-2	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Heptachlor epoxide	1024-57-3	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
cis-Chlordane	5103-71-9	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
trans-Chlordane	5103-74-2	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Endosulfan 1	959-98-8	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Dieldrin	60-57-1	0.03	mg/kg		**0.14**	**0.04**	<0.03	----	----
Endrin aldehyde	7421-93-4	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Endrin	72-20-8	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Endosulfan 2	33213-65-9	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Endosulfan sulfate	1031-07-8	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
4.4`-DDT	50-29-3	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Methoxychlor	72-43-5	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
^ Sum of organochlorine pesticides	----	0.03	mg/kg		**0.14**	**0.04**	<0.03	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.03	mg/kg		**0.14**	**0.04**	<0.03	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
^ Chlordane	57-74-9	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
^ Sum of other organochlorine pesticides	----	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	----	----
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B17-68382/0.5	B17-68382/1.2	B17-68382/2.0	----	----
				Client sampling date / time	17-Aug-2017 09:35	17-Aug-2017 09:40	17-Aug-2017 09:50	----	----
Compound	CAS Number	LOR	Unit		EM1711031-009	EM1711031-010	EM1711031-011	--------	--------
					Result	Result	Result	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	----	----
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		<50	<50	<50	----	----
>C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	----	----
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**82.9**	**77.8**	**79.5**	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		**82.7**	**73.2**	**81.7**	----	----
Toluene-D8	2037-26-5	0.1	%		**80.8**	**78.5**	**86.1**	----	----
4-Bromofluorobenzene	460-00-4	0.1	%		**83.7**	**81.6**	**87.3**	----	----
EP075S: Acid Extractable Surrogates									
Phenol-d6	13127-88-3	0.025	%		**115**	**109**	**86.8**	----	----
2-Chlorophenol-D4	93951-73-6	0.025	%		**100**	**90.5**	**78.0**	----	----
2.4.6-Tribromophenol	118-79-6	0.025	%		**97.1**	**87.3**	**76.7**	----	----
EP075T: Base/Neutral Extractable Surrogates									
Nitrobenzene-D5	4165-60-0	0.025	%		**97.9**	**88.3**	**79.4**	----	----
1.2-Dichlorobenzene-D4	2199-69-1	0.025	%		**96.1**	**90.8**	**82.2**	----	----
2-Fluorobiphenyl	321-60-8	0.025	%		**105**	**93.6**	**90.0**	----	----
Anthracene-d10	1719-06-8	0.025	%		**114**	**110**	**102**	----	----
4-Terphenyl-d14	1718-51-0	0.025	%		**111**	**106**	**111**	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Client sample ID	B17-68386 RINSAT	B17-68382 RINSAT	TRIP BLANK	----	----
			Client sampling date / time	16-Aug-2017 14:00	16-Aug-2017 13:00	17-Aug-2017 00:00	----	----
Compound	CAS Number	LOR	Unit	EM1711031-001	EM1711031-002	EM1711031-003	--------	--------
				Result	Result	Result	----	----
EG020T: Total Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	**0.002**	**0.002**	----	----	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	----	----	----
Copper	7440-50-8	0.001	mg/L	**0.001**	**0.001**	----	----	----
Lead	7439-92-1	0.001	mg/L	**0.002**	**0.002**	----	----	----
Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	----	----	----
Nickel	7440-02-0	0.001	mg/L	**0.001**	**0.004**	----	----	----
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	----	----	----
Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	----	----	----
Tin	7440-31-5	0.001	mg/L	<0.001	<0.001	----	----	----
Zinc	7440-66-6	0.005	mg/L	**0.011**	**0.012**	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	----	----	<20	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	----	----	<20	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	----	----	<20	----	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	----	----	<1	----	----
Toluene	108-88-3	2	µg/L	----	----	<2	----	----
Ethylbenzene	100-41-4	2	µg/L	----	----	<2	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	----	----	<2	----	----
ortho-Xylene	95-47-6	2	µg/L	----	----	<2	----	----
^ Total Xylenes	1330-20-7	2	µg/L	----	----	<2	----	----
^ Sum of BTEX	----	1	µg/L	----	----	<1	----	----
Naphthalene	91-20-3	5	µg/L	----	----	<5	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	----	----	**98.1**	----	----
Toluene-D8	2037-26-5	2	%	----	----	**86.3**	----	----
4-Bromofluorobenzene	460-00-4	2	%	----	----	**111**	----	----

Surrogate Control Limits

Sub-Matrix: **SOIL**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	41	122
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	59	119
Toluene-D8	2037-26-5	55	117
4-Bromofluorobenzene	460-00-4	59	123
EP075S: Acid Extractable Surrogates			
Phenol-d6	13127-88-3	28	134
2-Chlorophenol-D4	93951-73-6	27	123
2.4.6-Tribromophenol	118-79-6	25	149
EP075T: Base/Neutral Extractable Surrogates			
Nitrobenzene-D5	4165-60-0	29	125
1.2-Dichlorobenzene-D4	2199-69-1	31	117
2-Fluorobiphenyl	321-60-8	44	136
Anthracene-d10	1719-06-8	53	133
4-Terphenyl-d14	1718-51-0	59	141

Sub-Matrix: **WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	129
Toluene-D8	2037-26-5	70	125
4-Bromofluorobenzene	460-00-4	71	129

Automated Guideline Comparison Report

EPA Victoria Publication IWRG 621 (2009) - Table 2: Soil Hazard Categorisation

Work Order	: **EM1711031**	Page	: 1 of 14
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLIVIA HENDERSON		
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: ohenderson@pb.com.au	E-mail	: steven.mcgrath@alsglobal.com
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9600
Facsimile	: +61 03 9861 1144	Facsimile	: +61-3-8549 9601
Project	: 2135645A	Date Received	: 17-Aug-2017 17:00
Order number	: ----	Date Analysed	: 18-Aug-2017
C-O-C number	: 85412	Date Issued	: 23-Aug-2017 13:19
No. of samples received	: 11		
No. of samples analysed	: 11	Quote number	: ME-525-16

General Comments

This guideline comparison report **only** provides evaluation of total concentration data against upper limit thresholds for the 'Fill Material', 'C', 'B' Categories in Table 2 of EPA Publication IWRG621.

This guideline comparison report is **NOT** a soil classification report. Classification of soils as Fill Material, Category C, Category B or Category A requires consideration of a number of other factors including preliminary site investigation, sampling density and statistical calculations, as set out in EPA Publication IWRG 702.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

This guideline comparison report only provides evaluation data where chemical parameters specifically listed within the IWRG621 (2009) guideline are analysed by ALS using the **P-16 package in full**.

Red shading is applied where the result is equal to or greater than the guideline upper limit and/or equal to or lower than the guideline lower limit. Red shading is not applied to the 'Summary of Thresholds Reached or Exceeded'.

For the 'Summary of Thresholds Reached or Exceeded' to accurately function, all samples must be analysed and included in the 'Analytical Results' section of the following report. Please verify that all required IDs are listed and analysed.

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Summary of Thresholds Reached or Exceeded

EPA Victoria Publication IWRG 621 (2009)

Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Client Sample ID	ALS Sample ID	Compound	Method	LOR	Limits	Result
B17-68386/0.1	**EM1711031-006**	Arsenic	EG005T	5	*< 20 mg/kg*	**52 mg/kg**

Analytical Results

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B: Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

						B17-68379/0.1	B17-68379/0.7	B17-68386/0.1	B17-68386/0.7	B17-68382/0.1
			Client sample ID							
			Sampling date/time	Guideline	Guideline	16-Aug-2017 12:00	16-Aug-2017 12:00	16-Aug-2017 08:00	16-Aug-2017 08:00	17-Aug-2017 09:30
Compound	*Method*	*LOR*	*Unit*	Lower Limit	Upper Limit	EM1711031-004	EM1711031-005	EM1711031-006	EM1711031-007	EM1711031-008
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	2	12.5	**5.3**	**5.4**	**4.2**	**4.1**	**6.9**
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	2000	<5	<5	**52**	**10**	**9**
Cadmium	EG005T	1	mg/kg	----	400	<1	<1	<1	<1	<1
Copper	EG005T	5	mg/kg	----	20000	<5	<5	<5	<5	**8**
Lead	EG005T	5	mg/kg	----	6000	**6**	**8**	**5**	<5	**22**
Molybdenum	EG005T	2	mg/kg	----	4000	**5**	<2	<2	<2	<2
Nickel	EG005T	2	mg/kg	----	12000	**3**	<2	**3**	<2	**9**
Selenium	EG005T	5	mg/kg	----	200	<5	<5	<5	<5	<5
Silver	EG005T	2	mg/kg	----	720	<2	<2	<2	<2	<2
Zinc	EG005T	5	mg/kg	----	140000	**7**	**11**	<5	<5	**27**
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	300	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	2000	<0.5	<0.5	<0.5	**0.6**	<0.5
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	10000	<1	<1	<1	<1	<1
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	40000	**80**	**60**	**110**	**90**	**140**
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	16	<0.2	<0.2	<0.2	<0.2	<0.2
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	240	<0.2	<0.2	<0.2	<0.2	<0.2
EP074I: Volatile Halogenated Compounds										
Vinyl chloride	EP074-UT	0.02	mg/kg	----	4.8	<0.02	<0.02	<0.02	<0.02	<0.02
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	11	<0.02	<0.02	<0.02	<0.02	<0.02
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	50	<0.01	<0.01	<0.01	<0.01	<0.01
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	320	<0.03	<0.03	<0.03	<0.03	<0.03
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	2200	<1	<1	<1	<1	<1
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	20	<0.5	<0.5	<0.5	<0.5	<0.5

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B: Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	**B17-68379/0.1** 16-Aug-2017 12:00 **EM1711031-004**	**B17-68379/0.7** 16-Aug-2017 12:00 **EM1711031-005**	**B17-68386/0.1** 16-Aug-2017 08:00 **EM1711031-006**	**B17-68386/0.7** 16-Aug-2017 08:00 **EM1711031-007**	**B17-68382/0.1** 17-Aug-2017 09:30 **EM1711031-008**
Client sample ID										
Sampling date/time										
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	400	<0.5	<0.5	<0.5	<0.5	<0.5
EP075I: Organochlorine Pesticides										
Heptachlor	EP075-EM	0.03	mg/kg	----	4.8	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	4.8	<0.03	<0.03	<0.03	<0.03	**0.09**
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50	<0.05	<0.05	<0.05	<0.05	<0.05
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	16	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	50	<0.03	<0.03	<0.03	<0.03	<0.03
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	2600	<10	<10	<10	<10	<10
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	40000	<50	<50	<50	<50	<50

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category C: Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	B17-68379/0.1	B17-68379/0.7	B17-68386/0.1	B17-68386/0.7	B17-68382/0.1
Client sample ID										
Sampling date/time						16-Aug-2017 12:00	16-Aug-2017 12:00	16-Aug-2017 08:00	16-Aug-2017 08:00	17-Aug-2017 09:30
						EM1711031-004	EM1711031-005	EM1711031-006	EM1711031-007	EM1711031-008
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	4	9	**5.3**	**5.4**	**4.2**	**4.1**	**6.9**
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	500	<5	<5	**52**	**10**	**9**
Cadmium	EG005T	1	mg/kg	----	100	<1	<1	<1	<1	<1
Copper	EG005T	5	mg/kg	----	5000	<5	<5	<5	<5	**8**
Lead	EG005T	5	mg/kg	----	1500	**6**	**8**	**5**	<5	**22**
Molybdenum	EG005T	2	mg/kg	----	1000	**5**	<2	<2	<2	<2
Nickel	EG005T	2	mg/kg	----	3000	**3**	<2	**3**	<2	**9**
Selenium	EG005T	5	mg/kg	----	50	<5	<5	<5	<5	<5
Silver	EG005T	2	mg/kg	----	180	<2	<2	<2	<2	<2
Tin	EG005T	5	mg/kg	----	500	<5	<5	<5	<5	<5
Zinc	EG005T	5	mg/kg	----	35000	**7**	**11**	<5	<5	**27**
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	75	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	500	<0.5	<0.5	<0.5	**0.6**	<0.5
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	2500	<1	<1	<1	<1	<1
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	10000	**80**	**60**	**110**	**90**	**140**
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	4	<0.2	<0.2	<0.2	<0.2	<0.2
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	70	<0.2	<0.2	<0.2	<0.2	<0.2
EP074I: Volatile Halogenated Compounds										
Vinyl chloride	EP074-UT	0.02	mg/kg	----	1.2	<0.02	<0.02	<0.02	<0.02	<0.02
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	2.8	<0.02	<0.02	<0.02	<0.02	<0.02
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	10	<0.01	<0.01	<0.01	<0.01	<0.01
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	10	<0.03	<0.03	<0.03	<0.03	<0.03
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	560	<1	<1	<1	<1	<1
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	5	<0.5	<0.5	<0.5	<0.5	<0.5

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category C: Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	**B17-68379/0.1** 16-Aug-2017 12:00 **EM1711031-004**	**B17-68379/0.7** 16-Aug-2017 12:00 **EM1711031-005**	**B17-68386/0.1** 16-Aug-2017 08:00 **EM1711031-006**	**B17-68386/0.7** 16-Aug-2017 08:00 **EM1711031-007**	**B17-68382/0.1** 17-Aug-2017 09:30 **EM1711031-008**
Client sample ID										
Sampling date/time										
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	100	<0.5	<0.5	<0.5	<0.5	<0.5
EP075I: Organochlorine Pesticides										
Heptachlor	EP075-EM	0.03	mg/kg	----	1.2	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	1.2	<0.03	<0.03	<0.03	<0.03	**0.09**
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50	<0.05	<0.05	<0.05	<0.05	<0.05
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	4	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	10	<0.03	<0.03	<0.03	<0.03	<0.03
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	650	<10	<10	<10	<10	<10
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	10000	<50	<50	<50	<50	<50

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material: Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

				Client sample ID			B17-68379/0.1	B17-68379/0.7	B17-68386/0.1	B17-68386/0.7	B17-68382/0.1
				Sampling date/time	Guideline	Guideline	16-Aug-2017 12:00	16-Aug-2017 12:00	16-Aug-2017 08:00	16-Aug-2017 08:00	17-Aug-2017 09:30
Compound	*Method*	*LOR*	*Unit*		Lower Limit	Upper Limit	EM1711031-004	EM1711031-005	EM1711031-006	EM1711031-007	EM1711031-008
EA001: pH in soil using 0.01M CaCl extract											
pH (CaCl2)	EA001	0.1	pH Unit		4	9	**5.3**	**5.4**	**4.2**	**4.1**	**6.9**
EG005T: Total Metals by ICP-AES											
Arsenic	EG005T	5	mg/kg		----	20	<5	<5	**52**	**10**	**9**
Cadmium	EG005T	1	mg/kg		----	3	<1	<1	<1	<1	<1
Copper	EG005T	5	mg/kg		----	100	<5	<5	<5	<5	**8**
Lead	EG005T	5	mg/kg		----	300	**6**	**8**	**5**	<5	**22**
Molybdenum	EG005T	2	mg/kg		----	40	**5**	<2	<2	<2	<2
Nickel	EG005T	2	mg/kg		----	60	**3**	<2	**3**	<2	**9**
Selenium	EG005T	5	mg/kg		----	10	<5	<5	<5	<5	<5
Silver	EG005T	2	mg/kg		----	10	<2	<2	<2	<2	<2
Tin	EG005T	5	mg/kg		----	50	<5	<5	<5	<5	<5
Zinc	EG005T	5	mg/kg		----	200	**7**	**11**	<5	<5	**27**
EG035T: Total Recoverable Mercury by FIMS											
Mercury	EG035T	0.1	mg/kg		----	1	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)											
Hexavalent Chromium	EG048G	0.5	mg/kg		----	1	<0.5	<0.5	<0.5	**0.6**	<0.5
EK026SF: Total CN by Segmented Flow Analyser											
Total Cyanide	EK026SF	1	mg/kg		----	50	<1	<1	<1	<1	<1
EK040T: Fluoride Total											
Fluoride	EK040T	40	mg/kg		----	450	**80**	**60**	**110**	**90**	**140**
EP066: Polychlorinated Biphenyls (PCB)											
Total Polychlorinated biphenyls	EP066-EM	0.1	mg/kg		----	2	<0.1	<0.1	<0.1	<0.1	<0.1
EP074A: Monocyclic Aromatic Hydrocarbons											
Benzene	EP074-UT	0.2	mg/kg		----	1	<0.2	<0.2	<0.2	<0.2	<0.2
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg		----	7	<0.2	<0.2	<0.2	<0.2	<0.2
EP074I: Volatile Halogenated Compounds											
Sum of volatile chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg		----	1	<0.01	<0.01	<0.01	<0.01	<0.01
EP075A: Phenolic Compounds (Halogenated)											
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg		----	1	<0.03	<0.03	<0.03	<0.03	<0.03
EP075A: Phenolic Compounds (Non-halogenated)											
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg		----	60	<1	<1	<1	<1	<1
EP075B: Polynuclear Aromatic Hydrocarbons											
Benzo(a)pyrene	EP075-EM	0.5	mg/kg		----	1	<0.5	<0.5	<0.5	<0.5	<0.5

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material: Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	B17-68379/0.1	B17-68379/0.7	B17-68386/0.1	B17-68386/0.7	B17-68382/0.1
Client sample ID										
Sampling date/time						16-Aug-2017 12:00	16-Aug-2017 12:00	16-Aug-2017 08:00	16-Aug-2017 08:00	17-Aug-2017 09:30
						EM1711031-004	EM1711031-005	EM1711031-006	EM1711031-007	EM1711031-008
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	20	<0.5	<0.5	<0.5	<0.5	<0.5
EP075I: Organochlorine Pesticides										
Sum of organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	1	<0.03	<0.03	<0.03	<0.03	**0.09**
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	100	<10	<10	<10	<10	<10
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	1000	<50	<50	<50	<50	<50

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B: Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	*Client sample ID* **B17-68382/0.5**	**B17-68382/1.2**	**B17-68382/2.0**	**----**	**----**
						Sampling date/time 17-Aug-2017 09:35	17-Aug-2017 09:40	17-Aug-2017 09:50	----	----
						EM1711031-009	**EM1711031-010**	**EM1711031-011**	--------	--------
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	2	12.5	**7.0**	**6.3**	**5.8**	----	----
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	2000	**8**	<5	**11**	----	----
Cadmium	EG005T	1	mg/kg	----	400	<1	<1	<1	----	----
Copper	EG005T	5	mg/kg	----	20000	**6**	**6**	<5	----	----
Lead	EG005T	5	mg/kg	----	6000	**17**	**13**	**6**	----	----
Molybdenum	EG005T	2	mg/kg	----	4000	<2	<2	<2	----	----
Nickel	EG005T	2	mg/kg	----	12000	**8**	**6**	**4**	----	----
Selenium	EG005T	5	mg/kg	----	200	<5	<5	<5	----	----
Silver	EG005T	2	mg/kg	----	720	<2	<2	<2	----	----
Zinc	EG005T	5	mg/kg	----	140000	**25**	**13**	**7**	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	300	<0.1	<0.1	<0.1	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	2000	<0.5	<0.5	<0.5	----	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	10000	<1	<1	<1	----	----
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	40000	**170**	**160**	**130**	----	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	16	<0.2	<0.2	<0.2	----	----
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	240	<0.2	<0.2	<0.2	----	----
EP074I: Volatile Halogenated Compounds										
Vinyl chloride	EP074-UT	0.02	mg/kg	----	4.8	<0.02	<0.02	<0.02	----	----
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	11	<0.02	<0.02	<0.02	----	----
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	50	<0.01	<0.01	<0.01	----	----
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	320	<0.03	<0.03	<0.03	----	----
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	2200	<1	<1	<1	----	----
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	20	<0.5	<0.5	<0.5	----	----
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	400	<0.5	<0.5	<0.5	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B: Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	**B17-68382/0.5** 17-Aug-2017 09:35 **EM1711031-009**	**B17-68382/1.2** 17-Aug-2017 09:40 **EM1711031-010**	**B17-68382/2.0** 17-Aug-2017 09:50 **EM1711031-011**	**----** ---- --------	**----** ---- --------
Client sample ID										
Sampling date/time										
EP075I: Organochlorine Pesticides										
Heptachlor	EP075-EM	0.03	mg/kg	----	4.8	<0.03	<0.03	<0.03	----	----
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	4.8	**0.14**	**0.04**	<0.03	----	----
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50	<0.05	<0.05	<0.05	----	----
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	16	<0.03	<0.03	<0.03	----	----
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	50	<0.03	<0.03	<0.03	----	----
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	2600	<10	<10	<10	----	----
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	40000	<50	<50	<50	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category C: Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	*Client sample ID* **B17-68382/0.5**	**B17-68382/1.2**	**B17-68382/2.0**	**----**	**----**
						Sampling date/time 17-Aug-2017 09:35	17-Aug-2017 09:40	17-Aug-2017 09:50	----	----
						EM1711031-009	**EM1711031-010**	**EM1711031-011**	--------	--------
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	4	9	**7.0**	**6.3**	**5.8**	----	----
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	500	**8**	<5	**11**	----	----
Cadmium	EG005T	1	mg/kg	----	100	<1	<1	<1	----	----
Copper	EG005T	5	mg/kg	----	5000	**6**	**6**	<5	----	----
Lead	EG005T	5	mg/kg	----	1500	**17**	**13**	**6**	----	----
Molybdenum	EG005T	2	mg/kg	----	1000	<2	<2	<2	----	----
Nickel	EG005T	2	mg/kg	----	3000	**8**	**6**	**4**	----	----
Selenium	EG005T	5	mg/kg	----	50	<5	<5	<5	----	----
Silver	EG005T	2	mg/kg	----	180	<2	<2	<2	----	----
Tin	EG005T	5	mg/kg	----	500	<5	<5	<5	----	----
Zinc	EG005T	5	mg/kg	----	35000	**25**	**13**	**7**	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	75	<0.1	<0.1	<0.1	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	500	<0.5	<0.5	<0.5	----	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	2500	<1	<1	<1	----	----
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	10000	**170**	**160**	**130**	----	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	4	<0.2	<0.2	<0.2	----	----
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	70	<0.2	<0.2	<0.2	----	----
EP074I: Volatile Halogenated Compounds										
Vinyl chloride	EP074-UT	0.02	mg/kg	----	1.2	<0.02	<0.02	<0.02	----	----
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	2.8	<0.02	<0.02	<0.02	----	----
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	10	<0.01	<0.01	<0.01	----	----
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	10	<0.03	<0.03	<0.03	----	----
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	560	<1	<1	<1	----	----
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	5	<0.5	<0.5	<0.5	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category C: Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	*Client sample ID* **B17-68382/0.5**	**B17-68382/1.2**	**B17-68382/2.0**	**----**	**----**
						Sampling date/time 17-Aug-2017 09:35	17-Aug-2017 09:40	17-Aug-2017 09:50	----	----
						EM1711031-009	**EM1711031-010**	**EM1711031-011**	--------	--------
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	100	<0.5	<0.5	<0.5	**----**	**----**
EP075I: Organochlorine Pesticides										
Heptachlor	EP075-EM	0.03	mg/kg	----	1.2	<0.03	<0.03	<0.03	**----**	**----**
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	1.2	**0.14**	**0.04**	<0.03	**----**	**----**
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50	<0.05	<0.05	<0.05	**----**	**----**
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	4	<0.03	<0.03	<0.03	**----**	**----**
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	10	<0.03	<0.03	<0.03	**----**	**----**
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	650	<10	<10	<10	**----**	**----**
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	10000	<50	<50	<50	**----**	**----**

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material: Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

			Client sample ID	Guideline	Guideline	**B17-68382/0.5**	**B17-68382/1.2**	**B17-68382/2.0**	**----**	**----**
			Sampling date/time			17-Aug-2017 09:35	17-Aug-2017 09:40	17-Aug-2017 09:50	----	----
Compound	*Method*	*LOR*	*Unit*	Lower Limit	Upper Limit	**EM1711031-009**	**EM1711031-010**	**EM1711031-011**	--------	--------
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	4	9	**7.0**	**6.3**	**5.8**	**----**	**----**
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	20	**8**	<5	**11**	**----**	**----**
Cadmium	EG005T	1	mg/kg	----	3	<1	<1	<1	**----**	**----**
Copper	EG005T	5	mg/kg	----	100	**6**	**6**	<5	**----**	**----**
Lead	EG005T	5	mg/kg	----	300	**17**	**13**	**6**	**----**	**----**
Molybdenum	EG005T	2	mg/kg	----	40	<2	<2	<2	**----**	**----**
Nickel	EG005T	2	mg/kg	----	60	**8**	**6**	**4**	**----**	**----**
Selenium	EG005T	5	mg/kg	----	10	<5	<5	<5	**----**	**----**
Silver	EG005T	2	mg/kg	----	10	<2	<2	<2	**----**	**----**
Tin	EG005T	5	mg/kg	----	50	<5	<5	<5	**----**	**----**
Zinc	EG005T	5	mg/kg	----	200	**25**	**13**	**7**	**----**	**----**
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	1	<0.1	<0.1	<0.1	**----**	**----**
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	1	<0.5	<0.5	<0.5	**----**	**----**
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	50	<1	<1	<1	**----**	**----**
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	450	**170**	**160**	**130**	**----**	**----**
EP066: Polychlorinated Biphenyls (PCB)										
Total Polychlorinated biphenyls	EP066-EM	0.1	mg/kg	----	2	<0.1	<0.1	<0.1	**----**	**----**
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	1	<0.2	<0.2	<0.2	**----**	**----**
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	7	<0.2	<0.2	<0.2	**----**	**----**
EP074I: Volatile Halogenated Compounds										
Sum of volatile chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	1	<0.01	<0.01	<0.01	**----**	**----**
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	1	<0.03	<0.03	<0.03	**----**	**----**
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	60	<1	<1	<1	**----**	**----**
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	1	<0.5	<0.5	<0.5	**----**	**----**

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material: Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	**B17-68382/0.5** 17-Aug-2017 09:35 **EM1711031-009**	**B17-68382/1.2** 17-Aug-2017 09:40 **EM1711031-010**	**B17-68382/2.0** 17-Aug-2017 09:50 **EM1711031-011**	**----** ---- --------	**----** ---- --------
Client sample ID										
Sampling date/time										
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	20	<0.5	<0.5	<0.5	**----**	**----**
EP075I: Organochlorine Pesticides										
Sum of organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	1	**0.14**	**0.04**	<0.03	**----**	**----**
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	100	<10	<10	<10	**----**	**----**
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	1000	<50	<50	<50	**----**	**----**

Note: Red shading is applied where the result is equal to or greater than the guideline upper limit and/or equal to or lower than the guideline lower limit.

QUALITY CONTROL REPORT

Work Order	: **EM1711031**	Page	: 1 of 14
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLIVIA HENDERSON	Contact	: Steven McGrath
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9600
Project	: 2135645A	Date Samples Received	: 17-Aug-2017
Order number	: ----	Date Analysis Commenced	: 18-Aug-2017
C-O-C number	: 85412	Issue Date	: 23-Aug-2017
Sampler	: ----		
Site	: Site 26		
Quote number	: ME-525-16		
No. of samples received	: 11		
No. of samples analysed	: 11		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	Senior Semivolatile Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	Senior Semivolatile Instrument Chemist	Melbourne Organics, Springvale, VIC
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA001: pH in soil using 0.01M CaCl extract (QC Lot: 1061700)									
EM1711027-047	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	5.3	5.4	1.87	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1061631)									
EM1711013-003	Anonymous	EA055: Moisture Content	----	1	%	12.1	12.4	2.07	0% - 50%
EM1711013-014	Anonymous	EA055: Moisture Content	----	1	%	9.5	9.3	1.98	No Limit
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1061632)									
EM1711031-009	B17-68382/0.5	EA055: Moisture Content	----	1	%	20.7	22.0	6.27	0% - 20%
EM1711041-001	Anonymous	EA055: Moisture Content	----	1	%	4.1	4.6	11.4	No Limit
EG005T: Total Metals by ICP-AES (QC Lot: 1061584)									
EM1710962-068	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	20	19	0.00	No Limit
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	7	7	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	9	7	25.8	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	22	14	41.0	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Tin	7440-31-5	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	18	16	8.26	No Limit
EM1711031-006	B17-68386/0.1	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	3	3	0.00	No Limit
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	52	86	48.4	0% - 50%
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG005T: Total Metals by ICP-AES (QC Lot: 1061584) - continued									
EM1711031-006	B17-68386/0.1	EG005T: Lead	7439-92-1	5	mg/kg	5	6	19.6	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Tin	7440-31-5	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1061585)									
EM1710962-068	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EM1711031-006	B17-68386/0.1	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EG048: Hexavalent Chromium (Alkaline Digest) (QC Lot: 1063886)									
EM1711027-001	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1711031-008	B17-68382/0.1	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EK026SF: Total CN by Segmented Flow Analyser (QC Lot: 1061305)									
EM1710987-001	Anonymous	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.00	No Limit
EM1711027-013	Anonymous	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.00	No Limit
EK026SF: Total CN by Segmented Flow Analyser (QC Lot: 1061306)									
EM1711031-011	B17-68382/2.0	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.00	No Limit
EK040T: Fluoride Total (QC Lot: 1061377)									
EM1711031-004	B17-68379/0.1	EK040T: Fluoride	16984-48-8	40	mg/kg	80	60	20.3	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 1061650)									
EM1711031-004	B17-68379/0.1	EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 1061320)									
EM1711031-004	B17-68379/0.1	EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074H: Naphthalene (QC Lot: 1061320)									
EM1711031-004	B17-68379/0.1	EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EP074I: Volatile Halogenated Compounds (QC Lot: 1061320)									
EM1711031-004	B17-68379/0.1	EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074I: Volatile Halogenated Compounds (QC Lot: 1061320) - continued									
EM1711031-004	B17-68379/0.1	EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	<0.04	0.00	No Limit
		EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	<0.4	0.00	No Limit
EP075A: Phenolic Compounds (Halogenated) (QC Lot: 1061648)									
EM1711031-004	B17-68379/0.1	EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP075A: Phenolic Compounds (Non-halogenated) (QC Lot: 1061648)									
EM1711031-004	B17-68379/0.1	EP075-EM: Phenol	108-95-2	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	0.00	No Limit
EP075B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1061648)									
EM1711031-004	B17-68379/0.1	EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1061648) - continued									
EM1711031-004	B17-68379/0.1	EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP075I: Organochlorine Pesticides (QC Lot: 1061648)									
EM1711031-004	B17-68379/0.1	EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1061320)									
EM1711031-004	B17-68379/0.1	EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1061649)									
EM1711031-004	B17-68379/0.1	EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1061320)									
EM1711031-004	B17-68379/0.1	EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1061320) - continued									
EM1711031-004	B17-68379/0.1	EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1061649)									
EM1711031-004	B17-68379/0.1	EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG020T: Total Metals by ICP-MS (QC Lot: 1063905)									
EM1711049-005	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	0.0001	<0.0001	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.007	0.006	18.6	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.006	0.005	0.00	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.003	0.002	53.6	No Limit
		EG020A-T: Tin	7440-31-5	0.001	mg/L	0.004	0.004	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.027	0.029	6.78	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EM1711004-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	0.0001	0.0001	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.031	0.032	4.66	0% - 20%
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.016	0.017	0.00	0% - 50%
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.028	0.027	0.00	0% - 20%
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	0.013	0.013	0.00	0% - 50%
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.021	0.023	8.64	0% - 20%
		EG020A-T: Tin	7440-31-5	0.001	mg/L	0.008	0.006	21.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.229	0.234	2.17	0% - 20%
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EG020T: Total Metals by ICP-MS (QC Lot: 1063906)									
EM1711004-001	Anonymous	EG020B-T: Silver	7440-22-4	0.001	mg/L	0.007	0.002	108	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1066400)									
EM1710962-033	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1063536)									
EM1711025-039	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EM1711039-023	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1063536)									
EM1711025-039	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EM1711039-023	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 1063536)									
EM1711025-039	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080: BTEXN (QC Lot: 1063536) - continued									
EM1711025-039	Anonymous	EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
EM1711039-023	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 1061584)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	100	79	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	92.8	85	109
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	97.2	78	108
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	95.6	78	106
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	7.9 mg/kg	103	86	112
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	96.0	82	111
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	94.9	93	109
EG005T: Silver	7440-22-4	2	mg/kg	<2	2.1 mg/kg	81.6	80	108
EG005T: Tin	7440-31-5	5	mg/kg	<5	5.2 mg/kg	104	88	116
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	100	82	111
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1061585)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	87.3	77	104
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 1063886)								
EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	40 mg/kg	89.5	80	120
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 1061305)								
EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	20 mg/kg	91.4	80	110
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 1061306)								
EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	20 mg/kg	91.4	80	110
EK040T: Fluoride Total (QCLot: 1061377)								
EK040T: Fluoride	16984-48-8	40	mg/kg	<40	950 mg/kg	98.1	77	106
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 1061650)								
EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	78.6	63	133
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 1061320)								
EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	2.1 mg/kg	89.6	74	118
EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	2.1 mg/kg	90.3	70	118
EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2.1 mg/kg	87.4	69	117
EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4.2 mg/kg	86.6	68	116
EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	2.1 mg/kg	89.6	71	117
EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2.1 mg/kg	85.7	70	116
EP074H: Naphthalene (QCLot: 1061320)								
EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	0.6 mg/kg	94.6	74	116
EP074I: Volatile Halogenated Compounds (QCLot: 1061320)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP074I: Volatile Halogenated Compounds (QCLot: 1061320) - continued								
EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	0.1 mg/kg	88.4	49	133
EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	0.1 mg/kg	89.7	62	127
EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	2.1 mg/kg	83.9	65	131
EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	0.1 mg/kg	87.2	68	124
EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	0.1 mg/kg	85.6	74	118
EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	0.1 mg/kg	87.9	72	118
EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	0.1 mg/kg	83.4	67	119
EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	0.1 mg/kg	92.0	65	119
EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	0.1 mg/kg	91.4	70	122
EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	0.1 mg/kg	84.7	72	124
EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	0.1 mg/kg	90.6	74	122
EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	0.1 mg/kg	86.3	58	120
EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	0.1 mg/kg	91.6	70	119
EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	0.1 mg/kg	90.5	71	125
EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	0.1 mg/kg	92.1	61	125
EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	0.1 mg/kg	89.4	70	122
EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	0.1 mg/kg	85.6	61	118
EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	0.1 mg/kg	87.4	67	117
EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	0.1 mg/kg	88.5	53	127
EP075A: Phenolic Compounds (Halogenated) (QCLot: 1061648)								
EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	2 mg/kg	95.8	43	119
EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	2 mg/kg	69.8	44	131
EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	2 mg/kg	94.5	43	122
EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	2 mg/kg	74.7	50	129
EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	2 mg/kg	88.2	44	128
EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	2 mg/kg	72.7	44	126
EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	2 mg/kg	78.9	46	126
EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/5 8-90-2	0.05	mg/kg	<0.05	4 mg/kg	88.2	44	124
EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	4 mg/kg	63.2	36	124
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 1061648)								
EP075-EM: Phenol	108-95-2	1	mg/kg	<1	2 mg/kg	82.8	41	120
EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	2 mg/kg	105	41	131
EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	4 mg/kg	83.3	43	130
EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	2 mg/kg	69.8	49	130
EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	2 mg/kg	80.0	37	119
EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	12 mg/kg	69.9	23	125
EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	12 mg/kg	81.4	49	133
EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	12 mg/kg	60.1	47	125

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 1061648) - continued								
EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	12 mg/kg	52.9	48	123
EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	10 mg/kg	47.6	12	132
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 1061648)								
EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	2 mg/kg	98.6	44	122
EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	2 mg/kg	87.3	54	126
EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	2 mg/kg	90.8	46	126
EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	2 mg/kg	93.4	51	125
EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	2 mg/kg	104	57	127
EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	2 mg/kg	114	55	127
EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	2 mg/kg	108	57	131
EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	2 mg/kg	101	57	131
EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	2 mg/kg	109	56	132
EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	2 mg/kg	110	58	134
EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	4 mg/kg	97.2	55	133
EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	2 mg/kg	100	51	135
EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	2 mg/kg	90.4	55	137
EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	2 mg/kg	91.7	54	136
EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	2 mg/kg	88.7	55	137
EP075I: Organochlorine Pesticides (QCLot: 1061648)								
EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	2 mg/kg	96.4	54	130
EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	2 mg/kg	91.6	54	130
EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	2 mg/kg	95.5	54	134
EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	2 mg/kg	95.4	54	132
EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	2 mg/kg	104	55	131
EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	2 mg/kg	104	54	128
EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	2 mg/kg	107	54	128
EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	2 mg/kg	108	56	130
EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	2 mg/kg	108	56	130
EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	2 mg/kg	107	55	131
EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	2 mg/kg	110	53	133
EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	2 mg/kg	84.5	54	130
EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	2 mg/kg	110	57	133
EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	2 mg/kg	86.4	28	174
EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	2 mg/kg	104	40	148
EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	2 mg/kg	108	56	138
EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	2 mg/kg	107	57	135
EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	2 mg/kg	105	51	133
EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	2 mg/kg	98.6	51	133

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP075I: Organochlorine Pesticides (QCLot: 1061648) - continued								
EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	2 mg/kg	99.6	48	136
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1061320)								
EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	39.6 mg/kg	86.8	69	114
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1061649)								
EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	837 mg/kg	94.6	72	130
EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	3061 mg/kg	96.1	77	126
EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	1592 mg/kg	94.0	75	119
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1061320)								
EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	48.9 mg/kg	86.3	69	112
EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1061649)								
EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	1222 mg/kg	95.0	75	123
EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	3919 mg/kg	100	77	127
EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	316 mg/kg	87.8	43	123

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 1063905)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	104	90	110
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	104	86	111
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	102	87	108
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	102	88	109
EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	110	88	114
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	102	87	111
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	100	85	113
EG020A-T: Tin	7440-31-5	0.001	mg/L	<0.001	0.1 mg/L	112	88	113
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	104	87	113
EG020T: Total Metals by ICP-MS (QCLot: 1063906)								
EG020B-T: Silver	7440-22-4	0.001	mg/L	<0.001	0.02 mg/L	102	78	129
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1066400)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	97.4	81	114
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1063536)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	360 µg/L	88.9	67	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1063536)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	86.6	65	125
EP080: BTEXN (QCLot: 1063536)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080: BTEXN (QCLot: 1063536) - continued								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	85.6	76	120
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	90.9	76	124
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	92.5	72	124
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	99.6	72	130
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	102	78	128
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	93.8	71	129

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG005T: Total Metals by ICP-AES (QCLot: 1061584)							
EM1710962-070	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	81.3	78	124
		EG005T: Cadmium	7440-43-9	50 mg/kg	88.0	84	116
		EG005T: Copper	7440-50-8	50 mg/kg	102	82	124
		EG005T: Lead	7439-92-1	50 mg/kg	# Not Determined	76	124
		EG005T: Molybdenum	7439-98-7	50 mg/kg	96.9	79	117
		EG005T: Nickel	7440-02-0	50 mg/kg	79.5	78	120
		EG005T: Selenium	7782-49-2	50 mg/kg	79.7	71	125
		EG005T: Zinc	7440-66-6	50 mg/kg	103	74	128
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1061585)							
EM1710962-070	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	78.0	76	116
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 1063886)							
EM1711027-013	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	40 mg/kg	87.6	58	114
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 1061305)							
EM1710987-002	Anonymous	EK026SF: Total Cyanide	57-12-5	20 mg/kg	89.9	77	113
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 1061306)							
EM1711036-003	Anonymous	EK026SF: Total Cyanide	57-12-5	20 mg/kg	89.8	77	113
EK040T: Fluoride Total (QCLot: 1061377)							
EM1711031-005	B17-68379/0.7	EK040T: Fluoride	16984-48-8	400 mg/kg	114	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 1061650)							
EM1711031-006	B17-68386/0.1	EP066-EM: Total Polychlorinated biphenyls	---	1 mg/kg	87.6	36	152

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 1061320)							
EM1711031-005	B17-68379/0.7	EP074-UT: Benzene	71-43-2	2 mg/kg	83.0	50	138
		EP074-UT: Toluene	108-88-3	2 mg/kg	82.9	56	134
EP074I: Volatile Halogenated Compounds (QCLot: 1061320)							
EM1711031-005	B17-68379/0.7	EP074-UT: 1.1-Dichloroethene	75-35-4	2 mg/kg	96.7	26	141
		EP074-UT: Trichloroethene	79-01-6	2 mg/kg	87.8	50	134
		EP074-UT: Chlorobenzene	108-90-7	2 mg/kg	92.7	28	134
EP075A: Phenolic Compounds (Halogenated) (QCLot: 1061648)							
EM1711031-005	B17-68379/0.7	EP075-EM: 2-Chlorophenol	95-57-8	1 mg/kg	105	34	118
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	1 mg/kg	76.5	41	139
		EP075-EM: Pentachlorophenol	87-86-5	1 mg/kg	55.1	10	144
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 1061648)							
EM1711031-005	B17-68379/0.7	EP075-EM: Phenol	108-95-2	1 mg/kg	93.0	32	134
		EP075-EM: 2-Nitrophenol	88-75-5	1 mg/kg	63.4	13	129
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 1061648)							
EM1711031-005	B17-68379/0.7	EP075-EM: Acenaphthene	83-32-9	1 mg/kg	95.0	46	138
		EP075-EM: Pyrene	129-00-0	1 mg/kg	109	27	169
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1061320)							
EM1711031-005	B17-68379/0.7	EP074-UT: C6 - C9 Fraction	---	28 mg/kg	70.4	43	111
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1061649)							
EM1711031-007	B17-68386/0.7	EP071-EM: C10 - C14 Fraction	---	837 mg/kg	96.2	53	123
		EP071-EM: C15 - C28 Fraction	---	3061 mg/kg	97.2	70	124
		EP071-EM: C29 - C36 Fraction	---	1592 mg/kg	95.1	64	118
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1061320)							
EM1711031-005	B17-68379/0.7	EP074-UT: C6 - C10 Fraction	C6_C10	33 mg/kg	67.2	42	106
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1061649)							
EM1711031-007	B17-68386/0.7	EP071-EM: >C10 - C16 Fraction	---	1222 mg/kg	96.5	65	123
		EP071-EM: >C16 - C34 Fraction	---	3919 mg/kg	101	67	121
		EP071-EM: >C34 - C40 Fraction	---	316 mg/kg	90.6	44	126

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 1063905)							
EM1711004-001	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	102	82	118
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	91.3	75	129
		EG020A-T: Copper	7440-50-8	1 mg/L	85.5	81	115
		EG020A-T: Lead	7439-92-1	1 mg/L	87.7	83	121

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EG020T: Total Metals by ICP-MS (QCLot: 1063905) - continued							
EM1711004-001	Anonymous	EG020A-T: Nickel	7440-02-0	1 mg/L	92.2	80	118
		EG020A-T: Zinc	7440-66-6	1 mg/L	89.5	74	116
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1066400)							
EM1710998-004	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	97.5	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1063536)							
EM1711039-018	Anonymous	EP080: C6 - C9 Fraction	----	280 µg/L	77.4	43	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1063536)							
EM1711039-018	Anonymous	EP080: C6 - C10 Fraction	C6_C10	330 µg/L	75.0	44	122
EP080: BTEXN (QCLot: 1063536)							
EM1711039-018	Anonymous	EP080: Benzene	71-43-2	20 µg/L	93.1	68	130
		EP080: Toluene	108-88-3	20 µg/L	95.0	72	132

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM1711031**	Page	: 1 of 11
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLIVIA HENDERSON	Telephone	: +61-3-8549 9600
Project	: 2135645A	Date Samples Received	: 17-Aug-2017
Site	: Site 26	Issue Date	: 23-Aug-2017
Sampler	: ----	No. of samples received	: 11
Order number	: ----	No. of samples analysed	: 11

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EG005T: Total Metals by ICP-AES	EM1710962--070	Anonymous	**Lead**	7439-92-1	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA001: pH in soil using 0.01M CaCl extract								
Soil Glass Jar - Unpreserved (EA001)								
B17-68379/0.1,	B17-68379/0.7,	**16-Aug-2017**	**21-Aug-2017**	23-Aug-2017	✓	**21-Aug-2017**	21-Aug-2017	✓
B17-68386/0.1,	B17-68386/0.7							
Soil Glass Jar - Unpreserved (EA001)								
B17-68382/0.1,	B17-68382/0.5,	**17-Aug-2017**	**21-Aug-2017**	24-Aug-2017	✓	**21-Aug-2017**	21-Aug-2017	✓
B17-68382/1.2,	B17-68382/2.0							
EA055: Moisture Content (Dried @ 105-110°C)								
Soil Glass Jar - Unpreserved (EA055)								
B17-68379/0.1,	B17-68379/0.7,	**16-Aug-2017**	**----**	----	----	**18-Aug-2017**	30-Aug-2017	✓
B17-68386/0.1,	B17-68386/0.7							
Soil Glass Jar - Unpreserved (EA055)								
B17-68382/0.1,	B17-68382/0.5,	**17-Aug-2017**	**----**	----	----	**18-Aug-2017**	31-Aug-2017	✓
B17-68382/1.2,	B17-68382/2.0							
EG005T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T)								
B17-68379/0.1,	B17-68379/0.7,	**16-Aug-2017**	**21-Aug-2017**	12-Feb-2018	✓	**21-Aug-2017**	12-Feb-2018	✓
B17-68386/0.1,	B17-68386/0.7							
Soil Glass Jar - Unpreserved (EG005T)								
B17-68382/0.1,	B17-68382/0.5,	**17-Aug-2017**	**21-Aug-2017**	13-Feb-2018	✓	**21-Aug-2017**	13-Feb-2018	✓
B17-68382/1.2,	B17-68382/2.0							

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T)								
B17-68379/0.1,	B17-68379/0.7,	**16-Aug-2017**	**21-Aug-2017**	13-Sep-2017	✓	**22-Aug-2017**	13-Sep-2017	✓
B17-68386/0.1,	B17-68386/0.7							
Soil Glass Jar - Unpreserved (EG035T)								
B17-68382/0.1,	B17-68382/0.5,	**17-Aug-2017**	**21-Aug-2017**	14-Sep-2017	✓	**22-Aug-2017**	14-Sep-2017	✓
B17-68382/1.2,	B17-68382/2.0							
EG048: Hexavalent Chromium (Alkaline Digest)								
Soil Glass Jar - Unpreserved (EG048G)								
B17-68379/0.1,	B17-68379/0.7,	**16-Aug-2017**	**21-Aug-2017**	13-Sep-2017	✓	**21-Aug-2017**	28-Aug-2017	✓
B17-68386/0.1,	B17-68386/0.7							
Soil Glass Jar - Unpreserved (EG048G)								
B17-68382/0.1,	B17-68382/0.5,	**17-Aug-2017**	**21-Aug-2017**	14-Sep-2017	✓	**21-Aug-2017**	28-Aug-2017	✓
B17-68382/1.2,	B17-68382/2.0							
EK026SF: Total CN by Segmented Flow Analyser								
Soil Glass Jar - Unpreserved (EK026SF)								
B17-68379/0.1,	B17-68379/0.7,	**16-Aug-2017**	**18-Aug-2017**	30-Aug-2017	✓	**21-Aug-2017**	01-Sep-2017	✓
B17-68386/0.1,	B17-68386/0.7							
Soil Glass Jar - Unpreserved (EK026SF)								
B17-68382/0.1,	B17-68382/0.5,	**17-Aug-2017**	**18-Aug-2017**	31-Aug-2017	✓	**21-Aug-2017**	01-Sep-2017	✓
B17-68382/1.2,	B17-68382/2.0							
EK040T: Fluoride Total								
Soil Glass Jar - Unpreserved (EK040T)								
B17-68379/0.1,	B17-68379/0.7,	**16-Aug-2017**	**18-Aug-2017**	13-Sep-2017	✓	**22-Aug-2017**	13-Sep-2017	✓
B17-68386/0.1,	B17-68386/0.7							
Soil Glass Jar - Unpreserved (EK040T)								
B17-68382/0.1,	B17-68382/0.5,	**17-Aug-2017**	**18-Aug-2017**	14-Sep-2017	✓	**22-Aug-2017**	14-Sep-2017	✓
B17-68382/1.2,	B17-68382/2.0							
EP066: Polychlorinated Biphenyls (PCB)								
Soil Glass Jar - Unpreserved (EP066-EM)								
B17-68379/0.1,	B17-68379/0.7,	**16-Aug-2017**	**18-Aug-2017**	30-Aug-2017	✓	**21-Aug-2017**	27-Sep-2017	✓
B17-68386/0.1,	B17-68386/0.7							
Soil Glass Jar - Unpreserved (EP066-EM)								
B17-68382/0.1,	B17-68382/0.5,	**17-Aug-2017**	**18-Aug-2017**	31-Aug-2017	✓	**21-Aug-2017**	27-Sep-2017	✓
B17-68382/1.2,	B17-68382/2.0							
EP074A: Monocyclic Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP074-UT)								
B17-68379/0.1,	B17-68379/0.7,	**16-Aug-2017**	**18-Aug-2017**	23-Aug-2017	✓	**18-Aug-2017**	23-Aug-2017	✓
B17-68386/0.1,	B17-68386/0.7							
Soil Glass Jar - Unpreserved (EP074-UT)								
B17-68382/0.1,	B17-68382/0.5,	**17-Aug-2017**	**18-Aug-2017**	24-Aug-2017	✓	**18-Aug-2017**	24-Aug-2017	✓
B17-68382/1.2,	B17-68382/2.0							

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074H: Naphthalene								
Soil Glass Jar - Unpreserved (EP074-UT)								
B17-68379/0.1,	B17-68379/0.7,	**16-Aug-2017**	**18-Aug-2017**	23-Aug-2017	✓	**18-Aug-2017**	23-Aug-2017	✓
B17-68386/0.1,	B17-68386/0.7							
Soil Glass Jar - Unpreserved (EP074-UT)								
B17-68382/0.1,	B17-68382/0.5,	**17-Aug-2017**	**18-Aug-2017**	24-Aug-2017	✓	**18-Aug-2017**	24-Aug-2017	✓
B17-68382/1.2,	B17-68382/2.0							
EP074I: Volatile Halogenated Compounds								
Soil Glass Jar - Unpreserved (EP074-UT)								
B17-68379/0.1,	B17-68379/0.7,	**16-Aug-2017**	**18-Aug-2017**	23-Aug-2017	✓	**18-Aug-2017**	23-Aug-2017	✓
B17-68386/0.1,	B17-68386/0.7							
Soil Glass Jar - Unpreserved (EP074-UT)								
B17-68382/0.1,	B17-68382/0.5,	**17-Aug-2017**	**18-Aug-2017**	24-Aug-2017	✓	**18-Aug-2017**	24-Aug-2017	✓
B17-68382/1.2,	B17-68382/2.0							
EP075A: Phenolic Compounds (Halogenated)								
Soil Glass Jar - Unpreserved (EP075-EM)								
B17-68379/0.1,	B17-68379/0.7,	**16-Aug-2017**	**18-Aug-2017**	30-Aug-2017	✓	**21-Aug-2017**	27-Sep-2017	✓
B17-68386/0.1,	B17-68386/0.7							
Soil Glass Jar - Unpreserved (EP075-EM)								
B17-68382/0.1,	B17-68382/0.5,	**17-Aug-2017**	**18-Aug-2017**	31-Aug-2017	✓	**21-Aug-2017**	27-Sep-2017	✓
B17-68382/1.2,	B17-68382/2.0							
EP075A: Phenolic Compounds (Non-halogenated)								
Soil Glass Jar - Unpreserved (EP075-EM)								
B17-68379/0.1,	B17-68379/0.7,	**16-Aug-2017**	**18-Aug-2017**	30-Aug-2017	✓	**21-Aug-2017**	27-Sep-2017	✓
B17-68386/0.1,	B17-68386/0.7							
Soil Glass Jar - Unpreserved (EP075-EM)								
B17-68382/0.1,	B17-68382/0.5,	**17-Aug-2017**	**18-Aug-2017**	31-Aug-2017	✓	**21-Aug-2017**	27-Sep-2017	✓
B17-68382/1.2,	B17-68382/2.0							
EP075B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075-EM)								
B17-68379/0.1,	B17-68379/0.7,	**16-Aug-2017**	**18-Aug-2017**	30-Aug-2017	✓	**21-Aug-2017**	27-Sep-2017	✓
B17-68386/0.1,	B17-68386/0.7							
Soil Glass Jar - Unpreserved (EP075-EM)								
B17-68382/0.1,	B17-68382/0.5,	**17-Aug-2017**	**18-Aug-2017**	31-Aug-2017	✓	**21-Aug-2017**	27-Sep-2017	✓
B17-68382/1.2,	B17-68382/2.0							
EP075I: Organochlorine Pesticides								
Soil Glass Jar - Unpreserved (EP075-EM)								
B17-68379/0.1,	B17-68379/0.7,	**16-Aug-2017**	**18-Aug-2017**	30-Aug-2017	✓	**21-Aug-2017**	27-Sep-2017	✓
B17-68386/0.1,	B17-68386/0.7							
Soil Glass Jar - Unpreserved (EP075-EM)								
B17-68382/0.1,	B17-68382/0.5,	**17-Aug-2017**	**18-Aug-2017**	31-Aug-2017	✓	**21-Aug-2017**	27-Sep-2017	✓
B17-68382/1.2,	B17-68382/2.0							

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074-UT)							
B17-68379/0.1, B17-68379/0.7, B17-68386/0.1, B17-68386/0.7	**16-Aug-2017**	**18-Aug-2017**	23-Aug-2017	✓	**18-Aug-2017**	23-Aug-2017	✓
Soil Glass Jar - Unpreserved (EP071-EM)							
B17-68379/0.1, B17-68379/0.7, B17-68386/0.1, B17-68386/0.7	**16-Aug-2017**	**18-Aug-2017**	30-Aug-2017	✓	**21-Aug-2017**	27-Sep-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT)							
B17-68382/0.1, B17-68382/0.5, B17-68382/1.2, B17-68382/2.0	**17-Aug-2017**	**18-Aug-2017**	24-Aug-2017	✓	**18-Aug-2017**	24-Aug-2017	✓
Soil Glass Jar - Unpreserved (EP071-EM)							
B17-68382/0.1, B17-68382/0.5, B17-68382/1.2, B17-68382/2.0	**17-Aug-2017**	**18-Aug-2017**	31-Aug-2017	✓	**21-Aug-2017**	27-Sep-2017	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP074-UT)							
B17-68379/0.1, B17-68379/0.7, B17-68386/0.1, B17-68386/0.7	**16-Aug-2017**	**18-Aug-2017**	23-Aug-2017	✓	**18-Aug-2017**	23-Aug-2017	✓
Soil Glass Jar - Unpreserved (EP071-EM)							
B17-68379/0.1, B17-68379/0.7, B17-68386/0.1, B17-68386/0.7	**16-Aug-2017**	**18-Aug-2017**	30-Aug-2017	✓	**21-Aug-2017**	27-Sep-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT)							
B17-68382/0.1, B17-68382/0.5, B17-68382/1.2, B17-68382/2.0	**17-Aug-2017**	**18-Aug-2017**	24-Aug-2017	✓	**18-Aug-2017**	24-Aug-2017	✓
Soil Glass Jar - Unpreserved (EP071-EM)							
B17-68382/0.1, B17-68382/0.5, B17-68382/1.2, B17-68382/2.0	**17-Aug-2017**	**18-Aug-2017**	31-Aug-2017	✓	**21-Aug-2017**	27-Sep-2017	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unspecified (EG020B-T)							
B17-68386 RINSAT, B17-68382 RINSAT	**16-Aug-2017**	**21-Aug-2017**	12-Feb-2018	✓	**21-Aug-2017**	12-Feb-2018	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unspecified (EG035T)							
B17-68386 RINSAT, B17-68382 RINSAT	**16-Aug-2017**	**----**	----	----	**22-Aug-2017**	13-Sep-2017	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP080)							
TRIP BLANK	**17-Aug-2017**	**21-Aug-2017**	31-Aug-2017	✓	**21-Aug-2017**	31-Aug-2017	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber VOC Vial - Sulfuric Acid (EP080)							
TRIP BLANK	**17-Aug-2017**	**21-Aug-2017**	31-Aug-2017	✓	**21-Aug-2017**	31-Aug-2017	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
TRIP BLANK	**17-Aug-2017**	**21-Aug-2017**	31-Aug-2017	✓	**21-Aug-2017**	31-Aug-2017	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	4	36	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	3	27	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	2	27	**7.41**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	2	27	**7.41**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	2	27	**7.41**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Matrix Spikes (MS) - Continued							
Total Fluoride	EK040T	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Total Mercury by FIMS	EG035T	1	7	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite B	EG020B-T	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Total Mercury by FIMS	EG035T	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite B	EG020B-T	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Total Mercury by FIMS	EG035T	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite B	EG020B-T	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Total Mercury by FIMS	EG035T	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH in soil using a 0.01M CaCl2 extract	EA001	SOIL	In house: Referenced to Rayment and Lyons (2011) 4B3 (mod.) or 4B4 (mod.) 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM (2013) Schedule B(3)
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	SOIL	In house: Referenced to USEPA SW846, Method 3060A. Hexavalent chromium is extracted by alkaline digestion. The digest is determined by photometrically by automatic discrete analyser, following pH adjustment. The instrument uses colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Cyanide by Segmented Flow Analyser	EK026SF	SOIL	In house: Referenced to APHA 4500-CN C / ASTM D7511. Caustic leachates of soil samples are introduced into an automated segmented flow analyser. Complex bound cyanide is decomposed in a continuously flowing stream, at a pH of 3.8, by the effect of UV light. A UV-B lamp (312 nm) and a decomposition spiral of borosilicate glass are used to filter out UV light with a wavelength of less than 290 nm thus preventing the conversion of thiocyanate into cyanide. The hydrogen cyanide present at a pH of 3.8 is separated by gas dialysis. The hydrogen cyanide is then determined photometrically, based on the reaction of cyanide with chloramine-T to form cyanogen chloride. This then reacts with 4-pyridine carboxylic acid and 1,3-dimethylbarbituric acid to give a red colour which is measured at 600 nm. This method is compliant with NEPM (2013) Schedule B(3)
Total Fluoride	EK040T	SOIL	(In-house) Total fluoride is determined by ion specific electrode (ISE) in a solution obtained after a Sodium Carbonate / Potassium Carbonate fusion dissolution.
PCB - VIC EPA 448.3 Screen	EP066-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
TRH - Semivolatile Fraction	EP071-EM	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40.
Volatile Organic Compounds - Ultra-trace	EP074-UT	SOIL	In house: Referenced to USEPA SW 846 - 8260B Extracts are analysed by Purge and Trap, Capillary GC/MS in partial SIM/Scan mode. Quantification is by comparison against an established multi-point calibration curves. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)

Analytical Methods	Method	Matrix	Method Descriptions
Volatile Organic Compounds - Ultra-trace - Summations	EP074-UT-SUM	SOIL	Summation of MAHs and VHCs
Semivolatile Organic Compounds - Waste Classification	EP075-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (2013) Schedule B(3) (Method 502)
SVOC - Waste Classification (Sums)	EP075-EM-SUM	SOIL	Summations for EP075 (EM variation)
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite B	EG020B-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
NaOH leach for CN in Soils	CN-PR	SOIL	In house: APHA 4500 CN. Samples are extracted by end-over-end tumbling with NaOH.
pH in soil using a 0.01M CaCl2 extract	EA001-PR	SOIL	In house: Referenced to Rayment and Higginson 4B1, 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Alkaline digestion for Hexavalent Chromium	EG048PR	SOIL	In house: Referenced to USEPA SW846, Method 3060A.
Total Fluoride	EK040T-PR	SOIL	In house: Samples are fused with Sodium Carbonate / Potassium Carbonate flux.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils - Ultra-trace.	ORG16-UT	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids - VIC EPA Screen	ORG17-EM	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

Preparation Methods	Method	Matrix	Method Descriptions
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

WSP | PARSONS BRINCKERHOFF

White Page - Laboratory Copy
Yellow Page - Project File Copy
Pink Page - Remains in Book

ABN 80 078 004 798

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Sydney Level 27, Ernst & Young Centre 680 George Street, GPO Box 5394, Sydney NSW 2001 Tel: (02) 9272 5100 Fax: (02) 9272 5101

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Newcastle Level 3, 51-55 Bolton Street, Suite 1 PO Box 1162 Newcastle NSW, 2300 Tel: (02) 4929 8300 Fax: (02) 4929 8382

Chain of Custody

Order No: 85412

Job Title: MORDIALLOC BYPASS

PB Job Number: 213564SA

Job Location: Site 26

Project Manager: Olivia Henderson

Laboratory Name: ALS

Results Expected by/on: Standard

Address: 2-4 Westall Rd, Springvale

Terms of Business	PB	Other	Checked

Fax Results to:

Fax Number:

Phone Number: 8549 9609

Contact Name: GRAEME

Phone Number:

Spreadsheet of Results Required: (Y) N

Format: ESDAT, PDF

Delivery Method:

Turnaround Time Required: Std

Quote Number:

Invoice to: Olivia Henderson

Comments: 1/1

	Date Sampled	Time	Sample I.D.	Container Size	Sample Location	Medium*	Preservative Type	Filtered (X)	TPH	BTEX	PAH's	OC/OP/PCB's	Metals**	IWRG 621 Suite	IWRG metals	TPH BTEX	Initials	Comments/Additional Information and/or Analysis Required
1	16-8-17	2200	B17-68386 RINSATE	60ml	Site 26	W								/	/			
2	17-8-17	100	B17-68382 RINSATE	60ml		W									/			
3	17-5-17	[illegible]	EM1706213	250ml		W									/	/		
4	16-8-17	1200	B17-68379/0.1	250ml										/				
5	16-8-17	1200	B17-68379/0.7	250ml										/				
6	16-8-17	0800	B17-68386/0.1	250ml										/				
7	16-8-17	0800	B17-68386/0.7	250ml										/				
8	17-8-17	0930	B17-68382/0.1	250ml										/				
9	17-8-17	0935	B17-68382/0.5	250ml										/				
10	17-8-17	0940	B17-68382/1.2	250ml										/				
11	17-8-17	0950	B17-68382/2.0	250ml										/				

Environmental Division
Melbourne
Work Order Reference
EM1711031

Telephone : +61-3-8549 9600

Relinquished by:	Relinquished by:	Relinquished by:
Paul Physick		
Date & Time: 17-8-17 1700	Date & Time:	Date & Time:
Company: WSP	Company:	Company:
Signature:	Signature:	Signature:
Received in Good Order & Condition by (Name): Marcus	Received in Good Order & Condition by (Name):	Received in Good Order & Condition by (Name):
Date & Time: 17/8 1700	Date & Time:	Date & Time:
Company: AL	Company:	Company:
Signature:	Signature:	Signature:

Medium*: S = Soil, W = Water, V = Vapour

Legend**: (circle the following to be tested)

Metals: Al As Be Cd Co Cr Cu Fe Hg Li Mg Mn Ni Pb Se Sn V Zn

Samples on Ice: ☐ Yes ☐ No

Please fax back a signed copy when samples are received at the laboratory

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1711185**	Page	: 1 of 14
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLIVIA HENDERSON	Contact	: Steven McGrath
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9600
Project	: 2135645A	Date Samples Received	: 21-Aug-2017 17:00
Order number	: ----	Date Analysis Commenced	: 22-Aug-2017
C-O-C number	: 85413	Issue Date	: 25-Aug-2017 13:35
Sampler	: ----		
Site	: Dingley Village		
Quote number	: ME-525-16		
No. of samples received	: 8		
No. of samples analysed	: 8		

ilac-MRA NATA
Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	B17-68396/0.1	B17-68396/0.5	B17-68396/0.9	B17-68396/1.9	B17-68396/2.4
			Client sampling date / time	21-Aug-2017 13:30	21-Aug-2017 13:30	21-Aug-2017 13:35	21-Aug-2017 13:40	21-Aug-2017 14:00
Compound	CAS Number	LOR	Unit	EM1711185-001	EM1711185-002	EM1711185-003	EM1711185-004	EM1711185-005
				Result	Result	Result	Result	Result
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	6.3	6.5	7.0	6.7	6.3
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	10.2	13.2	12.2	15.0	13.1
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	8
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Copper	7440-50-8	5	mg/kg	<5	<5	<5	<5	<5
Lead	7439-92-1	5	mg/kg	7	<5	5	6	9
Molybdenum	7439-98-7	2	mg/kg	<2	<2	<2	<2	<2
Nickel	7440-02-0	2	mg/kg	<2	<2	<2	2	3
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Silver	7440-22-4	2	mg/kg	<2	<2	<2	<2	<2
Tin	7440-31-5	5	mg/kg	<5	<5	<5	<5	<5
Zinc	7440-66-6	5	mg/kg	15	<5	8	10	16
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
EK026SF: Total CN by Segmented Flow Analyser								
Total Cyanide	57-12-5	1	mg/kg	<1	<1	<1	<1	<1
EK040T: Fluoride Total								
Fluoride	16984-48-8	40	mg/kg	50	90	260	160	110
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of monocyclic aromatic hydrocarbons	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	B17-68396/0.1	B17-68396/0.5	B17-68396/0.9	B17-68396/1.9	B17-68396/2.4
			Client sampling date / time	21-Aug-2017 13:30	21-Aug-2017 13:30	21-Aug-2017 13:35	21-Aug-2017 13:40	21-Aug-2017 14:00
Compound	CAS Number	LOR	Unit	EM1711185-001	EM1711185-002	EM1711185-003	EM1711185-004	EM1711185-005
				Result	Result	Result	Result	Result
EP074H: Naphthalene								
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP074I: Volatile Halogenated Compounds								
Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02
1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01
Methylene chloride	75-09-2	0.4	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02
cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01
Chloroform	67-66-3	0.02	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02
1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01
Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01
1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02
Trichloroethene	79-01-6	0.02	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02
1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	<0.04	<0.04	<0.04	<0.04
Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02
1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01
1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02
Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02
Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02
1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02
1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02
1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01
^ Sum of volatile chlorinated hydrocarbons	----	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01
^ Sum of other chlorinated hydrocarbons	----	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01
EP075A: Phenolic Compounds (Halogenated)								
2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03
2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03
2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03
4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03
2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03
2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Sum of Phenols (halogenated)	----	0.03	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B17-68396/0.1	B17-68396/0.5	B17-68396/0.9	B17-68396/1.9	B17-68396/2.4
				Client sampling date / time	21-Aug-2017 13:30	21-Aug-2017 13:30	21-Aug-2017 13:35	21-Aug-2017 13:40	21-Aug-2017 14:00
Compound	CAS Number	LOR	Unit		EM1711185-001	EM1711185-002	EM1711185-003	EM1711185-004	EM1711185-005
					Result	Result	Result	Result	Result
EP075A: Phenolic Compounds (Halogenated) - Continued									
EP075A: Phenolic Compounds (Non-halogenated)									
Phenol	108-95-2	1	mg/kg		<1	<1	<1	<1	<1
2-Methylphenol	95-48-7	1	mg/kg		<1	<1	<1	<1	<1
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	1	mg/kg		<1	<1	<1	<1	<1
2.4-Dimethylphenol	105-67-9	1	mg/kg		<1	<1	<1	<1	<1
2.4-Dinitrophenol	51-28-5	5	mg/kg		<5	<5	<5	<5	<5
4-Nitrophenol	100-02-7	5	mg/kg		<5	<5	<5	<5	<5
2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg		<5	<5	<5	<5	<5
Dinoseb	88-85-7	5	mg/kg		<5	<5	<5	<5	<5
2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg		<5	<5	<5	<5	<5
^ Sum of Phenols (non-halogenated)	----	1	mg/kg		<1	<1	<1	<1	<1
EP075B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP075I: Organochlorine Pesticides									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B17-68396/0.1	B17-68396/0.5	B17-68396/0.9	B17-68396/1.9	B17-68396/2.4
				Client sampling date / time	21-Aug-2017 13:30	21-Aug-2017 13:30	21-Aug-2017 13:35	21-Aug-2017 13:40	21-Aug-2017 14:00
Compound	CAS Number	LOR	Unit		EM1711185-001	EM1711185-002	EM1711185-003	EM1711185-004	EM1711185-005
					Result	Result	Result	Result	Result
EP075l: Organochlorine Pesticides - Continued									
alpha-BHC	319-84-6	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
beta-BHC	319-85-7	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
gamma-BHC	58-89-9	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
delta-BHC	319-86-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Heptachlor	76-44-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Aldrin	309-00-2	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Heptachlor epoxide	1024-57-3	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
cis-Chlordane	5103-71-9	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
trans-Chlordane	5103-74-2	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Endosulfan 1	959-98-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Endrin aldehyde	7421-93-4	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Endrin	72-20-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Endosulfan 2	33213-65-9	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
4.4`-DDT	50-29-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
^ Sum of organochlorine pesticides	----	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ Chlordane	57-74-9	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
^ Sum of other organochlorine pesticides	----	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B17-68396/0.1	B17-68396/0.5	B17-68396/0.9	B17-68396/1.9	B17-68396/2.4
				Client sampling date / time	21-Aug-2017 13:30	21-Aug-2017 13:30	21-Aug-2017 13:35	21-Aug-2017 13:40	21-Aug-2017 14:00
Compound	CAS Number	LOR	Unit		EM1711185-001	EM1711185-002	EM1711185-003	EM1711185-004	EM1711185-005
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		<50	<50	<50	<50	<50
>C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	<50
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**88.8**	**88.6**	**90.6**	**88.7**	**85.2**
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		**77.4**	**82.3**	**76.5**	**81.4**	**82.5**
Toluene-D8	2037-26-5	0.1	%		**69.8**	**75.3**	**70.7**	**76.6**	**78.1**
4-Bromofluorobenzene	460-00-4	0.1	%		**76.0**	**86.0**	**87.1**	**88.8**	**84.0**
EP075S: Acid Extractable Surrogates									
Phenol-d6	13127-88-3	0.025	%		**118**	**112**	**129**	**104**	**114**
2-Chlorophenol-D4	93951-73-6	0.025	%		**94.2**	**86.4**	**101**	**87.0**	**96.4**
2.4.6-Tribromophenol	118-79-6	0.025	%		**103**	**95.4**	**106**	**95.9**	**100**
EP075T: Base/Neutral Extractable Surrogates									
Nitrobenzene-D5	4165-60-0	0.025	%		**101**	**92.6**	**108**	**97.8**	**96.0**
1.2-Dichlorobenzene-D4	2199-69-1	0.025	%		**103**	**91.4**	**110**	**95.2**	**99.2**
2-Fluorobiphenyl	321-60-8	0.025	%		**110**	**102**	**113**	**105**	**101**
Anthracene-d10	1719-06-8	0.025	%		**124**	**122**	**128**	**130**	**123**
4-Terphenyl-d14	1718-51-0	0.025	%		**130**	**137**	**124**	**127**	**128**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	B17-68396/3.2	----	----	----	----
			Client sampling date / time	21-Aug-2017 14:15	----	----	----	----
Compound	CAS Number	LOR	Unit	EM1711185-006	--------	--------	--------	--------
				Result	----	----	----	----
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	**6.5**	----	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**13.3**	----	----	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----
Copper	7440-50-8	5	mg/kg	<5	----	----	----	----
Lead	7439-92-1	5	mg/kg	<5	----	----	----	----
Molybdenum	7439-98-7	2	mg/kg	**7**	----	----	----	----
Nickel	7440-02-0	2	mg/kg	<2	----	----	----	----
Selenium	7782-49-2	5	mg/kg	<5	----	----	----	----
Silver	7440-22-4	2	mg/kg	<2	----	----	----	----
Tin	7440-31-5	5	mg/kg	<5	----	----	----	----
Zinc	7440-66-6	5	mg/kg	**5**	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	----	----	----	----
EK026SF: Total CN by Segmented Flow Analyser								
Total Cyanide	57-12-5	1	mg/kg	<1	----	----	----	----
EK040T: Fluoride Total								
Fluoride	16984-48-8	40	mg/kg	**90**	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	----	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	71-43-2	0.2	mg/kg	<0.2	----	----	----	----
Toluene	108-88-3	0.5	mg/kg	<0.5	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	----	----	----	----
Styrene	100-42-5	0.5	mg/kg	<0.5	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	----	----	----	----
^ **Sum of monocyclic aromatic hydrocarbons**	----	0.2	mg/kg	<0.2	----	----	----	----
^ **Total Xylenes**	1330-20-7	0.5	mg/kg	<0.5	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	B17-68396/3.2	----	----	----	----
			Client sampling date / time	21-Aug-2017 14:15	----	----	----	----
Compound	CAS Number	LOR	Unit	EM1711185-006	--------	--------	--------	--------
				Result	----	----	----	----
EP074H: Naphthalene								
Naphthalene	91-20-3	1	mg/kg	<1	----	----	----	----
EP074I: Volatile Halogenated Compounds								
Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	----	----	----	----
1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	----	----	----	----
Methylene chloride	75-09-2	0.4	mg/kg	<0.4	----	----	----	----
trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	----	----	----	----
cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	----	----	----	----
Chloroform	67-66-3	0.02	mg/kg	<0.02	----	----	----	----
1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	----	----	----	----
Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	----	----	----	----
1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	----	----	----	----
Trichloroethene	79-01-6	0.02	mg/kg	<0.02	----	----	----	----
1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	----	----	----	----
Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	----	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	----	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	----	----	----	----
Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	----	----	----	----
Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	----	----	----	----
1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	----	----	----	----
1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	----	----	----	----
1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	----	----	----	----
^ **Sum of volatile chlorinated hydrocarbons**	----	0.01	mg/kg	<0.01	----	----	----	----
^ **Sum of other chlorinated hydrocarbons**	----	0.01	mg/kg	<0.01	----	----	----	----
EP075A: Phenolic Compounds (Halogenated)								
2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	----	----	----	----
2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	----	----	----	----
2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	----	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	----	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	----	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	----	----	----	----
2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	----	----	----	----
2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg	<0.05	----	----	----	----
Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	----	----	----	----
^ **Sum of Phenols (halogenated)**	----	0.03	mg/kg	<0.03	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B17-68396/3.2	----	----	----	----
				Client sampling date / time	21-Aug-2017 14:15	----	----	----	----
Compound	CAS Number	LOR	Unit		EM1711185-006	--------	--------	--------	--------
					Result	----	----	----	----
EP075A: Phenolic Compounds (Halogenated) - Continued									
EP075A: Phenolic Compounds (Non-halogenated)									
Phenol	108-95-2	1	mg/kg		<1	----	----	----	----
2-Methylphenol	95-48-7	1	mg/kg		<1	----	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	----	----	----	----
2-Nitrophenol	88-75-5	1	mg/kg		<1	----	----	----	----
2.4-Dimethylphenol	105-67-9	1	mg/kg		<1	----	----	----	----
2.4-Dinitrophenol	51-28-5	5	mg/kg		<5	----	----	----	----
4-Nitrophenol	100-02-7	5	mg/kg		<5	----	----	----	----
2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg		<5	----	----	----	----
Dinoseb	88-85-7	5	mg/kg		<5	----	----	----	----
2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg		<5	----	----	----	----
^ Sum of Phenols (non-halogenated)	----	1	mg/kg		<1	----	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	----	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	----	----	----	----
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg		<0.5	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		0.6	----	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		1.2	----	----	----	----
EP075I: Organochlorine Pesticides									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B17-68396/3.2	----	----	----	----
				Client sampling date / time	21-Aug-2017 14:15	----	----	----	----
Compound	CAS Number	LOR	Unit		EM1711185-006	--------	--------	--------	--------
					Result	----	----	----	----
EP075l: Organochlorine Pesticides - Continued									
alpha-BHC	319-84-6	0.03	mg/kg		<0.03	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg		<0.03	----	----	----	----
beta-BHC	319-85-7	0.03	mg/kg		<0.03	----	----	----	----
gamma-BHC	58-89-9	0.03	mg/kg		<0.03	----	----	----	----
delta-BHC	319-86-8	0.03	mg/kg		<0.03	----	----	----	----
Heptachlor	76-44-8	0.03	mg/kg		<0.03	----	----	----	----
Aldrin	309-00-2	0.03	mg/kg		<0.03	----	----	----	----
Heptachlor epoxide	1024-57-3	0.03	mg/kg		<0.03	----	----	----	----
cis-Chlordane	5103-71-9	0.03	mg/kg		<0.03	----	----	----	----
trans-Chlordane	5103-74-2	0.03	mg/kg		<0.03	----	----	----	----
Endosulfan 1	959-98-8	0.03	mg/kg		<0.03	----	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	----	----	----	----
Dieldrin	60-57-1	0.03	mg/kg		<0.03	----	----	----	----
Endrin aldehyde	7421-93-4	0.03	mg/kg		<0.03	----	----	----	----
Endrin	72-20-8	0.03	mg/kg		<0.03	----	----	----	----
Endosulfan 2	33213-65-9	0.03	mg/kg		<0.03	----	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	----	----	----	----
Endosulfan sulfate	1031-07-8	0.03	mg/kg		<0.03	----	----	----	----
4.4`-DDT	50-29-3	0.05	mg/kg		<0.05	----	----	----	----
Methoxychlor	72-43-5	0.03	mg/kg		<0.03	----	----	----	----
^ Sum of organochlorine pesticides	----	0.03	mg/kg		<0.03	----	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.03	mg/kg		<0.03	----	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	----	----	----	----
^ Chlordane	57-74-9	0.03	mg/kg		<0.03	----	----	----	----
^ Sum of other organochlorine pesticides	----	0.03	mg/kg		<0.03	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	----	----	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	----	----	----	----
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
>C10 - C16 Fraction	----	50	mg/kg		<50	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B17-68396/3.2	----	----	----	----
				Client sampling date / time	21-Aug-2017 14:15	----	----	----	----
Compound	CAS Number	LOR	Unit		EM1711185-006	--------	--------	--------	--------
					Result	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C16 - C34 Fraction	----	100	mg/kg		<100	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	----	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		<50	----	----	----	----
>C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	----	----	----	----
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	----	----	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**90.4**	----	----	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		**76.1**	----	----	----	----
Toluene-D8	2037-26-5	0.1	%		**69.6**	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%		**70.4**	----	----	----	----
EP075S: Acid Extractable Surrogates									
Phenol-d6	13127-88-3	0.025	%		**117**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.025	%		**108**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	0.025	%		**107**	----	----	----	----
EP075T: Base/Neutral Extractable Surrogates									
Nitrobenzene-D5	4165-60-0	0.025	%		**110**	----	----	----	----
1.2-Dichlorobenzene-D4	2199-69-1	0.025	%		**105**	----	----	----	----
2-Fluorobiphenyl	321-60-8	0.025	%		**110**	----	----	----	----
Anthracene-d10	1719-06-8	0.025	%		**126**	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.025	%		**128**	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	B17-68396 Rinsate	EM1705381 2/5/17	----	----	----
				Client sampling date / time	21-Aug-2017 14:30	21-Aug-2017 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EM1711185-007	EM1711185-008	--------	--------	--------
					Result	Result	----	----	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L		<0.001	----	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	----	----	----	----
Molybdenum	7439-98-7	0.001	mg/L		<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		<0.001	----	----	----	----
Selenium	7782-49-2	0.01	mg/L		<0.01	----	----	----	----
Silver	7440-22-4	0.001	mg/L		<0.001	----	----	----	----
Tin	7440-31-5	0.001	mg/L		<0.001	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		<0.005	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		----	<20	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		----	<20	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L		----	<20	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		----	<1	----	----	----
Toluene	108-88-3	2	µg/L		----	<2	----	----	----
Ethylbenzene	100-41-4	2	µg/L		----	<2	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		----	<2	----	----	----
ortho-Xylene	95-47-6	2	µg/L		----	<2	----	----	----
^ **Total Xylenes**	1330-20-7	2	µg/L		----	<2	----	----	----
^ **Sum of BTEX**	----	1	µg/L		----	<1	----	----	----
Naphthalene	91-20-3	5	µg/L		----	<5	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		----	**94.2**	----	----	----
Toluene-D8	2037-26-5	2	%		----	**83.9**	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		----	**100**	----	----	----

Surrogate Control Limits

Sub-Matrix: **SOIL**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	41	122
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	59	119
Toluene-D8	2037-26-5	55	117
4-Bromofluorobenzene	460-00-4	59	123
EP075S: Acid Extractable Surrogates			
Phenol-d6	13127-88-3	28	134
2-Chlorophenol-D4	93951-73-6	27	123
2.4.6-Tribromophenol	118-79-6	25	149
EP075T: Base/Neutral Extractable Surrogates			
Nitrobenzene-D5	4165-60-0	29	125
1.2-Dichlorobenzene-D4	2199-69-1	31	117
2-Fluorobiphenyl	321-60-8	44	136
Anthracene-d10	1719-06-8	53	133
4-Terphenyl-d14	1718-51-0	59	141

Sub-Matrix: **WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	129
Toluene-D8	2037-26-5	70	125
4-Bromofluorobenzene	460-00-4	71	129

Automated Guideline Comparison Report

EPA Victoria Publication IWRG 621 (2009) - Table 2: Soil Hazard Categorisation

Work Order	: **EM1711185**	Page	: 1 of 14
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLIVIA HENDERSON		
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Facsimile	: +61 03 9861 1144	Facsimile	: +61-3-8549 9601
Project	: 2135645A	Date Received	: 21-Aug-2017 17:00
Order number	: ----	Date Analysed	: 22-Aug-2017
C-O-C number	: 85413	Date Issued	: 25-Aug-2017 13:35
No. of samples received	: 8		
No. of samples analysed	: 8	Quote number	: ME-525-16

General Comments

This guideline comparison report **only** provides evaluation of total concentration data against upper limit thresholds for the 'Fill Material', 'C', 'B' Categories in Table 2 of EPA Publication IWRG621.

This guideline comparison report is **NOT** a soil classification report. Classification of soils as Fill Material, Category C, Category B or Category A requires consideration of a number of other factors including preliminary site investigation, sampling density and statistical calculations, as set out in EPA Publication IWRG 702.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

This guideline comparison report only provides evaluation data where chemical parameters specifically listed within the IWRG621 (2009) guideline are analysed by ALS using the **P-16 package in full**.

Red shading is applied where the result is equal to or greater than the guideline upper limit and/or equal to or lower than the guideline lower limit. Red shading is not applied to the 'Summary of Thresholds Reached or Exceeded'.

For the 'Summary of Thresholds Reached or Exceeded' to accurately function, all samples must be analysed and included in the 'Analytical Results' section of the following report. Please verify that all required IDs are listed and analysed.

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Summary of Thresholds Reached or Exceeded

Results for all samples detailed in this report are below the upper threshold limits for Fill Material.

Analytical Results

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B: Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	B17-68396/0.1 21-Aug-2017 13:30 EM1711185-001	B17-68396/0.5 21-Aug-2017 13:30 EM1711185-002	B17-68396/0.9 21-Aug-2017 13:35 EM1711185-003	B17-68396/1.9 21-Aug-2017 13:40 EM1711185-004	B17-68396/2.4 21-Aug-2017 14:00 EM1711185-005
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	2	12.5	**6.3**	**6.5**	**7.0**	**6.7**	**6.3**
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	2000	<5	<5	<5	<5	**8**
Cadmium	EG005T	1	mg/kg	----	400	<1	<1	<1	<1	<1
Copper	EG005T	5	mg/kg	----	20000	<5	<5	<5	<5	<5
Lead	EG005T	5	mg/kg	----	6000	**7**	<5	**5**	**6**	**9**
Molybdenum	EG005T	2	mg/kg	----	4000	<2	<2	<2	<2	<2
Nickel	EG005T	2	mg/kg	----	12000	<2	<2	<2	**2**	**3**
Selenium	EG005T	5	mg/kg	----	200	<5	<5	<5	<5	<5
Silver	EG005T	2	mg/kg	----	720	<2	<2	<2	<2	<2
Zinc	EG005T	5	mg/kg	----	140000	**15**	<5	**8**	**10**	**16**
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	300	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	2000	<0.5	<0.5	<0.5	<0.5	<0.5
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	10000	<1	<1	<1	<1	<1
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	40000	**50**	**90**	**260**	**160**	**110**
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	16	<0.2	<0.2	<0.2	<0.2	<0.2
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	240	<0.2	<0.2	<0.2	<0.2	<0.2
EP074I: Volatile Halogenated Compounds										
Vinyl chloride	EP074-UT	0.02	mg/kg	----	4.8	<0.02	<0.02	<0.02	<0.02	<0.02
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	11	<0.02	<0.02	<0.02	<0.02	<0.02
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	50	<0.01	<0.01	<0.01	<0.01	<0.01
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	320	<0.03	<0.03	<0.03	<0.03	<0.03
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	2200	<1	<1	<1	<1	<1
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	20	<0.5	<0.5	<0.5	<0.5	<0.5

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B: Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	B17-68396/0.1	B17-68396/0.5	B17-68396/0.9	B17-68396/1.9	B17-68396/2.4
Client sample ID										
Sampling date/time						21-Aug-2017 13:30	21-Aug-2017 13:30	21-Aug-2017 13:35	21-Aug-2017 13:40	21-Aug-2017 14:00
						EM1711185-001	EM1711185-002	EM1711185-003	EM1711185-004	EM1711185-005
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	400	<0.5	<0.5	<0.5	<0.5	<0.5
EP075I: Organochlorine Pesticides										
Heptachlor	EP075-EM	0.03	mg/kg	----	4.8	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	4.8	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50	<0.05	<0.05	<0.05	<0.05	<0.05
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	16	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	50	<0.03	<0.03	<0.03	<0.03	<0.03
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	2600	<10	<10	<10	<10	<10
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	40000	<50	<50	<50	<50	<50

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category C: Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

			Client sample ID			**B17-68396/0.1**	**B17-68396/0.5**	**B17-68396/0.9**	**B17-68396/1.9**	**B17-68396/2.4**
			Sampling date/time	Guideline	Guideline	21-Aug-2017 13:30	21-Aug-2017 13:30	21-Aug-2017 13:35	21-Aug-2017 13:40	21-Aug-2017 14:00
Compound	*Method*	*LOR*	*Unit*	Lower Limit	Upper Limit	**EM1711185-001**	**EM1711185-002**	**EM1711185-003**	**EM1711185-004**	**EM1711185-005**
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	4	9	**6.3**	**6.5**	**7.0**	**6.7**	**6.3**
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	500	<5	<5	<5	<5	**8**
Cadmium	EG005T	1	mg/kg	----	100	<1	<1	<1	<1	<1
Copper	EG005T	5	mg/kg	----	5000	<5	<5	<5	<5	<5
Lead	EG005T	5	mg/kg	----	1500	**7**	<5	**5**	**6**	**9**
Molybdenum	EG005T	2	mg/kg	----	1000	<2	<2	<2	<2	<2
Nickel	EG005T	2	mg/kg	----	3000	<2	<2	<2	**2**	**3**
Selenium	EG005T	5	mg/kg	----	50	<5	<5	<5	<5	<5
Silver	EG005T	2	mg/kg	----	180	<2	<2	<2	<2	<2
Tin	EG005T	5	mg/kg	----	500	<5	<5	<5	<5	<5
Zinc	EG005T	5	mg/kg	----	35000	**15**	<5	**8**	**10**	**16**
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	75	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	500	<0.5	<0.5	<0.5	<0.5	<0.5
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	2500	<1	<1	<1	<1	<1
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	10000	**50**	**90**	**260**	**160**	**110**
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	4	<0.2	<0.2	<0.2	<0.2	<0.2
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	70	<0.2	<0.2	<0.2	<0.2	<0.2
EP074I: Volatile Halogenated Compounds										
Vinyl chloride	EP074-UT	0.02	mg/kg	----	1.2	<0.02	<0.02	<0.02	<0.02	<0.02
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	2.8	<0.02	<0.02	<0.02	<0.02	<0.02
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	10	<0.01	<0.01	<0.01	<0.01	<0.01
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	10	<0.03	<0.03	<0.03	<0.03	<0.03
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	560	<1	<1	<1	<1	<1
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	5	<0.5	<0.5	<0.5	<0.5	<0.5

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category C: Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	**B17-68396/0.1** 21-Aug-2017 13:30 **EM1711185-001**	**B17-68396/0.5** 21-Aug-2017 13:30 **EM1711185-002**	**B17-68396/0.9** 21-Aug-2017 13:35 **EM1711185-003**	**B17-68396/1.9** 21-Aug-2017 13:40 **EM1711185-004**	**B17-68396/2.4** 21-Aug-2017 14:00 **EM1711185-005**
Client sample ID										
Sampling date/time										
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	100	<0.5	<0.5	<0.5	<0.5	<0.5
EP075I: Organochlorine Pesticides										
Heptachlor	EP075-EM	0.03	mg/kg	----	1.2	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	1.2	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50	<0.05	<0.05	<0.05	<0.05	<0.05
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	4	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	10	<0.03	<0.03	<0.03	<0.03	<0.03
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	650	<10	<10	<10	<10	<10
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	10000	<50	<50	<50	<50	<50

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material: Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

				Client sample ID		B17-68396/0.1	B17-68396/0.5	B17-68396/0.9	B17-68396/1.9	B17-68396/2.4
				Sampling date/time		21-Aug-2017 13:30	21-Aug-2017 13:30	21-Aug-2017 13:35	21-Aug-2017 13:40	21-Aug-2017 14:00
Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	EM1711185-001	EM1711185-002	EM1711185-003	EM1711185-004	EM1711185-005
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	4	9	**6.3**	**6.5**	**7.0**	**6.7**	**6.3**
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	20	<5	<5	<5	<5	**8**
Cadmium	EG005T	1	mg/kg	----	3	<1	<1	<1	<1	<1
Copper	EG005T	5	mg/kg	----	100	<5	<5	<5	<5	<5
Lead	EG005T	5	mg/kg	----	300	**7**	<5	**5**	**6**	**9**
Molybdenum	EG005T	2	mg/kg	----	40	<2	<2	<2	<2	<2
Nickel	EG005T	2	mg/kg	----	60	<2	<2	<2	**2**	**3**
Selenium	EG005T	5	mg/kg	----	10	<5	<5	<5	<5	<5
Silver	EG005T	2	mg/kg	----	10	<2	<2	<2	<2	<2
Tin	EG005T	5	mg/kg	----	50	<5	<5	<5	<5	<5
Zinc	EG005T	5	mg/kg	----	200	**15**	<5	**8**	**10**	**16**
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	1	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	1	<0.5	<0.5	<0.5	<0.5	<0.5
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	50	<1	<1	<1	<1	<1
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	450	**50**	**90**	**260**	**160**	**110**
EP066: Polychlorinated Biphenyls (PCB)										
Total Polychlorinated biphenyls	EP066-EM	0.1	mg/kg	----	2	<0.1	<0.1	<0.1	<0.1	<0.1
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	1	<0.2	<0.2	<0.2	<0.2	<0.2
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	7	<0.2	<0.2	<0.2	<0.2	<0.2
EP074I: Volatile Halogenated Compounds										
Sum of volatile chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	1	<0.01	<0.01	<0.01	<0.01	<0.01
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	1	<0.03	<0.03	<0.03	<0.03	<0.03
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	60	<1	<1	<1	<1	<1
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	1	<0.5	<0.5	<0.5	<0.5	<0.5

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material: Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	**B17-68396/0.1** 21-Aug-2017 13:30 **EM1711185-001**	**B17-68396/0.5** 21-Aug-2017 13:30 **EM1711185-002**	**B17-68396/0.9** 21-Aug-2017 13:35 **EM1711185-003**	**B17-68396/1.9** 21-Aug-2017 13:40 **EM1711185-004**	**B17-68396/2.4** 21-Aug-2017 14:00 **EM1711185-005**
Client sample ID / *Sampling date/time*										
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	20	<0.5	<0.5	<0.5	<0.5	<0.5
EP075I: Organochlorine Pesticides										
Sum of organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	1	<0.03	<0.03	<0.03	<0.03	<0.03
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	100	<10	<10	<10	<10	<10
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	1000	<50	<50	<50	<50	<50

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B: Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

				Client sample ID	Guideline	Guideline	**B17-68396/3.2**	----	----	----	----
				Sampling date/time			21-Aug-2017 14:15	----	----	----	----
Compound	*Method*	*LOR*	*Unit*		Lower Limit	Upper Limit	**EM1711185-006**	--------	--------	--------	--------
EA001: pH in soil using 0.01M CaCl extract											
pH (CaCl2)	EA001	0.1	pH Unit		2	12.5	**6.5**	----	----	----	----
EG005T: Total Metals by ICP-AES											
Arsenic	EG005T	5	mg/kg		----	2000	<5	----	----	----	----
Cadmium	EG005T	1	mg/kg		----	400	<1	----	----	----	----
Copper	EG005T	5	mg/kg		----	20000	<5	----	----	----	----
Lead	EG005T	5	mg/kg		----	6000	<5	----	----	----	----
Molybdenum	EG005T	2	mg/kg		----	4000	**7**	----	----	----	----
Nickel	EG005T	2	mg/kg		----	12000	<2	----	----	----	----
Selenium	EG005T	5	mg/kg		----	200	<5	----	----	----	----
Silver	EG005T	2	mg/kg		----	720	<2	----	----	----	----
Zinc	EG005T	5	mg/kg		----	140000	**5**	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS											
Mercury	EG035T	0.1	mg/kg		----	300	<0.1	----	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)											
Hexavalent Chromium	EG048G	0.5	mg/kg		----	2000	<0.5	----	----	----	----
EK026SF: Total CN by Segmented Flow Analyser											
Total Cyanide	EK026SF	1	mg/kg		----	10000	<1	----	----	----	----
EK040T: Fluoride Total											
Fluoride	EK040T	40	mg/kg		----	40000	**90**	----	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons											
Benzene	EP074-UT	0.2	mg/kg		----	16	<0.2	----	----	----	----
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg		----	240	<0.2	----	----	----	----
EP074I: Volatile Halogenated Compounds											
Vinyl chloride	EP074-UT	0.02	mg/kg		----	4.8	<0.02	----	----	----	----
Hexachlorobutadiene	EP074-UT	0.02	mg/kg		----	11	<0.02	----	----	----	----
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg		----	50	<0.01	----	----	----	----
EP075A: Phenolic Compounds (Halogenated)											
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg		----	320	<0.03	----	----	----	----
EP075A: Phenolic Compounds (Non-halogenated)											
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg		----	2200	<1	----	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons											
Benzo(a)pyrene	EP075-EM	0.5	mg/kg		----	20	<0.5	----	----	----	----
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg		----	400	<0.5	----	----	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B: Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	*Client sample ID* / *Sampling date/time*				
						B17-68396/3.2	**----**	**----**	**----**	**----**
						21-Aug-2017 14:15	----	----	----	----
						EM1711185-006	**--------**	**--------**	**--------**	**--------**
EP075I: Organochlorine Pesticides										
Heptachlor	EP075-EM	0.03	mg/kg	----	4.8	<0.03	**----**	**----**	**----**	**----**
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	4.8	<0.03	**----**	**----**	**----**	**----**
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50	<0.05	**----**	**----**	**----**	**----**
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	16	<0.03	**----**	**----**	**----**	**----**
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	50	<0.03	**----**	**----**	**----**	**----**
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	2600	<10	**----**	**----**	**----**	**----**
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	40000	<50	**----**	**----**	**----**	**----**

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category C: Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

				Client sample ID	Guideline	Guideline	**B17-68396/3.2**	----	----	----	----
				Sampling date/time			21-Aug-2017 14:15	----	----	----	----
Compound	*Method*	*LOR*	*Unit*		Lower Limit	Upper Limit	**EM1711185-006**	--------	--------	--------	--------
EA001: pH in soil using 0.01M CaCl extract											
pH (CaCl2)	EA001	0.1	pH Unit		4	9	**6.5**	----	----	----	----
EG005T: Total Metals by ICP-AES											
Arsenic	EG005T	5	mg/kg		----	500	<5	----	----	----	----
Cadmium	EG005T	1	mg/kg		----	100	<1	----	----	----	----
Copper	EG005T	5	mg/kg		----	5000	<5	----	----	----	----
Lead	EG005T	5	mg/kg		----	1500	<5	----	----	----	----
Molybdenum	EG005T	2	mg/kg		----	1000	**7**	----	----	----	----
Nickel	EG005T	2	mg/kg		----	3000	<2	----	----	----	----
Selenium	EG005T	5	mg/kg		----	50	<5	----	----	----	----
Silver	EG005T	2	mg/kg		----	180	<2	----	----	----	----
Tin	EG005T	5	mg/kg		----	500	<5	----	----	----	----
Zinc	EG005T	5	mg/kg		----	35000	**5**	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS											
Mercury	EG035T	0.1	mg/kg		----	75	<0.1	----	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)											
Hexavalent Chromium	EG048G	0.5	mg/kg		----	500	<0.5	----	----	----	----
EK026SF: Total CN by Segmented Flow Analyser											
Total Cyanide	EK026SF	1	mg/kg		----	2500	<1	----	----	----	----
EK040T: Fluoride Total											
Fluoride	EK040T	40	mg/kg		----	10000	**90**	----	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons											
Benzene	EP074-UT	0.2	mg/kg		----	4	<0.2	----	----	----	----
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg		----	70	<0.2	----	----	----	----
EP074I: Volatile Halogenated Compounds											
Vinyl chloride	EP074-UT	0.02	mg/kg		----	1.2	<0.02	----	----	----	----
Hexachlorobutadiene	EP074-UT	0.02	mg/kg		----	2.8	<0.02	----	----	----	----
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg		----	10	<0.01	----	----	----	----
EP075A: Phenolic Compounds (Halogenated)											
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg		----	10	<0.03	----	----	----	----
EP075A: Phenolic Compounds (Non-halogenated)											
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg		----	560	<1	----	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons											
Benzo(a)pyrene	EP075-EM	0.5	mg/kg		----	5	<0.5	----	----	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category C: Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	*Client sample ID* / *Sampling date/time*	Guideline Lower Limit	Guideline Upper Limit	**B17-68396/3.2** / 21-Aug-2017 14:15 / **EM1711185-006**	---- / ---- / --------	---- / ---- / --------	---- / ---- / --------	---- / ---- / --------
EP075B: Polynuclear Aromatic Hydrocarbons - Continued											
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg		----	100	<0.5	----	----	----	----
EP075I: Organochlorine Pesticides											
Heptachlor	EP075-EM	0.03	mg/kg		----	1.2	<0.03	----	----	----	----
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg		----	1.2	<0.03	----	----	----	----
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg		----	50	<0.05	----	----	----	----
Chlordane	EP075-EM-SUM	0.03	mg/kg		----	4	<0.03	----	----	----	----
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg		----	10	<0.03	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons											
C6 - C9 Fraction	EP074-UT	10	mg/kg		----	650	<10	----	----	----	----
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg		----	10000	<50	----	----	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material: Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

				Client sample ID	Guideline	Guideline	**B17-68396/3.2**	----	----	----	----
				Sampling date/time			21-Aug-2017 14:15	----	----	----	----
Compound	*Method*	*LOR*	*Unit*		Lower Limit	Upper Limit	**EM1711185-006**	--------	--------	--------	--------
EA001: pH in soil using 0.01M CaCl extract											
pH (CaCl2)	EA001	0.1	pH Unit		4	9	**6.5**	----	----	----	----
EG005T: Total Metals by ICP-AES											
Arsenic	EG005T	5	mg/kg		----	20	<5	----	----	----	----
Cadmium	EG005T	1	mg/kg		----	3	<1	----	----	----	----
Copper	EG005T	5	mg/kg		----	100	<5	----	----	----	----
Lead	EG005T	5	mg/kg		----	300	<5	----	----	----	----
Molybdenum	EG005T	2	mg/kg		----	40	**7**	----	----	----	----
Nickel	EG005T	2	mg/kg		----	60	<2	----	----	----	----
Selenium	EG005T	5	mg/kg		----	10	<5	----	----	----	----
Silver	EG005T	2	mg/kg		----	10	<2	----	----	----	----
Tin	EG005T	5	mg/kg		----	50	<5	----	----	----	----
Zinc	EG005T	5	mg/kg		----	200	**5**	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS											
Mercury	EG035T	0.1	mg/kg		----	1	<0.1	----	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)											
Hexavalent Chromium	EG048G	0.5	mg/kg		----	1	<0.5	----	----	----	----
EK026SF: Total CN by Segmented Flow Analyser											
Total Cyanide	EK026SF	1	mg/kg		----	50	<1	----	----	----	----
EK040T: Fluoride Total											
Fluoride	EK040T	40	mg/kg		----	450	**90**	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)											
Total Polychlorinated biphenyls	EP066-EM	0.1	mg/kg		----	2	<0.1	----	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons											
Benzene	EP074-UT	0.2	mg/kg		----	1	<0.2	----	----	----	----
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg		----	7	<0.2	----	----	----	----
EP074I: Volatile Halogenated Compounds											
Sum of volatile chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg		----	1	<0.01	----	----	----	----
EP075A: Phenolic Compounds (Halogenated)											
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg		----	1	<0.03	----	----	----	----
EP075A: Phenolic Compounds (Non-halogenated)											
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg		----	60	<1	----	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons											
Benzo(a)pyrene	EP075-EM	0.5	mg/kg		----	1	<0.5	----	----	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material: Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	*Client sample ID* / *Sampling date/time* / EM1711185-006	---- / ---- / --------	---- / ---- / --------	---- / ---- / --------	---- / ---- / --------
						B17-68396/3.2	**----**	**----**	**----**	**----**
						21-Aug-2017 14:15	----	----	----	----
						EM1711185-006	**--------**	**--------**	**--------**	**--------**
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	20	<0.5	**----**	**----**	**----**	**----**
EP075I: Organochlorine Pesticides										
Sum of organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	1	<0.03	**----**	**----**	**----**	**----**
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	100	<10	**----**	**----**	**----**	**----**
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	1000	<50	**----**	**----**	**----**	**----**

Note: Red shading is applied where the result is equal to or greater than the guideline upper limit and/or equal to or lower than the guideline lower limit.

QUALITY CONTROL REPORT

Work Order	: **EM1711185**	Page	: 1 of 14
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLIVIA HENDERSON	Contact	: Steven McGrath
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9600
Project	: 2135645A	Date Samples Received	: 21-Aug-2017
Order number	: ----	Date Analysis Commenced	: 22-Aug-2017
C-O-C number	: 85413	Issue Date	: 25-Aug-2017
Sampler	: ----		
Site	: Dingley Village		
Quote number	: ME-525-16		
No. of samples received	: 8		
No. of samples analysed	: 8		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA001: pH in soil using 0.01M CaCl extract (QC Lot: 1070238)									
EM1711076-057	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	7.6	7.7	1.31	0% - 20%
EM1711149-023	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	8.1	8.0	1.24	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1067417)									
EM1711150-018	Anonymous	EA055: Moisture Content	----	1	%	11.3	11.6	2.49	0% - 50%
EM1711150-041	Anonymous	EA055: Moisture Content	----	1	%	16.1	16.4	1.61	0% - 50%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1067418)									
EM1711185-003	B17-68396/0.9	EA055: Moisture Content	----	1	%	12.2	12.3	0.974	0% - 50%
EG005T: Total Metals by ICP-AES (QC Lot: 1067265)									
EM1711149-022	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	24	22	12.5	0% - 50%
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	5	<5	0.00	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Tin	7440-31-5	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	10	8	21.9	No Limit
EM1711185-004	B17-68396/1.9	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	2	3	0.00	No Limit
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG005T: Total Metals by ICP-AES (QC Lot: 1067265) - continued									
EM1711185-004	B17-68396/1.9	EG005T: Lead	7439-92-1	5	mg/kg	6	6	0.00	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Tin	7440-31-5	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	10	9	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1067266)									
EM1711149-022	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EM1711185-004	B17-68396/1.9	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EG048: Hexavalent Chromium (Alkaline Digest) (QC Lot: 1069196)									
EM1711000-001	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1711110-016	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EK026SF: Total CN by Segmented Flow Analyser (QC Lot: 1070166)									
EM1711000-001	Anonymous	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.00	No Limit
EM1711110-016	Anonymous	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.00	No Limit
EK040T: Fluoride Total (QC Lot: 1067079)									
EM1711154-001	Anonymous	EK040T: Fluoride	16984-48-8	40	mg/kg	200	200	0.00	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 1067196)									
EM1711185-001	B17-68396/0.1	EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 1066918)									
EM1711154-001	Anonymous	EP074-UT: Benzene	71-43-2	0.2	mg/kg	0.2	0.2	0.00	No Limit
		EP074-UT: Toluene	108-88-3	0.5	mg/kg	8.8	9.0	2.50	0% - 50%
		EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	7.0	7.2	2.23	0% - 50%
		EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	27.0	27.6	2.26	0% - 20%
		EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	9.9	10.1	2.26	0% - 20%
EP074H: Naphthalene (QC Lot: 1066918)									
EM1711154-001	Anonymous	EP074-UT: Naphthalene	91-20-3	1	mg/kg	3	3	0.00	No Limit
EP074I: Volatile Halogenated Compounds (QC Lot: 1066918)									
EM1711154-001	Anonymous	EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074I: Volatile Halogenated Compounds (QC Lot: 1066918) - continued									
EM1711154-001	Anonymous	EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	<0.04	0.00	No Limit
		EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	<0.4	0.00	No Limit
EP075A: Phenolic Compounds (Halogenated) (QC Lot: 1067194)									
EM1711185-001	B17-68396/0.1	EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP075A: Phenolic Compounds (Non-halogenated) (QC Lot: 1067194)									
EM1711185-001	B17-68396/0.1	EP075-EM: Phenol	108-95-2	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	0.00	No Limit
EP075B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1067194)									
EM1711185-001	B17-68396/0.1	EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1067194) - continued									
EM1711185-001	B17-68396/0.1	EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP075I: Organochlorine Pesticides (QC Lot: 1067194)									
EM1711185-001	B17-68396/0.1	EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1066918)									
EM1711154-001	Anonymous	EP074-UT: C6 - C9 Fraction	----	10	mg/kg	230	# 281	20.0	0% - 20%
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1067195)									
EM1711185-001	B17-68396/0.1	EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1066918)									
EM1711154-001	Anonymous	EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	286	346	18.8	0% - 20%
		EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	233	# 292	22.4	0% - 20%
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1067195)									
EM1711185-001	B17-68396/0.1	EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1067195) - continued									
EM1711185-001	B17-68396/0.1	EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG020T: Total Metals by ICP-MS (QC Lot: 1067028)									
EM1710189-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.003	0.002	0.00	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.003	0.003	0.00	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.003	0.003	0.00	No Limit
		EG020A-T: Tin	7440-31-5	0.001	mg/L	0.005	0.004	32.4	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.006	<0.005	20.8	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EM1711199-003	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.006	0.006	0.00	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Tin	7440-31-5	0.001	mg/L	0.006	0.004	41.7	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.006	<0.005	0.00	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EG020T: Total Metals by ICP-MS (QC Lot: 1067029)									
EM1711185-007	B17-68396 Rinsate	EG020B-T: Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	0.00	No Limit
EM1711198-005	Anonymous	EG020B-T: Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1069066)									
EM1711074-009	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EM1711212-005	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1069405)									
EM1711215-014	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EM1711150-042	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1069405)									
EM1711215-014	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EM1711150-042	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 1069405)									
EM1711215-014	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080: BTEXN (QC Lot: 1069405) - continued									
EM1711215-014	Anonymous	EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
EM1711150-042	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 1067265)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	91.1	79	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	95.8	85	109
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	93.2	78	108
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	97.5	78	106
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	7.9 mg/kg	106	86	112
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	98.6	82	111
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	97.9	93	109
EG005T: Silver	7440-22-4	2	mg/kg	<2	2.1 mg/kg	93.7	80	108
EG005T: Tin	7440-31-5	5	mg/kg	<5	5.2 mg/kg	106	88	116
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	98.4	82	111
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1067266)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	93.9	77	104
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 1069196)								
EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	40 mg/kg	85.2	80	120
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 1070166)								
EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	20 mg/kg	94.8	80	110
EK040T: Fluoride Total (QCLot: 1067079)								
EK040T: Fluoride	16984-48-8	40	mg/kg	<40	950 mg/kg	90.5	77	106
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 1067196)								
EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	89.8	63	133
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 1066918)								
EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	2.1 mg/kg	83.4	74	118
EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	2.1 mg/kg	85.8	70	118
EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2.1 mg/kg	81.9	69	117
EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4.2 mg/kg	78.9	68	116
EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	2.1 mg/kg	84.5	71	117
EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2.1 mg/kg	82.3	70	116
EP074H: Naphthalene (QCLot: 1066918)								
EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	0.6 mg/kg	87.0	74	116
EP074I: Volatile Halogenated Compounds (QCLot: 1066918)								
EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	0.1 mg/kg	84.6	49	133
EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	0.1 mg/kg	70.9	62	127

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP074I: Volatile Halogenated Compounds (QCLot: 1066918) - continued								
EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	2.1 mg/kg	78.7	65	131
EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	0.1 mg/kg	71.3	68	124
EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	0.1 mg/kg	76.1	74	118
EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	0.1 mg/kg	76.0	72	118
EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	0.1 mg/kg	83.4	67	119
EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	0.1 mg/kg	80.4	65	119
EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	0.1 mg/kg	105	70	122
EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	0.1 mg/kg	81.7	72	124
EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	0.1 mg/kg	95.7	74	122
EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	0.1 mg/kg	82.0	58	120
EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	0.1 mg/kg	90.4	70	119
EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	0.1 mg/kg	99.1	71	125
EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	0.1 mg/kg	69.1	61	125
EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	0.1 mg/kg	84.9	70	122
EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	0.1 mg/kg	82.5	61	118
EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	0.1 mg/kg	87.7	67	117
EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	0.1 mg/kg	75.7	53	127
EP075A: Phenolic Compounds (Halogenated) (QCLot: 1067194)								
EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	2 mg/kg	102	43	119
EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	2 mg/kg	97.0	44	131
EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	2 mg/kg	99.2	43	122
EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	2 mg/kg	99.8	50	129
EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	2 mg/kg	103	44	128
EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	2 mg/kg	96.5	44	126
EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	2 mg/kg	76.5	46	126
EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/5 8-90-2	0.05	mg/kg	<0.05	4 mg/kg	91.5	44	124
EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	4 mg/kg	61.1	36	124
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 1067194)								
EP075-EM: Phenol	108-95-2	1	mg/kg	<1	2 mg/kg	99.5	41	120
EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	2 mg/kg	109	41	131
EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	4 mg/kg	101	43	130
EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	2 mg/kg	87.2	49	130
EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	2 mg/kg	112	37	119
EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	12 mg/kg	63.9	23	125
EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	12 mg/kg	86.5	49	133
EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	12 mg/kg	51.0	47	125
EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	12 mg/kg	53.4	48	123
EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	10 mg/kg	34.0	12	132

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 1067194)								
EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	2 mg/kg	96.3	44	122
EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	2 mg/kg	66.1	54	126
EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	2 mg/kg	93.5	46	126
EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	2 mg/kg	93.4	51	125
EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	2 mg/kg	94.0	57	127
EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	2 mg/kg	114	55	127
EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	2 mg/kg	105	57	131
EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	2 mg/kg	102	57	131
EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	2 mg/kg	88.2	56	132
EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	2 mg/kg	111	58	134
EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	4 mg/kg	70.8	55	133
EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	2 mg/kg	93.6	51	135
EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	2 mg/kg	86.0	55	137
EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	2 mg/kg	82.6	54	136
EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	2 mg/kg	86.7	55	137
EP075I: Organochlorine Pesticides (QCLot: 1067194)								
EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	2 mg/kg	96.6	54	130
EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	2 mg/kg	86.6	54	130
EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	2 mg/kg	99.8	54	134
EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	2 mg/kg	96.8	54	132
EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	2 mg/kg	102	55	131
EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	2 mg/kg	92.5	54	128
EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	2 mg/kg	96.1	54	128
EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	2 mg/kg	93.5	56	130
EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	2 mg/kg	92.8	56	130
EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	2 mg/kg	93.6	55	131
EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	2 mg/kg	94.9	53	133
EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	2 mg/kg	77.7	54	130
EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	2 mg/kg	99.1	57	133
EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	2 mg/kg	106	28	174
EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	2 mg/kg	113	40	148
EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	2 mg/kg	104	56	138
EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	2 mg/kg	106	57	135
EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	2 mg/kg	102	51	133
EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	2 mg/kg	103	51	133
EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	2 mg/kg	110	48	136
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1066918)								
EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	39.6 mg/kg	77.7	69	114

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1067195)								
EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	837 mg/kg	91.8	72	130
EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	3061 mg/kg	91.1	77	126
EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	1592 mg/kg	88.2	75	119
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1066918)								
EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	48.9 mg/kg	77.9	69	112
EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1067195)								
EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	1222 mg/kg	91.9	75	123
EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	3919 mg/kg	90.7	77	127
EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	316 mg/kg	84.8	43	123

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 1067028)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	102	90	110
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	91.8	86	111
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	88.4	87	109
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	93.2	87	108
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	96.1	88	109
EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	98.0	88	114
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	93.2	87	111
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	95.0	85	113
EG020A-T: Tin	7440-31-5	0.001	mg/L	<0.001	0.1 mg/L	106	88	113
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	100	87	113
EG020T: Total Metals by ICP-MS (QCLot: 1067029)								
EG020B-T: Silver	7440-22-4	0.001	mg/L	<0.001	0.02 mg/L	103	78	129
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1069066)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	96.2	81	114
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1069405)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	360 µg/L	80.4	67	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1069405)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	78.4	65	125
EP080: BTEXN (QCLot: 1069405)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	86.6	76	120
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	83.6	76	124
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	87.0	72	124

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080: BTEXN (QCLot: 1069405) - continued								
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	87.1	72	130
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	95.7	78	128
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	72.9	71	129

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG005T: Total Metals by ICP-AES (QCLot: 1067265)							
EM1711149-023	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	108	78	124
		EG005T: Cadmium	7440-43-9	50 mg/kg	98.8	84	116
		EG005T: Copper	7440-50-8	50 mg/kg	85.2	82	124
		EG005T: Lead	7439-92-1	50 mg/kg	87.5	76	124
		EG005T: Molybdenum	7439-98-7	50 mg/kg	96.5	79	117
		EG005T: Nickel	7440-02-0	50 mg/kg	100	78	120
		EG005T: Selenium	7782-49-2	50 mg/kg	84.4	71	125
		EG005T: Zinc	7440-66-6	50 mg/kg	95.8	74	128
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1067266)							
EM1711149-023	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	78.0	76	116
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 1069196)							
EM1711000-006	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	40 mg/kg	86.1	58	114
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 1070166)							
EM1711000-006	Anonymous	EK026SF: Total Cyanide	57-12-5	20 mg/kg	100	77	113
EK040T: Fluoride Total (QCLot: 1067079)							
EM1711185-001	B17-68396/0.1	EK040T: Fluoride	16984-48-8	400 mg/kg	112	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 1067196)							
EM1711185-002	B17-68396/0.5	EP066-EM: Total Polychlorinated biphenyls	----	1 mg/kg	88.0	36	152
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 1066918)							
EM1711185-001	B17-68396/0.1	EP074-UT: Benzene	71-43-2	2 mg/kg	84.9	50	138
		EP074-UT: Toluene	108-88-3	2 mg/kg	82.8	56	134
EP074I: Volatile Halogenated Compounds (QCLot: 1066918)							
EM1711185-001	B17-68396/0.1	EP074-UT: 1.1-Dichloroethene	75-35-4	2 mg/kg	90.9	26	141

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP074I: Volatile Halogenated Compounds (QCLot: 1066918) - continued							
EM1711185-001	B17-68396/0.1	EP074-UT: Trichloroethene	79-01-6	2 mg/kg	82.7	50	134
		EP074-UT: Chlorobenzene	108-90-7	2 mg/kg	89.6	28	134
EP075A: Phenolic Compounds (Halogenated) (QCLot: 1067194)							
EM1711185-003	B17-68396/0.9	EP075-EM: 2-Chlorophenol	95-57-8	1 mg/kg	102	34	118
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	1 mg/kg	78.2	41	139
		EP075-EM: Pentachlorophenol	87-86-5	1 mg/kg	41.4	10	144
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 1067194)							
EM1711185-003	B17-68396/0.9	EP075-EM: Phenol	108-95-2	1 mg/kg	86.0	32	134
		EP075-EM: 2-Nitrophenol	88-75-5	1 mg/kg	71.3	13	129
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 1067194)							
EM1711185-003	B17-68396/0.9	EP075-EM: Acenaphthene	83-32-9	1 mg/kg	98.6	46	138
		EP075-EM: Pyrene	129-00-0	1 mg/kg	118	27	169
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1066918)							
EM1711185-001	B17-68396/0.1	EP074-UT: C6 - C9 Fraction	----	28 mg/kg	64.6	43	111
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1067195)							
EM1711185-004	B17-68396/1.9	EP071-EM: C10 - C14 Fraction	----	837 mg/kg	95.7	53	123
		EP071-EM: C15 - C28 Fraction	----	3061 mg/kg	93.4	70	124
		EP071-EM: C29 - C36 Fraction	----	1592 mg/kg	90.8	64	118
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1066918)							
EM1711185-001	B17-68396/0.1	EP074-UT: C6 - C10 Fraction	C6_C10	33 mg/kg	58.8	42	106
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1067195)							
EM1711185-004	B17-68396/1.9	EP071-EM: >C10 - C16 Fraction	----	1222 mg/kg	94.8	65	123
		EP071-EM: >C16 - C34 Fraction	----	3919 mg/kg	93.1	67	121
		EP071-EM: >C34 - C40 Fraction	----	316 mg/kg	89.8	44	126

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 1067028)							
EM1710189-001	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	105	82	118
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	96.5	75	129
		EG020A-T: Chromium	7440-47-3	1 mg/L	84.1	80	118
		EG020A-T: Copper	7440-50-8	1 mg/L	91.1	81	115
		EG020A-T: Lead	7439-92-1	1 mg/L	89.7	83	121
		EG020A-T: Nickel	7440-02-0	1 mg/L	95.6	80	118
		EG020A-T: Zinc	7440-66-6	1 mg/L	102	74	116
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1069066)							

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1069066) - continued							
EM1711074-010	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	98.0	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1069405)							
EM1711193-001	Anonymous	EP080: C6 - C9 Fraction	----	280 µg/L	75.6	43	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1069405)							
EM1711193-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	330 µg/L	73.5	44	122
EP080: BTEXN (QCLot: 1069405)							
EM1711193-001	Anonymous	EP080: Benzene	71-43-2	20 µg/L	94.5	68	130
		EP080: Toluene	108-88-3	20 µg/L	95.8	72	132

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM1711185**	Page	: 1 of 10
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLIVIA HENDERSON	Telephone	: +61-3-8549 9600
Project	: 2135645A	Date Samples Received	: 21-Aug-2017
Site	: Dingley Village	Issue Date	: 25-Aug-2017
Sampler	: ----	No. of samples received	: 8
Order number	: ----	No. of samples analysed	: 8

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **Duplicate outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Duplicate (DUP) RPDs							
EP080/071: Total Petroleum Hydrocarbons	EM1711154--001	Anonymous	**C6 - C9 Fraction**	----	20.0 %	0% - 20%	**RPD exceeds LOR based limits**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2	EM1711154--001	Anonymous	**C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	22.4 %	0% - 20%	**RPD exceeds LOR based limits**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA001: pH in soil using 0.01M CaCl extract								
Soil Glass Jar - Unpreserved (EA001)								
B17-68396/0.1,	B17-68396/0.5,	**21-Aug-2017**	**24-Aug-2017**	28-Aug-2017	✓	**24-Aug-2017**	24-Aug-2017	✓
B17-68396/0.9,	B17-68396/1.9,							
B17-68396/2.4,	B17-68396/3.2							
EA055: Moisture Content (Dried @ 105-110°C)								
Soil Glass Jar - Unpreserved (EA055)								
B17-68396/0.1,	B17-68396/0.5,	**21-Aug-2017**	**----**	----	----	**22-Aug-2017**	04-Sep-2017	✓
B17-68396/0.9,	B17-68396/1.9,							
B17-68396/2.4,	B17-68396/3.2							
EG005T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T)								
B17-68396/0.1,	B17-68396/0.5,	**21-Aug-2017**	**23-Aug-2017**	17-Feb-2018	✓	**23-Aug-2017**	17-Feb-2018	✓
B17-68396/0.9,	B17-68396/1.9,							
B17-68396/2.4,	B17-68396/3.2							
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T)								
B17-68396/0.1,	B17-68396/0.5,	**21-Aug-2017**	**23-Aug-2017**	18-Sep-2017	✓	**24-Aug-2017**	18-Sep-2017	✓
B17-68396/0.9,	B17-68396/1.9,							
B17-68396/2.4,	B17-68396/3.2							

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG048: Hexavalent Chromium (Alkaline Digest)								
Soil Glass Jar - Unpreserved (EG048G)								
B17-68396/0.1,	B17-68396/0.5,	**21-Aug-2017**	**23-Aug-2017**	18-Sep-2017	✓	**23-Aug-2017**	30-Aug-2017	✓
B17-68396/0.9,	B17-68396/1.9,							
B17-68396/2.4,	B17-68396/3.2							
EK026SF: Total CN by Segmented Flow Analyser								
Soil Glass Jar - Unpreserved (EK026SF)								
B17-68396/0.1,	B17-68396/0.5,	**21-Aug-2017**	**23-Aug-2017**	04-Sep-2017	✓	**24-Aug-2017**	06-Sep-2017	✓
B17-68396/0.9,	B17-68396/1.9,							
B17-68396/2.4,	B17-68396/3.2							
EK040T: Fluoride Total								
Soil Glass Jar - Unpreserved (EK040T)								
B17-68396/0.1,	B17-68396/0.5,	**21-Aug-2017**	**22-Aug-2017**	18-Sep-2017	✓	**24-Aug-2017**	18-Sep-2017	✓
B17-68396/0.9,	B17-68396/1.9,							
B17-68396/2.4,	B17-68396/3.2							
EP066: Polychlorinated Biphenyls (PCB)								
Soil Glass Jar - Unpreserved (EP066-EM)								
B17-68396/0.1,	B17-68396/0.5,	**21-Aug-2017**	**22-Aug-2017**	04-Sep-2017	✓	**23-Aug-2017**	01-Oct-2017	✓
B17-68396/0.9,	B17-68396/1.9,							
B17-68396/2.4,	B17-68396/3.2							
EP074A: Monocyclic Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP074-UT)								
B17-68396/0.1,	B17-68396/0.5,	**21-Aug-2017**	**22-Aug-2017**	28-Aug-2017	✓	**23-Aug-2017**	28-Aug-2017	✓
B17-68396/0.9,	B17-68396/1.9,							
B17-68396/2.4,	B17-68396/3.2							
EP074H: Naphthalene								
Soil Glass Jar - Unpreserved (EP074-UT)								
B17-68396/0.1,	B17-68396/0.5,	**21-Aug-2017**	**22-Aug-2017**	28-Aug-2017	✓	**23-Aug-2017**	28-Aug-2017	✓
B17-68396/0.9,	B17-68396/1.9,							
B17-68396/2.4,	B17-68396/3.2							
EP074I: Volatile Halogenated Compounds								
Soil Glass Jar - Unpreserved (EP074-UT)								
B17-68396/0.1,	B17-68396/0.5,	**21-Aug-2017**	**22-Aug-2017**	28-Aug-2017	✓	**23-Aug-2017**	28-Aug-2017	✓
B17-68396/0.9,	B17-68396/1.9,							
B17-68396/2.4,	B17-68396/3.2							
EP075A: Phenolic Compounds (Halogenated)								
Soil Glass Jar - Unpreserved (EP075-EM)								
B17-68396/0.1,	B17-68396/0.5,	**21-Aug-2017**	**22-Aug-2017**	04-Sep-2017	✓	**23-Aug-2017**	01-Oct-2017	✓
B17-68396/0.9,	B17-68396/1.9,							
B17-68396/2.4,	B17-68396/3.2							

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075A: Phenolic Compounds (Non-halogenated)							
Soil Glass Jar - Unpreserved (EP075-EM)							
B17-68396/0.1, B17-68396/0.5, B17-68396/0.9, B17-68396/1.9, B17-68396/2.4, B17-68396/3.2	**21-Aug-2017**	**22-Aug-2017**	04-Sep-2017	✓	**23-Aug-2017**	01-Oct-2017	✓
EP075B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075-EM)							
B17-68396/0.1, B17-68396/0.5, B17-68396/0.9, B17-68396/1.9, B17-68396/2.4, B17-68396/3.2	**21-Aug-2017**	**22-Aug-2017**	04-Sep-2017	✓	**23-Aug-2017**	01-Oct-2017	✓
EP075I: Organochlorine Pesticides							
Soil Glass Jar - Unpreserved (EP075-EM)							
B17-68396/0.1, B17-68396/0.5, B17-68396/0.9, B17-68396/1.9, B17-68396/2.4, B17-68396/3.2	**21-Aug-2017**	**22-Aug-2017**	04-Sep-2017	✓	**23-Aug-2017**	01-Oct-2017	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074-UT)							
B17-68396/0.1, B17-68396/0.5, B17-68396/0.9, B17-68396/1.9, B17-68396/2.4, B17-68396/3.2	**21-Aug-2017**	**22-Aug-2017**	28-Aug-2017	✓	**23-Aug-2017**	28-Aug-2017	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP074-UT)							
B17-68396/0.1, B17-68396/0.5, B17-68396/0.9, B17-68396/1.9, B17-68396/2.4, B17-68396/3.2	**21-Aug-2017**	**22-Aug-2017**	28-Aug-2017	✓	**23-Aug-2017**	28-Aug-2017	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unspecified (EG020B-T)							
B17-68396 Rinsate	**21-Aug-2017**	**22-Aug-2017**	17-Feb-2018	✓	**23-Aug-2017**	17-Feb-2018	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unspecified (EG035T)							
B17-68396 Rinsate	**21-Aug-2017**	**----**	----	----	**23-Aug-2017**	18-Sep-2017	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP080)							
EM1705381 - 2/5/17	**21-Aug-2017**	**23-Aug-2017**	04-Sep-2017	✓	**24-Aug-2017**	04-Sep-2017	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber VOC Vial - Sulfuric Acid (EP080)							
EM1705381 - 2/5/17	**21-Aug-2017**	**23-Aug-2017**	04-Sep-2017	✓	**24-Aug-2017**	04-Sep-2017	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
EM1705381 - 2/5/17	**21-Aug-2017**	**23-Aug-2017**	04-Sep-2017	✓	**24-Aug-2017**	04-Sep-2017	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	3	25	**12.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	7	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	7	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	7	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Matrix Spikes (MS) - Continued							
Total Fluoride	EK040T	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Total Mercury by FIMS	EG035T	2	10	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	7	**28.57**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite B	EG020B-T	2	2	**100.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	11	**18.18**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Total Mercury by FIMS	EG035T	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite B	EG020B-T	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Total Mercury by FIMS	EG035T	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite B	EG020B-T	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Total Mercury by FIMS	EG035T	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH in soil using a 0.01M CaCl2 extract	EA001	SOIL	In house: Referenced to Rayment and Lyons (2011) 4B3 (mod.) or 4B4 (mod.) 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM (2013) Schedule B(3)
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	SOIL	In house: Referenced to USEPA SW846, Method 3060A. Hexavalent chromium is extracted by alkaline digestion. The digest is determined by photometrically by automatic discrete analyser, following pH adjustment. The instrument uses colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Cyanide by Segmented Flow Analyser	EK026SF	SOIL	In house: Referenced to APHA 4500-CN C / ASTM D7511. Caustic leachates of soil samples are introduced into an automated segmented flow analyser. Complex bound cyanide is decomposed in a continuously flowing stream, at a pH of 3.8, by the effect of UV light. A UV-B lamp (312 nm) and a decomposition spiral of borosilicate glass are used to filter out UV light with a wavelength of less than 290 nm thus preventing the conversion of thiocyanate into cyanide. The hydrogen cyanide present at a pH of 3.8 is separated by gas dialysis. The hydrogen cyanide is then determined photometrically, based on the reaction of cyanide with chloramine-T to form cyanogen chloride. This then reacts with 4-pyridine carboxylic acid and 1,3-dimethylbarbituric acid to give a red colour which is measured at 600 nm. This method is compliant with NEPM (2013) Schedule B(3)
Total Fluoride	EK040T	SOIL	(In-house) Total fluoride is determined by ion specific electrode (ISE) in a solution obtained after a Sodium Carbonate / Potassium Carbonate fusion dissolution.
PCB - VIC EPA 448.3 Screen	EP066-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
TRH - Semivolatile Fraction	EP071-EM	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40.
Volatile Organic Compounds - Ultra-trace	EP074-UT	SOIL	In house: Referenced to USEPA SW 846 - 8260B Extracts are analysed by Purge and Trap, Capillary GC/MS in partial SIM/Scan mode. Quantification is by comparison against an established multi-point calibration curves. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)

Analytical Methods	Method	Matrix	Method Descriptions
Volatile Organic Compounds - Ultra-trace - Summations	EP074-UT-SUM	SOIL	Summation of MAHs and VHCs
Semivolatile Organic Compounds - Waste Classification	EP075-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (2013) Schedule B(3) (Method 502)
SVOC - Waste Classification (Sums)	EP075-EM-SUM	SOIL	Summations for EP075 (EM variation)
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite B	EG020B-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
NaOH leach for CN in Soils	CN-PR	SOIL	In house: APHA 4500 CN. Samples are extracted by end-over-end tumbling with NaOH.
pH in soil using a 0.01M CaCl2 extract	EA001-PR	SOIL	In house: Referenced to Rayment and Higginson 4B1, 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Alkaline digestion for Hexavalent Chromium	EG048PR	SOIL	In house: Referenced to USEPA SW846, Method 3060A.
Total Fluoride	EK040T-PR	SOIL	In house: Samples are fused with Sodium Carbonate / Potassium Carbonate flux.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils - Ultra-trace.	ORG16-UT	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids - VIC EPA Screen	ORG17-EM	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

Preparation Methods	Method	Matrix	Method Descriptions
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

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Yellow Page - Project File Copy
Pink Page - Remains in Book

ABN 80 078 004 798

Adelaide Level 1, 1 King William Street, GPO Box 398 Adelaide SA 5001 Tel: (08) 8405 4300 Fax: (08) 8405 4301

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Newcastle Level 3, 51-55 Bolton Street, Suite 1 PO Box 1162 Newcastle NSW, 2300 Tel: (02) 4929 8300 Fax: (02) 4929 8382

Chain of Custody

Order No: 85413

Job Title: Mordialloc Bypass
PB Job Number: 213564SA
Job Location: Dingley Village
Project Manager: Olivia Henderson

Laboratory Name: ALS
Address: 2-4, Westall Rd
Fax Number:
Phone Number: 8546690
Contact Name: GRAEME
Delivery Method:
Quote Number:

Terms of Business	PB	Other	Checked

Results Expected by/on:
Fax Results to:
Fax Number:
Phone Number:
Spreadsheet of Results Required: (Y) / N
Format: ESDAT PDF
Turnaround Time Required: STD
Invoice to: Olivia Henderson
Comments: 1/1

Date Sampled	Time	Sample I.D.	Container Size	Sample Location	Medium*	Preservative Type	Filtered (X)	TPH	BTEX	PAH's	OC/OP/PCB's	Metals**	IWRG Suite 621	IWRG metals	TPH BTEX	Initials	Comments/Additional Information and/or Analysis Required
21.8.17	1330	B17-68396/0.1	250ml	1									/				
21.8.17	1330	B17-68396/0.5	250ml	2									/				
"	1335	B17-68396/0.9	250ml	3									/				
"	1340	B17-68396/1.9	250ml	4									/				
"	1400	B17-68396/2.4	250ml	5									/				
"	1415	B17-68396/3.2	250ml	6									/				
	1430	B17-68396 Risate	60ml	7										/			
21/8/17		EM1705381		8											/		

Environmental Division
Melbourne
Work Order Reference
EM1711185

Telephone : + 61-3-8549 9600

Relinquished by:	Relinquished by:	Relinquished by:
Paul Physick		
Date & Time: 21.8.17 - 1700	Date & Time:	Date & Time:
Company: WSP	Company:	Company:
Signature:	Signature:	Signature:
Received in Good Order & Condition by (Name): Scott	Received in Good Order & Condition by (Name):	Received in Good Order & Condition by (Name):
Date & Time: 21/8/17, 17.00.	Date & Time:	Date & Time:
Company: ALS	Company:	Company:
Signature:	Signature:	Signature:

Medium*: S = Soil, W = Water, V = Vapour

Legend**: (circle the following to be tested)

Metals: Al As Be Cd Co Cr Cu Fe Hg Li Mg Mn Ni Pb Se Sn V Zn

Samples on Ice: ☐ Yes ☐ No

Please fax back a signed copy when samples are received at the laboratory

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1711253**	Page	: 1 of 9
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLIVIA HENDERSON	Contact	: Steven McGrath
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9600
Project	: 2135645A	Date Samples Received	: 22-Aug-2017 14:15
Order number	: ----	Date Analysis Commenced	: 23-Aug-2017
C-O-C number	: 85414	Issue Date	: 28-Aug-2017 17:48
Sampler	: PP		
Site	: Site 26		
Quote number	: ME-525-16		
No. of samples received	: 5		
No. of samples analysed	: 5		

ilac-MRA NATA
Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Herman Lin	Laboratory Manager	Melbourne Inorganics, Springvale, VIC
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EG020T: EM1711253-001 Total Metal results have been confirmed by re-digestion and re-analysis
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	B17-68399/0.3	B17-68399/0.5	B17-68395/0.1	B17-68395/0.5	----
			Client sampling date / time	22-Aug-2017 11:00	22-Aug-2017 11:00	22-Aug-2017 11:00	22-Aug-2017 11:00	----
Compound	CAS Number	LOR	Unit	EM1711253-002	EM1711253-003	EM1711253-004	EM1711253-005	--------
				Result	Result	Result	Result	----
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	**10.7**	**7.1**	**7.0**	**7.2**	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**10.2**	**18.4**	**11.2**	**9.7**	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	**6**	<5	<5	<5	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	----
Copper	7440-50-8	5	mg/kg	**21**	<5	**7**	**6**	----
Lead	7439-92-1	5	mg/kg	**10**	**7**	**16**	**8**	----
Molybdenum	7439-98-7	2	mg/kg	<2	<2	<2	<2	----
Nickel	7440-02-0	2	mg/kg	**39**	**7**	<2	**2**	----
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	----
Silver	7440-22-4	2	mg/kg	<2	<2	<2	<2	----
Tin	7440-31-5	5	mg/kg	<5	<5	<5	<5	----
Zinc	7440-66-6	5	mg/kg	**77**	**6**	**18**	**13**	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	**0.4**	**0.1**	----
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
EK026SF: Total CN by Segmented Flow Analyser								
Total Cyanide	57-12-5	1	mg/kg	<1	<1	<1	<1	----
EK040T: Fluoride Total								
Fluoride	16984-48-8	40	mg/kg	**460**	**210**	**70**	**80**	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	----
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
^ Sum of monocyclic aromatic hydrocarbons	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B17-68399/0.3	B17-68399/0.5	B17-68395/0.1	B17-68395/0.5	----
				Client sampling date / time	22-Aug-2017 11:00	22-Aug-2017 11:00	22-Aug-2017 11:00	22-Aug-2017 11:00	----
Compound	CAS Number	LOR	Unit		EM1711253-002	EM1711253-003	EM1711253-004	EM1711253-005	--------
					Result	Result	Result	Result	----
EP074H: Naphthalene									
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	----
EP074I: Volatile Halogenated Compounds									
Vinyl chloride	75-01-4	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	----
1.1-Dichloroethene	75-35-4	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	----
Methylene chloride	75-09-2	0.4	mg/kg		<0.4	<0.4	<0.4	<0.4	----
trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	----
cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	----
Chloroform	67-66-3	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	----
1.1.1-Trichloroethane	71-55-6	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	----
Carbon Tetrachloride	56-23-5	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	----
1.2-Dichloroethane	107-06-2	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	----
Trichloroethene	79-01-6	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	----
1.1.2-Trichloroethane	79-00-5	0.04	mg/kg		<0.04	<0.04	<0.04	<0.04	----
Tetrachloroethene	127-18-4	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	----
1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	----
1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	----
Hexachlorobutadiene	87-68-3	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	----
Chlorobenzene	108-90-7	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	----
1.4-Dichlorobenzene	106-46-7	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	----
1.2-Dichlorobenzene	95-50-1	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	----
1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	----
^ Sum of volatile chlorinated hydrocarbons	----	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	----
^ Sum of other chlorinated hydrocarbons	----	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	----
EP075A: Phenolic Compounds (Halogenated)									
2-Chlorophenol	95-57-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	----
2.4-Dichlorophenol	120-83-2	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	----
2.6-Dichlorophenol	87-65-0	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	----
4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	----
2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	----
2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Pentachlorophenol	87-86-5	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	----
^ Sum of Phenols (halogenated)	----	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B17-68399/0.3	B17-68399/0.5	B17-68395/0.1	B17-68395/0.5	----
				Client sampling date / time	22-Aug-2017 11:00	22-Aug-2017 11:00	22-Aug-2017 11:00	22-Aug-2017 11:00	----
Compound	CAS Number	LOR	Unit		EM1711253-002	EM1711253-003	EM1711253-004	EM1711253-005	--------
					Result	Result	Result	Result	----
EP075A: Phenolic Compounds (Halogenated) - Continued									
EP075A: Phenolic Compounds (Non-halogenated)									
Phenol	108-95-2	1	mg/kg		<1	<1	<1	<1	----
2-Methylphenol	95-48-7	1	mg/kg		<1	<1	<1	<1	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	<1	<1	----
2-Nitrophenol	88-75-5	1	mg/kg		<1	<1	<1	<1	----
2.4-Dimethylphenol	105-67-9	1	mg/kg		<1	<1	<1	<1	----
2.4-Dinitrophenol	51-28-5	5	mg/kg		<5	<5	<5	<5	----
4-Nitrophenol	100-02-7	5	mg/kg		<5	<5	<5	<5	----
2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg		<5	<5	<5	<5	----
Dinoseb	88-85-7	5	mg/kg		<5	<5	<5	<5	----
2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg		<5	<5	<5	<5	----
^ Sum of Phenols (non-halogenated)	----	1	mg/kg		<1	<1	<1	<1	----
EP075B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	**0.6**	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**1.2**	----
EP075I: Organochlorine Pesticides									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B17-68399/0.3	B17-68399/0.5	B17-68395/0.1	B17-68395/0.5	----
				Client sampling date / time	22-Aug-2017 11:00	22-Aug-2017 11:00	22-Aug-2017 11:00	22-Aug-2017 11:00	----
Compound	CAS Number	LOR	Unit		EM1711253-002	EM1711253-003	EM1711253-004	EM1711253-005	--------
					Result	Result	Result	Result	----
EP075l: Organochlorine Pesticides - Continued									
alpha-BHC	319-84-6	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	----
Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	----
beta-BHC	319-85-7	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	----
gamma-BHC	58-89-9	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	----
delta-BHC	319-86-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	----
Heptachlor	76-44-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	----
Aldrin	309-00-2	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	----
Heptachlor epoxide	1024-57-3	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	----
cis-Chlordane	5103-71-9	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	----
trans-Chlordane	5103-74-2	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	----
Endosulfan 1	959-98-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	----
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	**0.09**	<0.05	----
Dieldrin	60-57-1	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	----
Endrin aldehyde	7421-93-4	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	----
Endrin	72-20-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	----
Endosulfan 2	33213-65-9	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Endosulfan sulfate	1031-07-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	----
4.4`-DDT	50-29-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Methoxychlor	72-43-5	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	----
^ Sum of organochlorine pesticides	----	0.03	mg/kg		<0.03	<0.03	**0.09**	<0.03	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	**0.09**	<0.05	----
^ Chlordane	57-74-9	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	----
^ Sum of other organochlorine pesticides	----	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	----
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	----
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	----
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	----
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B17-68399/0.3	B17-68399/0.5	B17-68395/0.1	B17-68395/0.5	----
				Client sampling date / time	22-Aug-2017 11:00	22-Aug-2017 11:00	22-Aug-2017 11:00	22-Aug-2017 11:00	----
Compound	CAS Number	LOR	Unit		EM1711253-002	EM1711253-003	EM1711253-004	EM1711253-005	--------
					Result	Result	Result	Result	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	----
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	----
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		<50	<50	<50	<50	----
>C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	----
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**96.5**	**86.2**	**84.3**	**96.5**	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		**79.9**	**83.2**	**81.8**	**84.4**	----
Toluene-D8	2037-26-5	0.1	%		**76.3**	**81.9**	**77.4**	**80.0**	----
4-Bromofluorobenzene	460-00-4	0.1	%		**89.7**	**89.4**	**92.3**	**88.9**	----
EP075S: Acid Extractable Surrogates									
Phenol-d6	13127-88-3	0.025	%		**102**	**89.6**	**106**	**103**	----
2-Chlorophenol-D4	93951-73-6	0.025	%		**79.9**	**73.2**	**88.5**	**82.6**	----
2.4.6-Tribromophenol	118-79-6	0.025	%		**80.2**	**90.7**	**85.3**	**98.4**	----
EP075T: Base/Neutral Extractable Surrogates									
Nitrobenzene-D5	4165-60-0	0.025	%		**91.8**	**79.4**	**95.9**	**91.3**	----
1.2-Dichlorobenzene-D4	2199-69-1	0.025	%		**91.9**	**79.2**	**97.5**	**88.4**	----
2-Fluorobiphenyl	321-60-8	0.025	%		**110**	**95.0**	**94.2**	**107**	----
Anthracene-d10	1719-06-8	0.025	%		**122**	**105**	**108**	**120**	----
4-Terphenyl-d14	1718-51-0	0.025	%		**118**	**98.2**	**107**	**122**	----

Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)				Client sample ID	**B17-68399 Rinsate**	----	----	----	----
				Client sampling date / time	22-Aug-2017 14:00	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*		**EM1711253-001**	--------	--------	--------	--------
					Result	----	----	----	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		**0.018**	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	----	----	----	----
Copper	7440-50-8	0.001	mg/L		**0.113**	----	----	----	----
Lead	7439-92-1	0.001	mg/L		**0.029**	----	----	----	----
Molybdenum	7439-98-7	0.001	mg/L		**0.002**	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		**0.127**	----	----	----	----
Selenium	7782-49-2	0.01	mg/L		<0.01	----	----	----	----
Silver	7440-22-4	0.001	mg/L		<0.001	----	----	----	----
Tin	7440-31-5	0.001	mg/L		<0.001	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		**0.126**	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	CAS Number	Recovery Limits (%) Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	41	122
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	59	119
Toluene-D8	2037-26-5	55	117
4-Bromofluorobenzene	460-00-4	59	123
EP075S: Acid Extractable Surrogates			
Phenol-d6	13127-88-3	28	134
2-Chlorophenol-D4	93951-73-6	27	123
2.4.6-Tribromophenol	118-79-6	25	149
EP075T: Base/Neutral Extractable Surrogates			
Nitrobenzene-D5	4165-60-0	29	125
1.2-Dichlorobenzene-D4	2199-69-1	31	117
2-Fluorobiphenyl	321-60-8	44	136
Anthracene-d10	1719-06-8	53	133
4-Terphenyl-d14	1718-51-0	59	141

Automated Guideline Comparison Report

EPA Victoria Publication IWRG 621 (2009) - Table 2: Soil Hazard Categorisation

Work Order	: **EM1711253**	Page	: 1 of 8
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLIVIA HENDERSON		
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: ohenderson@pb.com.au	E-mail	: steven.mcgrath@alsglobal.com
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9600
Facsimile	: +61 03 9861 1144	Facsimile	: +61-3-8549 9601
Project	: 2135645A	Date Received	: 22-Aug-2017 14:15
Order number	: ----	Date Analysed	: 23-Aug-2017
C-O-C number	: 85414	Date Issued	: 28-Aug-2017 17:41
No. of samples received	: 5		
No. of samples analysed	: 5	Quote number	: ME-525-16

General Comments

This guideline comparison report **only** provides evaluation of total concentration data against upper limit thresholds for the 'Fill Material', 'C', 'B' Categories in Table 2 of EPA Publication IWRG621.

This guideline comparison report is **NOT** a soil classification report. Classification of soils as Fill Material, Category C, Category B or Category A requires consideration of a number of other factors including preliminary site investigation, sampling density and statistical calculations, as set out in EPA Publication IWRG 702.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

This guideline comparison report only provides evaluation data where chemical parameters specifically listed within the IWRG621 (2009) guideline are analysed by ALS using the **P-16 package in full**.

Red shading is applied where the result is equal to or greater than the guideline upper limit and/or equal to or lower than the guideline lower limit. Red shading is not applied to the 'Summary of Thresholds Reached or Exceeded'.

For the 'Summary of Thresholds Reached or Exceeded' to accurately function, all samples must be analysed and included in the 'Analytical Results' section of the following report. Please verify that all required IDs are listed and analysed.

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Summary of Thresholds Reached or Exceeded

EPA Victoria Publication IWRG 621 (2009)

Table 2: Soil Hazard Categorisation Thresholds : Category C

Client Sample ID	ALS Sample ID	Compound	Method	LOR	Limits	Result
B17-68399/0.3	**EM1711253-002**	pH (CaCl2)	EA001	0.1	*> 4 pH Unit< 9 pH Unit*	**10.7 pH Unit**

EPA Victoria Publication IWRG 621 (2009)

Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Client Sample ID	ALS Sample ID	Compound	Method	LOR	Limits	Result
B17-68399/0.3	**EM1711253-002**	pH (CaCl2)	EA001	0.1	*> 4 pH Unit< 9 pH Unit*	**10.7 pH Unit**
B17-68399/0.3	**EM1711253-002**	Fluoride	EK040T	40	*< 450 mg/kg*	**460 mg/kg**

Analytical Results

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B: Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	B17-68399/0.3 22-Aug-2017 11:00 EM1711253-002	B17-68399/0.5 22-Aug-2017 11:00 EM1711253-003	B17-68395/0.1 22-Aug-2017 11:00 EM1711253-004	B17-68395/0.5 22-Aug-2017 11:00 EM1711253-005	---- ---- --------
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	2	12.5	**10.7**	**7.1**	**7.0**	**7.2**	----
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	2000	**6**	<5	<5	<5	----
Cadmium	EG005T	1	mg/kg	----	400	<1	<1	<1	<1	----
Copper	EG005T	5	mg/kg	----	20000	**21**	<5	**7**	**6**	----
Lead	EG005T	5	mg/kg	----	6000	**10**	**7**	**16**	**8**	----
Molybdenum	EG005T	2	mg/kg	----	4000	<2	<2	<2	<2	----
Nickel	EG005T	2	mg/kg	----	12000	**39**	**7**	<2	**2**	----
Selenium	EG005T	5	mg/kg	----	200	<5	<5	<5	<5	----
Silver	EG005T	2	mg/kg	----	720	<2	<2	<2	<2	----
Zinc	EG005T	5	mg/kg	----	140000	**77**	**6**	**18**	**13**	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	300	<0.1	<0.1	**0.4**	**0.1**	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	2000	<0.5	<0.5	<0.5	<0.5	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	10000	<1	<1	<1	<1	----
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	40000	**460**	**210**	**70**	**80**	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	16	<0.2	<0.2	<0.2	<0.2	----
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	240	<0.2	<0.2	<0.2	<0.2	----
EP074I: Volatile Halogenated Compounds										
Vinyl chloride	EP074-UT	0.02	mg/kg	----	4.8	<0.02	<0.02	<0.02	<0.02	----
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	11	<0.02	<0.02	<0.02	<0.02	----
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	50	<0.01	<0.01	<0.01	<0.01	----
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	320	<0.03	<0.03	<0.03	<0.03	----
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	2200	<1	<1	<1	<1	----
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	20	<0.5	<0.5	<0.5	<0.5	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B: Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	**B17-68399/0.3** 22-Aug-2017 11:00 **EM1711253-002**	**B17-68399/0.5** 22-Aug-2017 11:00 **EM1711253-003**	**B17-68395/0.1** 22-Aug-2017 11:00 **EM1711253-004**	**B17-68395/0.5** 22-Aug-2017 11:00 **EM1711253-005**	**----** ---- --------
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	400	<0.5	<0.5	<0.5	<0.5	----
EP075I: Organochlorine Pesticides										
Heptachlor	EP075-EM	0.03	mg/kg	----	4.8	<0.03	<0.03	<0.03	<0.03	----
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	4.8	<0.03	<0.03	<0.03	<0.03	----
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50	<0.05	<0.05	**0.09**	<0.05	----
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	16	<0.03	<0.03	<0.03	<0.03	----
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	50	<0.03	<0.03	<0.03	<0.03	----
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	2600	<10	<10	<10	<10	----
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	40000	<50	<50	<50	<50	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category C: Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	*Client sample ID* **B17-68399/0.3**	**B17-68399/0.5**	**B17-68395/0.1**	**B17-68395/0.5**	**----**
						Sampling date/time 22-Aug-2017 11:00	22-Aug-2017 11:00	22-Aug-2017 11:00	22-Aug-2017 11:00	----
						EM1711253-002	**EM1711253-003**	**EM1711253-004**	**EM1711253-005**	--------
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	4	9	**10.7**	**7.1**	**7.0**	**7.2**	----
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	500	**6**	<5	<5	<5	----
Cadmium	EG005T	1	mg/kg	----	100	<1	<1	<1	<1	----
Copper	EG005T	5	mg/kg	----	5000	**21**	<5	**7**	**6**	----
Lead	EG005T	5	mg/kg	----	1500	**10**	**7**	**16**	**8**	----
Molybdenum	EG005T	2	mg/kg	----	1000	<2	<2	<2	<2	----
Nickel	EG005T	2	mg/kg	----	3000	**39**	**7**	<2	**2**	----
Selenium	EG005T	5	mg/kg	----	50	<5	<5	<5	<5	----
Silver	EG005T	2	mg/kg	----	180	<2	<2	<2	<2	----
Tin	EG005T	5	mg/kg	----	500	<5	<5	<5	<5	----
Zinc	EG005T	5	mg/kg	----	35000	**77**	**6**	**18**	**13**	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	75	<0.1	<0.1	**0.4**	**0.1**	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	500	<0.5	<0.5	<0.5	<0.5	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	2500	<1	<1	<1	<1	----
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	10000	**460**	**210**	**70**	**80**	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	4	<0.2	<0.2	<0.2	<0.2	----
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	70	<0.2	<0.2	<0.2	<0.2	----
EP074I: Volatile Halogenated Compounds										
Vinyl chloride	EP074-UT	0.02	mg/kg	----	1.2	<0.02	<0.02	<0.02	<0.02	----
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	2.8	<0.02	<0.02	<0.02	<0.02	----
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	10	<0.01	<0.01	<0.01	<0.01	----
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	10	<0.03	<0.03	<0.03	<0.03	----
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	560	<1	<1	<1	<1	----
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	5	<0.5	<0.5	<0.5	<0.5	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category C: Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

				Client sample ID	Guideline	Guideline	B17-68399/0.3	B17-68399/0.5	B17-68395/0.1	B17-68395/0.5	-----
				Sampling date/time			22-Aug-2017 11:00	22-Aug-2017 11:00	22-Aug-2017 11:00	22-Aug-2017 11:00	----
Compound	*Method*	*LOR*	*Unit*		Lower Limit	Upper Limit	EM1711253-002	EM1711253-003	EM1711253-004	EM1711253-005	-------
EP075B: Polynuclear Aromatic Hydrocarbons - Continued											
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg		----	100	<0.5	<0.5	<0.5	<0.5	----
EP075I: Organochlorine Pesticides											
Heptachlor	EP075-EM	0.03	mg/kg		----	1.2	<0.03	<0.03	<0.03	<0.03	----
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg		----	1.2	<0.03	<0.03	<0.03	<0.03	----
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg		----	50	<0.05	<0.05	**0.09**	<0.05	----
Chlordane	EP075-EM-SUM	0.03	mg/kg		----	4	<0.03	<0.03	<0.03	<0.03	----
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg		----	10	<0.03	<0.03	<0.03	<0.03	----
EP080/071: Total Petroleum Hydrocarbons											
C6 - C9 Fraction	EP074-UT	10	mg/kg		----	650	<10	<10	<10	<10	----
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg		----	10000	<50	<50	<50	<50	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material: Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

			Client sample ID	Guideline	Guideline	**B17-68399/0.3**	**B17-68399/0.5**	**B17-68395/0.1**	**B17-68395/0.5**	**----**
			Sampling date/time			22-Aug-2017 11:00	22-Aug-2017 11:00	22-Aug-2017 11:00	22-Aug-2017 11:00	----
Compound	*Method*	*LOR*	*Unit*	Lower Limit	Upper Limit	**EM1711253-002**	**EM1711253-003**	**EM1711253-004**	**EM1711253-005**	--------
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	4	9	**10.7**	**7.1**	**7.0**	**7.2**	**----**
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	20	**6**	<5	<5	<5	**----**
Cadmium	EG005T	1	mg/kg	----	3	<1	<1	<1	<1	**----**
Copper	EG005T	5	mg/kg	----	100	**21**	<5	**7**	**6**	**----**
Lead	EG005T	5	mg/kg	----	300	**10**	**7**	**16**	**8**	**----**
Molybdenum	EG005T	2	mg/kg	----	40	<2	<2	<2	<2	**----**
Nickel	EG005T	2	mg/kg	----	60	**39**	**7**	<2	**2**	**----**
Selenium	EG005T	5	mg/kg	----	10	<5	<5	<5	<5	**----**
Silver	EG005T	2	mg/kg	----	10	<2	<2	<2	<2	**----**
Tin	EG005T	5	mg/kg	----	50	<5	<5	<5	<5	**----**
Zinc	EG005T	5	mg/kg	----	200	**77**	**6**	**18**	**13**	**----**
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	1	<0.1	<0.1	**0.4**	**0.1**	**----**
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	1	<0.5	<0.5	<0.5	<0.5	**----**
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	50	<1	<1	<1	<1	**----**
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	450	**460**	**210**	**70**	**80**	**----**
EP066: Polychlorinated Biphenyls (PCB)										
Total Polychlorinated biphenyls	EP066-EM	0.1	mg/kg	----	2	<0.1	<0.1	<0.1	<0.1	**----**
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	1	<0.2	<0.2	<0.2	<0.2	**----**
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	7	<0.2	<0.2	<0.2	<0.2	**----**
EP074I: Volatile Halogenated Compounds										
Sum of volatile chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	1	<0.01	<0.01	<0.01	<0.01	**----**
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	1	<0.03	<0.03	<0.03	<0.03	**----**
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	60	<1	<1	<1	<1	**----**
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	1	<0.5	<0.5	<0.5	<0.5	**----**

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material: Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	**B17-68399/0.3** 22-Aug-2017 11:00 **EM1711253-002**	**B17-68399/0.5** 22-Aug-2017 11:00 **EM1711253-003**	**B17-68395/0.1** 22-Aug-2017 11:00 **EM1711253-004**	**B17-68395/0.5** 22-Aug-2017 11:00 **EM1711253-005**	**----** ---- --------
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	20	<0.5	<0.5	<0.5	<0.5	**----**
EP075I: Organochlorine Pesticides										
Sum of organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	1	<0.03	<0.03	**0.09**	<0.03	**----**
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	100	<10	<10	<10	<10	**----**
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	1000	<50	<50	<50	<50	**----**

Note: Red shading is applied where the result is equal to or greater than the guideline upper limit and/or equal to or lower than the guideline lower limit.

QUALITY CONTROL REPORT

Work Order	: **EM1711253**	Page	: 1 of 14
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLIVIA HENDERSON	Contact	: Steven McGrath
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9600
Project	: 2135645A	Date Samples Received	: 22-Aug-2017
Order number	: ----	Date Analysis Commenced	: 23-Aug-2017
C-O-C number	: 85414	Issue Date	: 28-Aug-2017
Sampler	: PP		
Site	: Site 26		
Quote number	: ME-525-16		
No. of samples received	: 5		
No. of samples analysed	: 5		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Herman Lin	Laboratory Manager	Melbourne Inorganics, Springvale, VIC
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA001: pH in soil using 0.01M CaCl extract (QC Lot: 1071691)									
EM1711249-010	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	6.6	6.6	0.00	0% - 20%
EM1711253-004	B17-68395/0.1	EA001: pH (CaCl2)	----	0.1	pH Unit	7.0	6.9	1.44	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1072193)									
EM1711252-003	Anonymous	EA055: Moisture Content	----	1	%	30.3	30.6	1.11	0% - 20%
EM1711255-006	Anonymous	EA055: Moisture Content	----	1	%	17.2	16.3	5.13	0% - 50%
EG005T: Total Metals by ICP-AES (QC Lot: 1070255)									
EM1711153-034	Anonymous	EG005T: Nickel	7440-02-0	2	mg/kg	5	9	51.1	No Limit
EM1711153-034	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	21	19	11.6	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	12	17	37.1	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Tin	7440-31-5	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	31	33	6.20	No Limit
EM1711253-002	B17-68399/0.3	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	39	42	7.55	0% - 20%
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	6	<5	19.9	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	21	22	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	10	8	15.5	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG005T: Total Metals by ICP-AES (QC Lot: 1070255) - continued									
EM1711253-002	B17-68399/0.3	EG005T: Tin	7440-31-5	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	77	78	1.60	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1070254)									
EM1711153-034	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EM1711253-002	B17-68399/0.3	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EG048: Hexavalent Chromium (Alkaline Digest) (QC Lot: 1070352)									
EM1711249-009	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1711251-003	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EK026SF: Total CN by Segmented Flow Analyser (QC Lot: 1072529)									
EM1711249-007	Anonymous	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.00	No Limit
EM1711251-002	Anonymous	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.00	No Limit
EK040T: Fluoride Total (QC Lot: 1069434)									
EM1711242-001	Anonymous	EK040T: Fluoride	16984-48-8	40	mg/kg	240	240	0.00	No Limit
EM1711249-017	Anonymous	EK040T: Fluoride	16984-48-8	40	mg/kg	350	370	4.43	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 1069142)									
EM1711251-001	Anonymous	EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EM1711256-006	Anonymous	EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 1069022)									
EM1711251-001	Anonymous	EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1711256-006	Anonymous	EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074H: Naphthalene (QC Lot: 1069022)									
EM1711251-001	Anonymous	EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EM1711256-006	Anonymous	EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EP074I: Volatile Halogenated Compounds (QC Lot: 1069022)									
EM1711251-001	Anonymous	EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074I: Volatile Halogenated Compounds (QC Lot: 1069022) - continued									
EM1711251-001	Anonymous	EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	<0.04	0.00	No Limit
		EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	<0.4	0.00	No Limit
EM1711256-006	Anonymous	EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	<0.04	0.00	No Limit
		EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	<0.4	0.00	No Limit
EP075A: Phenolic Compounds (Halogenated) (QC Lot: 1069140)									
EM1711251-001	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075A: Phenolic Compounds (Halogenated) (QC Lot: 1069140) - continued									
EM1711251-001	Anonymous	EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EM1711256-006	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP075A: Phenolic Compounds (Non-halogenated) (QC Lot: 1069140)									
EM1711251-001	Anonymous	EP075-EM: Phenol	108-95-2	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	0.00	No Limit
EM1711256-006	Anonymous	EP075-EM: Phenol	108-95-2	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	0.00	No Limit
EP075B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1069140)									
EM1711251-001	Anonymous	EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1069140) - continued									
EM1711251-001	Anonymous	EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1711256-006	Anonymous	EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	1.1	73.4	No Limit
		EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	1.1	76.8	No Limit
		EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	0.7	28.7	No Limit
		EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	0.6	0.00	No Limit
		EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	0.9	59.8	No Limit
		EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP075I: Organochlorine Pesticides (QC Lot: 1069140)									
EM1711251-001	Anonymous	EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075I: Organochlorine Pesticides (QC Lot: 1069140) - continued									
EM1711251-001	Anonymous	EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EM1711256-006	Anonymous	EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1069022)									
EM1711251-001	Anonymous	EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EM1711256-006	Anonymous	EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1069141)									
EM1711251-001	Anonymous	EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EM1711256-006	Anonymous	EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1069141) - continued									
EM1711256-006	Anonymous	EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1069022)									
EM1711251-001	Anonymous	EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
		EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	0.00	No Limit
EM1711256-006	Anonymous	EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
		EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1069141)									
EM1711251-001	Anonymous	EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EM1711256-006	Anonymous	EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	100	<100	0.00	No Limit
		EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG020T: Total Metals by ICP-MS (QC Lot: 1069083)									
EM1711235-002	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.127	0.122	3.96	0% - 20%
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.006	0.006	0.00	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.001	<0.001	0.00	No Limit
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	0.002	0.001	0.00	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.008	0.008	0.00	No Limit
		EG020A-T: Tin	7440-31-5	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.007	0.007	0.00	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EM1711266-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	0.0002	0.0002	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.006	0.005	0.00	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.010	0.008	12.3	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.003	0.003	0.00	No Limit
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.007	0.007	0.00	No Limit
		EG020A-T: Tin	7440-31-5	0.001	mg/L	<0.001	0.001	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.038	0.036	5.45	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EG020T: Total Metals by ICP-MS (QC Lot: 1069084)									
EM1711253-001	B17-68399 Rinsate	EG020B-T: Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1069152)									
EM1711122-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EM1711153-026	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 1070255)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	87.3	79	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	86.4	85	109
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	88.3	78	108
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	92.7	78	106
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	7.9 mg/kg	89.0	86	112
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	91.3	82	111
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	96.3	93	109
EG005T: Silver	7440-22-4	2	mg/kg	<2	2.1 mg/kg	93.4	80	108
EG005T: Tin	7440-31-5	5	mg/kg	<5	5.2 mg/kg	104	88	116
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	89.2	82	111
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1070254)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	89.8	77	104
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 1070352)								
EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	40 mg/kg	89.7	80	120
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 1072529)								
EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	20 mg/kg	91.3	80	110
EK040T: Fluoride Total (QCLot: 1069434)								
EK040T: Fluoride	16984-48-8	40	mg/kg	<40	950 mg/kg	96.8	77	106
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 1069142)								
EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	98.4	63	133
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 1069022)								
EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	2.1 mg/kg	90.2	74	118
EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	2.1 mg/kg	93.4	70	118
EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2.1 mg/kg	91.6	69	117
EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4.2 mg/kg	84.8	68	116
EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	2.1 mg/kg	91.5	71	117
EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2.1 mg/kg	87.6	70	116
EP074H: Naphthalene (QCLot: 1069022)								
EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	0.6 mg/kg	92.3	74	116
EP074I: Volatile Halogenated Compounds (QCLot: 1069022)								
EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	0.1 mg/kg	108	49	133
EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	0.1 mg/kg	103	62	127

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP074I: Volatile Halogenated Compounds (QCLot: 1069022) - continued								
EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	2.1 mg/kg	96.8	65	131
EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	0.1 mg/kg	98.8	68	124
EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	0.1 mg/kg	92.8	74	118
EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	0.1 mg/kg	90.6	72	118
EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	0.1 mg/kg	102	67	119
EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	0.1 mg/kg	93.5	65	119
EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	0.1 mg/kg	108	70	122
EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	0.1 mg/kg	90.6	72	124
EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	0.1 mg/kg	89.7	74	122
EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	0.1 mg/kg	90.6	58	120
EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	0.1 mg/kg	92.9	70	119
EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	0.1 mg/kg	94.3	71	125
EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	0.1 mg/kg	95.0	61	125
EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	0.1 mg/kg	93.1	70	122
EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	0.1 mg/kg	92.0	61	118
EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	0.1 mg/kg	92.5	67	117
EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	0.1 mg/kg	93.4	53	127
EP075A: Phenolic Compounds (Halogenated) (QCLot: 1069140)								
EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	2 mg/kg	65.5	43	119
EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	2 mg/kg	47.6	44	131
EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	2 mg/kg	65.2	43	122
EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	2 mg/kg	52.7	50	129
EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	2 mg/kg	61.6	44	128
EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	2 mg/kg	51.6	44	126
EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	2 mg/kg	58.4	46	126
EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/5 8-90-2	0.05	mg/kg	<0.05	4 mg/kg	59.5	44	124
EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	4 mg/kg	47.2	36	124
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 1069140)								
EP075-EM: Phenol	108-95-2	1	mg/kg	<1	2 mg/kg	50.1	41	120
EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	2 mg/kg	61.6	41	131
EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	4 mg/kg	56.4	43	130
EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	2 mg/kg	50.2	49	130
EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	2 mg/kg	72.6	37	119
EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	12 mg/kg	113	23	125
EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	12 mg/kg	98.4	49	133
EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	12 mg/kg	75.3	47	125
EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	12 mg/kg	72.1	48	123
EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	10 mg/kg	80.2	12	132

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 1069140)								
EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	2 mg/kg	68.9	44	122
EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	2 mg/kg	62.3	54	126
EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	2 mg/kg	63.2	46	126
EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	2 mg/kg	62.6	51	125
EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	2 mg/kg	69.2	57	127
EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	2 mg/kg	111	55	127
EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	2 mg/kg	70.0	57	131
EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	2 mg/kg	67.4	57	131
EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	2 mg/kg	74.1	56	132
EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	2 mg/kg	75.0	58	134
EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	4 mg/kg	70.5	55	133
EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	2 mg/kg	55.7	51	135
EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	2 mg/kg	55.9	55	137
EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	2 mg/kg	55.5	54	136
EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	2 mg/kg	63.7	55	137
EP075I: Organochlorine Pesticides (QCLot: 1069140)								
EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	2 mg/kg	67.4	54	130
EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	2 mg/kg	60.7	54	130
EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	2 mg/kg	67.9	54	134
EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	2 mg/kg	68.8	54	132
EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	2 mg/kg	70.8	55	131
EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	2 mg/kg	68.7	54	128
EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	2 mg/kg	73.8	54	128
EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	2 mg/kg	71.6	56	130
EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	2 mg/kg	71.8	56	130
EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	2 mg/kg	69.4	55	131
EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	2 mg/kg	70.6	53	133
EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	2 mg/kg	70.2	54	130
EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	2 mg/kg	77.3	57	133
EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	2 mg/kg	106	28	174
EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	2 mg/kg	71.9	40	148
EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	2 mg/kg	73.3	56	138
EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	2 mg/kg	73.5	57	135
EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	2 mg/kg	71.2	51	133
EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	2 mg/kg	69.5	51	133
EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	2 mg/kg	67.9	48	136
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1069022)								
EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	39.6 mg/kg	95.2	69	114

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1069141)								
EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	837 mg/kg	91.0	72	130
EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	3061 mg/kg	92.4	77	126
EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	1592 mg/kg	90.9	75	119
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1069022)								
EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	48.9 mg/kg	73.9	69	112
EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1069141)								
EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	1222 mg/kg	91.2	75	123
EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	3919 mg/kg	90.0	77	127
EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	316 mg/kg	93.8	43	123

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 1069083)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	97.4	90	110
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	89.3	86	111
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	95.3	87	108
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	95.2	88	109
EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	99.2	88	114
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	94.0	87	111
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	88.8	85	113
EG020A-T: Tin	7440-31-5	0.001	mg/L	<0.001	0.1 mg/L	99.8	88	113
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	94.1	87	113
EG020T: Total Metals by ICP-MS (QCLot: 1069084)								
EG020B-T: Silver	7440-22-4	0.001	mg/L	<0.001	0.02 mg/L	103	78	129
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1069152)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	101	81	114

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG005T: Total Metals by ICP-AES (QCLot: 1070255)							
EM1711153-036	Anonymous						

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 1070255) - continued							
EM1711153-036	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	96.3	78	124
		EG005T: Cadmium	7440-43-9	50 mg/kg	91.8	84	116
		EG005T: Copper	7440-50-8	50 mg/kg	91.4	82	124
		EG005T: Lead	7439-92-1	50 mg/kg	85.5	76	124
		EG005T: Molybdenum	7439-98-7	50 mg/kg	97.1	79	117
		EG005T: Nickel	7440-02-0	50 mg/kg	82.9	78	120
		EG005T: Selenium	7782-49-2	50 mg/kg	74.6	71	125
		EG005T: Zinc	7440-66-6	50 mg/kg	87.1	74	128
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1070254)							
EM1711153-036	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	83.9	76	116
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 1070352)							
EM1711249-011	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	40 mg/kg	72.1	58	114
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 1072529)							
EM1711249-009	Anonymous	EK026SF: Total Cyanide	57-12-5	20 mg/kg	87.9	77	113
EK040T: Fluoride Total (QCLot: 1069434)							
EM1711249-001	Anonymous	EK040T: Fluoride	16984-48-8	400 mg/kg	100	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 1069142)							
EM1711251-002	Anonymous	EP066-EM: Total Polychlorinated biphenyls	----	1 mg/kg	99.9	36	152
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 1069022)							
EM1711251-002	Anonymous	EP074-UT: Benzene	71-43-2	2 mg/kg	82.7	50	138
		EP074-UT: Toluene	108-88-3	2 mg/kg	79.6	56	134
EP074I: Volatile Halogenated Compounds (QCLot: 1069022)							
EM1711251-002	Anonymous	EP074-UT: 1.1-Dichloroethene	75-35-4	2 mg/kg	87.6	26	141
		EP074-UT: Trichloroethene	79-01-6	2 mg/kg	81.2	50	134
		EP074-UT: Chlorobenzene	108-90-7	2 mg/kg	89.8	28	134
EP075A: Phenolic Compounds (Halogenated) (QCLot: 1069140)							
EM1711251-003	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	1 mg/kg	88.8	34	118
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	1 mg/kg	73.0	41	139
		EP075-EM: Pentachlorophenol	87-86-5	1 mg/kg	62.4	10	144
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 1069140)							
EM1711251-003	Anonymous	EP075-EM: Phenol	108-95-2	1 mg/kg	69.0	32	134
		EP075-EM: 2-Nitrophenol	88-75-5	1 mg/kg	61.9	13	129
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 1069140)							
EM1711251-003	Anonymous	EP075-EM: Acenaphthene	83-32-9	1 mg/kg	88.1	46	138
		EP075-EM: Pyrene	129-00-0	1 mg/kg	101	27	169

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1069022)							
EM1711251-002	Anonymous	EP074-UT: C6 - C9 Fraction	----	28 mg/kg	75.5	43	111
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1069141)							
EM1711253-002	B17-68399/0.3	EP071-EM: C10 - C14 Fraction	----	837 mg/kg	93.9	53	123
		EP071-EM: C15 - C28 Fraction	----	3061 mg/kg	94.6	70	124
		EP071-EM: C29 - C36 Fraction	----	1592 mg/kg	92.9	64	118
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1069022)							
EM1711251-002	Anonymous	EP074-UT: C6 - C10 Fraction	C6_C10	33 mg/kg	76.1	42	106
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1069141)							
EM1711253-002	B17-68399/0.3	EP071-EM: >C10 - C16 Fraction	----	1222 mg/kg	93.6	65	123
		EP071-EM: >C16 - C34 Fraction	----	3919 mg/kg	92.2	67	121
		EP071-EM: >C34 - C40 Fraction	----	316 mg/kg	92.0	44	126

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 1069083)							
EM1711235-002	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	98.9	82	118
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	92.3	75	129
		EG020A-T: Copper	7440-50-8	1 mg/L	89.8	81	115
		EG020A-T: Lead	7439-92-1	1 mg/L	90.1	83	121
		EG020A-T: Nickel	7440-02-0	1 mg/L	94.3	80	118
		EG020A-T: Zinc	7440-66-6	1 mg/L	96.4	74	116
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1069152)							
EM1711122-003	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	93.1	70	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM1711253**	Page	: 1 of 8
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLIVIA HENDERSON	Telephone	: +61-3-8549 9600
Project	: 2135645A	Date Samples Received	: 22-Aug-2017
Site	: Site 26	Issue Date	: 28-Aug-2017
Sampler	: PP	No. of samples received	: 5
Order number	: ----	No. of samples analysed	: 5

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **SOIL**

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
Laboratory Control Samples (LCS)					
Hexavalent Chromium by Alkaline Digestion and DA Finish	1	20	5.00	10.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
EA001: pH in soil using 0.01M CaCl extract							
Soil Glass Jar - Unpreserved (EA001)							
B17-68399/0.3, B17-68399/0.5, B17-68395/0.1, B17-68395/0.5	**22-Aug-2017**	**25-Aug-2017**	29-Aug-2017	✓	**25-Aug-2017**	25-Aug-2017	✓
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
B17-68399/0.3, B17-68399/0.5, B17-68395/0.1, B17-68395/0.5	**22-Aug-2017**	**----**	----	----	**24-Aug-2017**	05-Sep-2017	✓
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
B17-68399/0.3, B17-68399/0.5, B17-68395/0.1, B17-68395/0.5	**22-Aug-2017**	**24-Aug-2017**	18-Feb-2018	✓	**25-Aug-2017**	18-Feb-2018	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
B17-68399/0.3, B17-68399/0.5, B17-68395/0.1, B17-68395/0.5	**22-Aug-2017**	**24-Aug-2017**	19-Sep-2017	✓	**25-Aug-2017**	19-Sep-2017	✓
EG048: Hexavalent Chromium (Alkaline Digest)							
Soil Glass Jar - Unpreserved (EG048G)							
B17-68399/0.3, B17-68399/0.5, B17-68395/0.1, B17-68395/0.5	**22-Aug-2017**	**24-Aug-2017**	19-Sep-2017	✓	**24-Aug-2017**	31-Aug-2017	✓
EK026SF: Total CN by Segmented Flow Analyser							
Soil Glass Jar - Unpreserved (EK026SF)							
B17-68399/0.3, B17-68399/0.5, B17-68395/0.1, B17-68395/0.5	**22-Aug-2017**	**24-Aug-2017**	05-Sep-2017	✓	**25-Aug-2017**	07-Sep-2017	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EK040T: Fluoride Total							
Soil Glass Jar - Unpreserved (EK040T)							
B17-68399/0.3, B17-68399/0.5, B17-68395/0.1, B17-68395/0.5	**22-Aug-2017**	**23-Aug-2017**	19-Sep-2017	✓	**24-Aug-2017**	19-Sep-2017	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066-EM)							
B17-68399/0.3, B17-68399/0.5, B17-68395/0.1, B17-68395/0.5	**22-Aug-2017**	**23-Aug-2017**	05-Sep-2017	✓	**23-Aug-2017**	02-Oct-2017	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074-UT)							
B17-68399/0.3, B17-68399/0.5, B17-68395/0.1, B17-68395/0.5	**22-Aug-2017**	**23-Aug-2017**	29-Aug-2017	✓	**23-Aug-2017**	29-Aug-2017	✓
EP074H: Naphthalene							
Soil Glass Jar - Unpreserved (EP074-UT)							
B17-68399/0.3, B17-68399/0.5, B17-68395/0.1, B17-68395/0.5	**22-Aug-2017**	**23-Aug-2017**	29-Aug-2017	✓	**23-Aug-2017**	29-Aug-2017	✓
EP074I: Volatile Halogenated Compounds							
Soil Glass Jar - Unpreserved (EP074-UT)							
B17-68399/0.3, B17-68399/0.5, B17-68395/0.1, B17-68395/0.5	**22-Aug-2017**	**23-Aug-2017**	29-Aug-2017	✓	**23-Aug-2017**	29-Aug-2017	✓
EP075A: Phenolic Compounds (Halogenated)							
Soil Glass Jar - Unpreserved (EP075-EM)							
B17-68399/0.3, B17-68399/0.5, B17-68395/0.1, B17-68395/0.5	**22-Aug-2017**	**23-Aug-2017**	05-Sep-2017	✓	**23-Aug-2017**	02-Oct-2017	✓
EP075A: Phenolic Compounds (Non-halogenated)							
Soil Glass Jar - Unpreserved (EP075-EM)							
B17-68399/0.3, B17-68399/0.5, B17-68395/0.1, B17-68395/0.5	**22-Aug-2017**	**23-Aug-2017**	05-Sep-2017	✓	**23-Aug-2017**	02-Oct-2017	✓
EP075B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075-EM)							
B17-68399/0.3, B17-68399/0.5, B17-68395/0.1, B17-68395/0.5	**22-Aug-2017**	**23-Aug-2017**	05-Sep-2017	✓	**23-Aug-2017**	02-Oct-2017	✓
EP075I: Organochlorine Pesticides							
Soil Glass Jar - Unpreserved (EP075-EM)							
B17-68399/0.3, B17-68399/0.5, B17-68395/0.1, B17-68395/0.5	**22-Aug-2017**	**23-Aug-2017**	05-Sep-2017	✓	**23-Aug-2017**	02-Oct-2017	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074-UT)							
B17-68399/0.3, B17-68399/0.5, B17-68395/0.1, B17-68395/0.5	**22-Aug-2017**	**23-Aug-2017**	29-Aug-2017	✓	**23-Aug-2017**	29-Aug-2017	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP074-UT)							
B17-68399/0.3, B17-68399/0.5, B17-68395/0.1, B17-68395/0.5	**22-Aug-2017**	**23-Aug-2017**	29-Aug-2017	✓	**23-Aug-2017**	29-Aug-2017	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020B-T)							
B17-68399 Rinsate	**22-Aug-2017**	**23-Aug-2017**	18-Feb-2018	✓	**24-Aug-2017**	18-Feb-2018	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T)							
B17-68399 Rinsate	**22-Aug-2017**	**----**	----	----	**24-Aug-2017**	19-Sep-2017	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	3	20	**15.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	20	**5.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Matrix Spikes (MS) - Continued							
Total Fluoride	EK040T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	11	**18.18**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite B	EG020B-T	1	1	**100.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite B	EG020B-T	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite B	EG020B-T	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH in soil using a 0.01M CaCl2 extract	EA001	SOIL	In house: Referenced to Rayment and Lyons (2011) 4B3 (mod.) or 4B4 (mod.) 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM (2013) Schedule B(3)
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	SOIL	In house: Referenced to USEPA SW846, Method 3060A. Hexavalent chromium is extracted by alkaline digestion. The digest is determined by photometrically by automatic discrete analyser, following pH adjustment. The instrument uses colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Cyanide by Segmented Flow Analyser	EK026SF	SOIL	In house: Referenced to APHA 4500-CN C / ASTM D7511. Caustic leachates of soil samples are introduced into an automated segmented flow analyser. Complex bound cyanide is decomposed in a continuously flowing stream, at a pH of 3.8, by the effect of UV light. A UV-B lamp (312 nm) and a decomposition spiral of borosilicate glass are used to filter out UV light with a wavelength of less than 290 nm thus preventing the conversion of thiocyanate into cyanide. The hydrogen cyanide present at a pH of 3.8 is separated by gas dialysis. The hydrogen cyanide is then determined photometrically, based on the reaction of cyanide with chloramine-T to form cyanogen chloride. This then reacts with 4-pyridine carboxylic acid and 1,3-dimethylbarbituric acid to give a red colour which is measured at 600 nm. This method is compliant with NEPM (2013) Schedule B(3)
Total Fluoride	EK040T	SOIL	(In-house) Total fluoride is determined by ion specific electrode (ISE) in a solution obtained after a Sodium Carbonate / Potassium Carbonate fusion dissolution.
PCB - VIC EPA 448.3 Screen	EP066-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
TRH - Semivolatile Fraction	EP071-EM	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40.
Volatile Organic Compounds - Ultra-trace	EP074-UT	SOIL	In house: Referenced to USEPA SW 846 - 8260B Extracts are analysed by Purge and Trap, Capillary GC/MS in partial SIM/Scan mode. Quantification is by comparison against an established multi-point calibration curves. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)

Analytical Methods	Method	Matrix	Method Descriptions
Volatile Organic Compounds - Ultra-trace - Summations	EP074-UT-SUM	SOIL	Summation of MAHs and VHCs
Semivolatile Organic Compounds - Waste Classification	EP075-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (2013) Schedule B(3) (Method 502)
SVOC - Waste Classification (Sums)	EP075-EM-SUM	SOIL	Summations for EP075 (EM variation)
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite B	EG020B-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
NaOH leach for CN in Soils	CN-PR	SOIL	In house: APHA 4500 CN. Samples are extracted by end-over-end tumbling with NaOH.
pH in soil using a 0.01M CaCl2 extract	EA001-PR	SOIL	In house: Referenced to Rayment and Higginson 4B1, 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Alkaline digestion for Hexavalent Chromium	EG048PR	SOIL	In house: Referenced to USEPA SW846, Method 3060A.
Total Fluoride	EK040T-PR	SOIL	In house: Samples are fused with Sodium Carbonate / Potassium Carbonate flux.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils - Ultra-trace.	ORG16-UT	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids - VIC EPA Screen	ORG17-EM	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)

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White Page - Laboratory Copy
Yellow Page - Project File Copy
Pink Page - Remains in Book

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Chain of Custody

Order No: 85414

Job Title: Mordialloc Bypass
PB Job Number: 21356685A
Job Location: Site 26
Project Manager: Olivia Henderson
Laboratory Name: ALS
Results Expected by/on: Std
Address: 2-4 Westall Rd, Springvale
Terms of Business | PB | Other | Checked
Fax Results to:
Fax Number:
Phone Number: 8546690
Spreadsheet of Results Required: (Y) / N
Contact Name: GRAEME
Format: ESDAT PDF
Delivery Method:
Turnaround Time Required: Std
Quote Number:
Invoice to:
Comments:

Date Sampled	Time	Sample I.D.	Container Size	Sample Location	Medium*	Preservative Type	Filtered (X)	TPH	BTEX	PAH's	OC/OP/PCBs	Metals**	IWRG621 Suite	IWRG Metal TPH BTEX	Initials	Comments/Additional Information and/or Analysis Required
1 22/8/17	1400	B17-68399 Rinsate	60ml											/		
2 "	1100	B17-68399/0.3	250ml										/			
3 "	1100	B17-68399/0.5	250ml										/			
4 "	1400	B17-68395/0.1	250ml										/			
5 "	1400	B17-68395/0.5	250ml										/			
"																

Environmental Division
Melbourne
Work Order Reference
EM1711253

Telephone : +61-3-8549 9600

Relinquished by:	Relinquished by:	Relinquished by:
PAUL PHYSICK		
Date & Time: 22-8-17	Date & Time:	Date & Time:
Company: WSP	Company:	Company:
Signature:	Signature:	Signature:
Received in Good Order & Condition by (Name): Tom (ALS)	Received in Good Order & Condition by (Name):	Received in Good Order & Condition by (Name):
Date & Time: 14:15, 22/8	Date & Time:	Date & Time:
Company:	Company:	Company:
Signature:	Signature:	Signature:

Medium*: S = Soil, W = Water, V = Vapour

Legend**: (circle the following to be tested)

Metals: Al As Be Cd Co Cr Cu Fe Hg Li Mg Mn Ni Pb Se Sn V Zn

Samples on Ice: ☐ Yes ☐ No

Please fax back a signed copy when samples are received at the laboratory

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1711578**	Page	: 1 of 9
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLIVIA HENDERSON	Contact	: Steven McGrath
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9600
Project	: 2135645A OSAR	Date Samples Received	: 28-Aug-2017 17:05
Order number	: ----	Date Analysis Commenced	: 30-Aug-2017
C-O-C number	: 85452	Issue Date	: 01-Sep-2017 14:22
Sampler	: ----		
Site	: Site 26		
Quote number	: ME-525-16		
No. of samples received	: 5		
No. of samples analysed	: 5		

ilac-MRA NATA
Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	B17_68391 0.5	B17_68391 1.0	B17_68391 1.5	----	----
			Client sampling date / time	28-Aug-2017 00:00	28-Aug-2017 00:00	28-Aug-2017 00:00	----	----
Compound	CAS Number	LOR	Unit	EM1711578-003	EM1711578-004	EM1711578-005	--------	--------
				Result	Result	Result	----	----
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	**5.0**	**4.2**	**4.1**	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**4.3**	**27.3**	**24.2**	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	**17**	**20**	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	----	----
Copper	7440-50-8	5	mg/kg	<5	<5	<5	----	----
Lead	7439-92-1	5	mg/kg	<5	**10**	**12**	----	----
Molybdenum	7439-98-7	2	mg/kg	<2	<2	<2	----	----
Nickel	7440-02-0	2	mg/kg	<2	**9**	**4**	----	----
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	----	----
Silver	7440-22-4	2	mg/kg	<2	<2	<2	----	----
Tin	7440-31-5	5	mg/kg	<5	<5	<5	----	----
Zinc	7440-66-6	5	mg/kg	**5**	**13**	<5	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	**0.2**	----	----
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
EK026SF: Total CN by Segmented Flow Analyser								
Total Cyanide	57-12-5	1	mg/kg	<1	<1	<1	----	----
EK040T: Fluoride Total								
Fluoride	16984-48-8	40	mg/kg	**240**	**250**	**450**	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	<0.1	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Sum of monocyclic aromatic hydrocarbons	----	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	B17_68391 0.5	B17_68391 1.0	B17_68391 1.5	----	----
			Client sampling date / time	28-Aug-2017 00:00	28-Aug-2017 00:00	28-Aug-2017 00:00	----	----
Compound	CAS Number	LOR	Unit	EM1711578-003	EM1711578-004	EM1711578-005	--------	--------
				Result	Result	Result	----	----
EP074H: Naphthalene								
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	----	----
EP074I: Volatile Halogenated Compounds								
Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	<0.01	<0.01	----	----
Methylene chloride	75-09-2	0.4	mg/kg	<0.4	<0.4	<0.4	----	----
trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	<0.01	<0.01	----	----
Chloroform	67-66-3	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	<0.01	<0.01	----	----
Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	<0.01	<0.01	----	----
1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
Trichloroethene	79-01-6	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	<0.04	<0.04	----	----
Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	<0.01	<0.01	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	<0.01	<0.01	----	----
^ Sum of volatile chlorinated hydrocarbons	----	0.01	mg/kg	<0.01	<0.01	<0.01	----	----
^ Sum of other chlorinated hydrocarbons	----	0.01	mg/kg	<0.01	<0.01	<0.01	----	----
EP075A: Phenolic Compounds (Halogenated)								
2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
^ Sum of Phenols (halogenated)	----	0.03	mg/kg	<0.03	<0.03	<0.03	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B17_68391 0.5	B17_68391 1.0	B17_68391 1.5	----	----
				Client sampling date / time	28-Aug-2017 00:00	28-Aug-2017 00:00	28-Aug-2017 00:00	----	----
Compound	CAS Number	LOR	Unit		EM1711578-003	EM1711578-004	EM1711578-005	--------	--------
					Result	Result	Result	----	----
EP075A: Phenolic Compounds (Halogenated) - Continued									
EP075A: Phenolic Compounds (Non-halogenated)									
Phenol	108-95-2	1	mg/kg		<1	<1	<1	----	----
2-Methylphenol	95-48-7	1	mg/kg		<1	<1	<1	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	<1	----	----
2-Nitrophenol	88-75-5	1	mg/kg		<1	<1	<1	----	----
2.4-Dimethylphenol	105-67-9	1	mg/kg		<1	<1	<1	----	----
2.4-Dinitrophenol	51-28-5	5	mg/kg		<5	<5	<5	----	----
4-Nitrophenol	100-02-7	5	mg/kg		<5	<5	<5	----	----
2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg		<5	<5	<5	----	----
Dinoseb	88-85-7	5	mg/kg		<5	<5	<5	----	----
2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg		<5	<5	<5	----	----
^ Sum of Phenols (non-halogenated)	----	1	mg/kg		<1	<1	<1	----	----
EP075B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		0.6	0.6	0.6	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		1.2	1.2	1.2	----	----
EP075I: Organochlorine Pesticides									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	B17_68391 0.5	B17_68391 1.0	B17_68391 1.5	----	----
			Client sampling date / time	28-Aug-2017 00:00	28-Aug-2017 00:00	28-Aug-2017 00:00	----	----
Compound	CAS Number	LOR	Unit	EM1711578-003	EM1711578-004	EM1711578-005	--------	--------
				Result	Result	Result	----	----
EP075l: Organochlorine Pesticides - Continued								
alpha-BHC	319-84-6	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
beta-BHC	319-85-7	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
gamma-BHC	58-89-9	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
delta-BHC	319-86-8	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
Heptachlor	76-44-8	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
Aldrin	309-00-2	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Dieldrin	60-57-1	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
Endrin	72-20-8	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Methoxychlor	72-43-5	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
^ Sum of organochlorine pesticides	----	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
^ Chlordane	57-74-9	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
^ Sum of other organochlorine pesticides	----	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	----	----
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	----	----
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	----	----
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	----	----
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	<50	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B17_68391 0.5	B17_68391 1.0	B17_68391 1.5	----	----
				Client sampling date / time	28-Aug-2017 00:00	28-Aug-2017 00:00	28-Aug-2017 00:00	----	----
Compound	CAS Number	LOR	Unit		EM1711578-003	EM1711578-004	EM1711578-005	--------	--------
					Result	Result	Result	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	----	----
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		<50	<50	<50	----	----
>C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	----	----
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**105**	**103**	**106**	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		**80.8**	**72.7**	**75.3**	----	----
Toluene-D8	2037-26-5	0.1	%		**78.9**	**72.4**	**72.7**	----	----
4-Bromofluorobenzene	460-00-4	0.1	%		**81.5**	**75.9**	**75.6**	----	----
EP075S: Acid Extractable Surrogates									
Phenol-d6	13127-88-3	0.025	%		**104**	**103**	**96.4**	----	----
2-Chlorophenol-D4	93951-73-6	0.025	%		**93.8**	**92.1**	**87.4**	----	----
2.4.6-Tribromophenol	118-79-6	0.025	%		**100**	**101**	**89.2**	----	----
EP075T: Base/Neutral Extractable Surrogates									
Nitrobenzene-D5	4165-60-0	0.025	%		**98.1**	**98.1**	**96.8**	----	----
1.2-Dichlorobenzene-D4	2199-69-1	0.025	%		**98.8**	**98.4**	**97.4**	----	----
2-Fluorobiphenyl	321-60-8	0.025	%		**104**	**106**	**102**	----	----
Anthracene-d10	1719-06-8	0.025	%		**115**	**120**	**114**	----	----
4-Terphenyl-d14	1718-51-0	0.025	%		**120**	**117**	**128**	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	TB280817	RB280817	----	----	----
				Client sampling date / time	28-Aug-2017 00:00	28-Aug-2017 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EM1711578-001	EM1711578-002	--------	--------	--------
					Result	Result	----	----	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		----	<0.001	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		----	<0.0001	----	----	----
Chromium	7440-47-3	0.001	mg/L		----	<0.001	----	----	----
Copper	7440-50-8	0.001	mg/L		----	<0.001	----	----	----
Lead	7439-92-1	0.001	mg/L		----	<0.001	----	----	----
Molybdenum	7439-98-7	0.001	mg/L		----	<0.001	----	----	----
Nickel	7440-02-0	0.001	mg/L		----	<0.001	----	----	----
Selenium	7782-49-2	0.01	mg/L		----	<0.01	----	----	----
Silver	7440-22-4	0.001	mg/L		----	<0.001	----	----	----
Tin	7440-31-5	0.001	mg/L		----	<0.001	----	----	----
Zinc	7440-66-6	0.005	mg/L		----	<0.005	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		----	<0.0001	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	----	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		<20	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	----	----	----	----
Toluene	108-88-3	2	µg/L		<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	----	----	----	----
^ Total Xylenes	1330-20-7	2	µg/L		<2	----	----	----	----
^ Sum of BTEX	----	1	µg/L		<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**93.8**	----	----	----	----
Toluene-D8	2037-26-5	2	%		**99.9**	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		**102**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	CAS Number	Recovery Limits (%) Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	41	122
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	59	119
Toluene-D8	2037-26-5	55	117
4-Bromofluorobenzene	460-00-4	59	123
EP075S: Acid Extractable Surrogates			
Phenol-d6	13127-88-3	28	134
2-Chlorophenol-D4	93951-73-6	27	123
2.4.6-Tribromophenol	118-79-6	25	149
EP075T: Base/Neutral Extractable Surrogates			
Nitrobenzene-D5	4165-60-0	29	125
1.2-Dichlorobenzene-D4	2199-69-1	31	117
2-Fluorobiphenyl	321-60-8	44	136
Anthracene-d10	1719-06-8	53	133
4-Terphenyl-d14	1718-51-0	59	141

Sub-Matrix: **WATER**

Compound	CAS Number	Recovery Limits (%) Low	High
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	129
Toluene-D8	2037-26-5	70	125
4-Bromofluorobenzene	460-00-4	71	129

Automated Guideline Comparison Report

EPA Victoria Publication IWRG 621 (2009) - Table 2: Soil Hazard Categorisation

Work Order	: **EM1711578**	Page	: 1 of 8
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLIVIA HENDERSON		
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: ohenderson@pb.com.au	E-mail	: steven.mcgrath@alsglobal.com
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9600
Facsimile	: +61 03 9861 1144	Facsimile	: +61-3-8549 9601
Project	: 2135645A OSAR	Date Received	: 28-Aug-2017 17:05
Order number	: ----	Date Analysed	: 30-Aug-2017
C-O-C number	: 85452	Date Issued	: 01-Sep-2017 14:22
No. of samples received	: 5		
No. of samples analysed	: 5	Quote number	: ME-525-16

General Comments

This guideline comparison report **only** provides evaluation of total concentration data against upper limit thresholds for the 'Fill Material', 'C', 'B' Categories in Table 2 of EPA Publication IWRG621.

This guideline comparison report is **NOT** a soil classification report. Classification of soils as Fill Material, Category C, Category B or Category A requires consideration of a number of other factors including preliminary site investigation, sampling density and statistical calculations, as set out in EPA Publication IWRG 702.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

This guideline comparison report only provides evaluation data where chemical parameters specifically listed within the IWRG621 (2009) guideline are analysed by ALS using the **P-16 package in full**.

Red shading is applied where the result is equal to or greater than the guideline upper limit and/or equal to or lower than the guideline lower limit. Red shading is not applied to the 'Summary of Thresholds Reached or Exceeded'.

For the 'Summary of Thresholds Reached or Exceeded' to accurately function, all samples must be analysed and included in the 'Analytical Results' section of the following report. Please verify that all required IDs are listed and analysed.

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Summary of Thresholds Reached or Exceeded

EPA Victoria Publication IWRG 621 (2009)

Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Client Sample ID	ALS Sample ID	Compound	Method	LOR	Limits	Result
B17_68391 1.5	**EM1711578-005**	Arsenic	EG005T	5	*< 20 mg/kg*	**20 mg/kg**
B17_68391 1.5	**EM1711578-005**	Fluoride	EK040T	40	*< 450 mg/kg*	**450 mg/kg**

Analytical Results

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B: Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Client sample ID: B17_68391 0.5	B17_68391 1.0	B17_68391 1.5	----	----
						Sampling date/time: 28-Aug-2017	28-Aug-2017	28-Aug-2017	----	----
						EM1711578-003	EM1711578-004	EM1711578-005	--------	--------
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	2	12.5	**5.0**	**4.2**	**4.1**	----	----
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	2000	<5	**17**	**20**	----	----
Cadmium	EG005T	1	mg/kg	----	400	<1	<1	<1	----	----
Copper	EG005T	5	mg/kg	----	20000	<5	<5	<5	----	----
Lead	EG005T	5	mg/kg	----	6000	<5	**10**	**12**	----	----
Molybdenum	EG005T	2	mg/kg	----	4000	<2	<2	<2	----	----
Nickel	EG005T	2	mg/kg	----	12000	<2	**9**	**4**	----	----
Selenium	EG005T	5	mg/kg	----	200	<5	<5	<5	----	----
Silver	EG005T	2	mg/kg	----	720	<2	<2	<2	----	----
Zinc	EG005T	5	mg/kg	----	140000	**5**	**13**	<5	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	300	<0.1	<0.1	**0.2**	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	2000	<0.5	<0.5	<0.5	----	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	10000	<1	<1	<1	----	----
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	40000	**240**	**250**	**450**	----	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	16	<0.2	<0.2	<0.2	----	----
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	240	<0.2	<0.2	<0.2	----	----
EP074I: Volatile Halogenated Compounds										
Vinyl chloride	EP074-UT	0.02	mg/kg	----	4.8	<0.02	<0.02	<0.02	----	----
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	11	<0.02	<0.02	<0.02	----	----
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	50	<0.01	<0.01	<0.01	----	----
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	320	<0.03	<0.03	<0.03	----	----
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	2200	<1	<1	<1	----	----
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	20	<0.5	<0.5	<0.5	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B: Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Client sample ID: B17_68391 0.5	Client sample ID: B17_68391 1.0	Client sample ID: B17_68391 1.5	Client sample ID: ----	Client sample ID: ----
						Sampling date/time: 28-Aug-2017	Sampling date/time: 28-Aug-2017	Sampling date/time: 28-Aug-2017	Sampling date/time: ----	Sampling date/time: ----
						EM1711578-003	EM1711578-004	EM1711578-005	--------	--------
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	400	<0.5	<0.5	<0.5	----	----
EP075I: Organochlorine Pesticides										
Heptachlor	EP075-EM	0.03	mg/kg	----	4.8	<0.03	<0.03	<0.03	----	----
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	4.8	<0.03	<0.03	<0.03	----	----
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50	<0.05	<0.05	<0.05	----	----
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	16	<0.03	<0.03	<0.03	----	----
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	50	<0.03	<0.03	<0.03	----	----
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	2600	<10	<10	<10	----	----
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	40000	<50	<50	<50	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category C: Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	B17_68391 0.5	B17_68391 1.0	B17_68391 1.5	----	----
Client sample ID										
Sampling date/time						28-Aug-2017	28-Aug-2017	28-Aug-2017	----	----
						EM1711578-003	EM1711578-004	EM1711578-005	--------	--------
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	4	9	**5.0**	**4.2**	**4.1**	----	----
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	500	<5	**17**	**20**	----	----
Cadmium	EG005T	1	mg/kg	----	100	<1	<1	<1	----	----
Copper	EG005T	5	mg/kg	----	5000	<5	<5	<5	----	----
Lead	EG005T	5	mg/kg	----	1500	<5	**10**	**12**	----	----
Molybdenum	EG005T	2	mg/kg	----	1000	<2	<2	<2	----	----
Nickel	EG005T	2	mg/kg	----	3000	<2	**9**	**4**	----	----
Selenium	EG005T	5	mg/kg	----	50	<5	<5	<5	----	----
Silver	EG005T	2	mg/kg	----	180	<2	<2	<2	----	----
Tin	EG005T	5	mg/kg	----	500	<5	<5	<5	----	----
Zinc	EG005T	5	mg/kg	----	35000	**5**	**13**	<5	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	75	<0.1	<0.1	**0.2**	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	500	<0.5	<0.5	<0.5	----	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	2500	<1	<1	<1	----	----
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	10000	**240**	**250**	**450**	----	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	4	<0.2	<0.2	<0.2	----	----
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	70	<0.2	<0.2	<0.2	----	----
EP074I: Volatile Halogenated Compounds										
Vinyl chloride	EP074-UT	0.02	mg/kg	----	1.2	<0.02	<0.02	<0.02	----	----
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	2.8	<0.02	<0.02	<0.02	----	----
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	10	<0.01	<0.01	<0.01	----	----
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	10	<0.03	<0.03	<0.03	----	----
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	560	<1	<1	<1	----	----
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	5	<0.5	<0.5	<0.5	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category C: Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

			Client sample ID	Guideline Lower Limit	Guideline Upper Limit	**B17_68391 0.5**	**B17_68391 1.0**	**B17_68391 1.5**	**----**	**----**
			Sampling date/time			28-Aug-2017	28-Aug-2017	28-Aug-2017	----	----
Compound	*Method*	*LOR*	*Unit*			**EM1711578-003**	**EM1711578-004**	**EM1711578-005**	--------	--------
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	100	<0.5	<0.5	<0.5	**----**	**----**
EP075I: Organochlorine Pesticides										
Heptachlor	EP075-EM	0.03	mg/kg	----	1.2	<0.03	<0.03	<0.03	**----**	**----**
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	1.2	<0.03	<0.03	<0.03	**----**	**----**
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50	<0.05	<0.05	<0.05	**----**	**----**
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	4	<0.03	<0.03	<0.03	**----**	**----**
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	10	<0.03	<0.03	<0.03	**----**	**----**
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	650	<10	<10	<10	**----**	**----**
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	10000	<50	<50	<50	**----**	**----**

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material: Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	*Client sample ID* **B17_68391 0.5**	**B17_68391 1.0**	**B17_68391 1.5**	**----**	**----**
						Sampling date/time 28-Aug-2017	28-Aug-2017	28-Aug-2017	----	----
						EM1711578-003	**EM1711578-004**	**EM1711578-005**	--------	--------
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	4	9	**5.0**	**4.2**	**4.1**	----	----
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	20	<5	**17**	**20**	----	----
Cadmium	EG005T	1	mg/kg	----	3	<1	<1	<1	----	----
Copper	EG005T	5	mg/kg	----	100	<5	<5	<5	----	----
Lead	EG005T	5	mg/kg	----	300	<5	**10**	**12**	----	----
Molybdenum	EG005T	2	mg/kg	----	40	<2	<2	<2	----	----
Nickel	EG005T	2	mg/kg	----	60	<2	**9**	**4**	----	----
Selenium	EG005T	5	mg/kg	----	10	<5	<5	<5	----	----
Silver	EG005T	2	mg/kg	----	10	<2	<2	<2	----	----
Tin	EG005T	5	mg/kg	----	50	<5	<5	<5	----	----
Zinc	EG005T	5	mg/kg	----	200	**5**	**13**	<5	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	1	<0.1	<0.1	**0.2**	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	1	<0.5	<0.5	<0.5	----	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	50	<1	<1	<1	----	----
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	450	**240**	**250**	**450**	----	----
EP066: Polychlorinated Biphenyls (PCB)										
Total Polychlorinated biphenyls	EP066-EM	0.1	mg/kg	----	2	<0.1	<0.1	<0.1	----	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	1	<0.2	<0.2	<0.2	----	----
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	7	<0.2	<0.2	<0.2	----	----
EP074I: Volatile Halogenated Compounds										
Sum of volatile chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	1	<0.01	<0.01	<0.01	----	----
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	1	<0.03	<0.03	<0.03	----	----
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	60	<1	<1	<1	----	----
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	1	<0.5	<0.5	<0.5	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material: Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	*Client sample ID* / *Sampling date/time*				
						B17_68391 0.5	**B17_68391 1.0**	**B17_68391 1.5**	**----**	**----**
						28-Aug-2017	28-Aug-2017	28-Aug-2017	----	----
						EM1711578-003	**EM1711578-004**	**EM1711578-005**	**-------**	**-------**
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	20	<0.5	<0.5	<0.5	**----**	**----**
EP075I: Organochlorine Pesticides										
Sum of organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	1	<0.03	<0.03	<0.03	**----**	**----**
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	100	<10	<10	<10	**----**	**----**
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	1000	<50	<50	<50	**----**	**----**

Note: Red shading is applied where the result is equal to or greater than the guideline upper limit and/or equal to or lower than the guideline lower limit.

QUALITY CONTROL REPORT

Work Order	: **EM1711578**	Page	: 1 of 14
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLIVIA HENDERSON	Contact	: Steven McGrath
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9600
Project	: 2135645A OSAR	Date Samples Received	: 28-Aug-2017
Order number	: ----	Date Analysis Commenced	: 30-Aug-2017
C-O-C number	: 85452	Issue Date	: 01-Sep-2017
Sampler	: ----		
Site	: Site 26		
Quote number	: ME-525-16		
No. of samples received	: 5		
No. of samples analysed	: 5		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA001: pH in soil using 0.01M CaCl extract (QC Lot: 1084001)									
EM1711495-001	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	9.7	9.8	1.02	0% - 20%
EM1711578-005	B17_68391 1.5	EA001: pH (CaCl2)	----	0.1	pH Unit	4.1	4.2	2.41	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1083288)									
EM1711578-003	B17_68391 0.5	EA055: Moisture Content	----	1	%	4.3	4.8	10.2	No Limit
EM1711658-004	Anonymous	EA055: Moisture Content	----	1	%	11.5	11.1	3.46	0% - 50%
EG005T: Total Metals by ICP-AES (QC Lot: 1082902)									
EM1711572-019	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	12	10	14.7	No Limit
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	6	6	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	13	11	16.9	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Tin	7440-31-5	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	5	0.00	No Limit
EM1711578-003	B17_68391 0.5	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG005T: Total Metals by ICP-AES (QC Lot: 1082902) - continued									
EM1711578-003	B17_68391 0.5	EG005T: Tin	7440-31-5	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	5	8	38.7	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1082903)									
EM1711572-019	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EM1711578-003	B17_68391 0.5	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EG048: Hexavalent Chromium (Alkaline Digest) (QC Lot: 1085857)									
EM1711578-003	B17_68391 0.5	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1711692-001	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EK026SF: Total CN by Segmented Flow Analyser (QC Lot: 1083065)									
EM1711550-086	Anonymous	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.00	No Limit
EM1711578-003	B17_68391 0.5	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.00	No Limit
EK040T: Fluoride Total (QC Lot: 1083275)									
EM1711495-002	Anonymous	EK040T: Fluoride	16984-48-8	40	mg/kg	230	230	0.00	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 1083137)									
EM1711495-002	Anonymous	EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 1083113)									
EM1711578-003	B17_68391 0.5	EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074H: Naphthalene (QC Lot: 1083113)									
EM1711578-003	B17_68391 0.5	EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EP074I: Volatile Halogenated Compounds (QC Lot: 1083113)									
EM1711578-003	B17_68391 0.5	EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074I: Volatile Halogenated Compounds (QC Lot: 1083113) - continued									
EM1711578-003	B17_68391 0.5	EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	<0.04	0.00	No Limit
		EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	<0.4	0.00	No Limit
EP075A: Phenolic Compounds (Halogenated) (QC Lot: 1083135)									
EM1711495-002	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP075A: Phenolic Compounds (Non-halogenated) (QC Lot: 1083135)									
EM1711495-002	Anonymous	EP075-EM: Phenol	108-95-2	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	0.00	No Limit
EP075B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1083135)									
EM1711495-002	Anonymous	EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1083135) - continued									
EM1711495-002	Anonymous	EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP075I: Organochlorine Pesticides (QC Lot: 1083135)									
EM1711495-002	Anonymous	EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1083113)									
EM1711578-003	B17_68391 0.5	EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1083136)									
EM1711495-002	Anonymous	EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1083113)									
EM1711578-003	B17_68391 0.5	EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
		EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1083136)									
EM1711495-002	Anonymous	EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1083136) - continued									
EM1711495-002	Anonymous	EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG020T: Total Metals by ICP-MS (QC Lot: 1082864)									
EM1711467-083	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Tin	7440-31-5	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.00	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EM1711607-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	0.0003	0.0003	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.064	0.065	1.96	0% - 20%
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.219	0.228	4.05	0% - 20%
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.072	0.074	2.79	0% - 20%
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.030	0.030	0.00	0% - 20%
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	0.005	0.005	0.00	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.055	0.059	6.36	0% - 20%
		EG020A-T: Tin	7440-31-5	0.001	mg/L	0.029	0.030	4.88	0% - 20%
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.573	0.571	0.281	0% - 20%
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EG020T: Total Metals by ICP-MS (QC Lot: 1082865)									
EM1711578-002	RB280817	EG020B-T: Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1088092)									
EM1711467-083	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EM1711590-028	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1084893)									
EM1711510-020	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EM1711645-004	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1084893)									
EM1711510-020	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EM1711645-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 1084893)									
EM1711510-020	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080: BTEXN (QC Lot: 1084893) - continued									
EM1711510-020	Anonymous	EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
EM1711645-004	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 1082902)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	88.1	79	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	94.5	85	109
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	86.7	78	108
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	83.7	78	106
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	7.9 mg/kg	88.3	86	112
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	86.2	82	111
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	99.0	93	109
EG005T: Silver	7440-22-4	2	mg/kg	<2	2.1 mg/kg	95.3	80	108
EG005T: Tin	7440-31-5	5	mg/kg	<5	5.2 mg/kg	104	88	116
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	87.4	82	111
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1082903)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	93.6	77	104
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 1085857)								
EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	40 mg/kg	81.7	80	120
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 1083065)								
EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	20 mg/kg	89.2	80	110
EK040T: Fluoride Total (QCLot: 1083275)								
EK040T: Fluoride	16984-48-8	40	mg/kg	<40	950 mg/kg	93.9	77	106
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 1083137)								
EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	75.4	63	133
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 1083113)								
EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	2.1 mg/kg	85.2	74	118
EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	2.1 mg/kg	88.4	70	118
EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2.1 mg/kg	75.5	69	117
EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4.2 mg/kg	73.1	68	116
EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	2.1 mg/kg	79.0	71	117
EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2.1 mg/kg	76.1	70	116
EP074H: Naphthalene (QCLot: 1083113)								
EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	0.6 mg/kg	85.2	74	116
EP074I: Volatile Halogenated Compounds (QCLot: 1083113)								
EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	0.1 mg/kg	83.6	49	133
EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	0.1 mg/kg	78.1	62	127

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP074I: Volatile Halogenated Compounds (QCLot: 1083113) - continued								
EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	2.1 mg/kg	85.5	65	131
EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	0.1 mg/kg	78.6	68	124
EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	0.1 mg/kg	83.0	74	118
EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	0.1 mg/kg	82.9	72	118
EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	0.1 mg/kg	82.7	67	119
EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	0.1 mg/kg	81.1	65	119
EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	0.1 mg/kg	86.9	70	122
EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	0.1 mg/kg	82.7	72	124
EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	0.1 mg/kg	90.4	74	122
EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	0.1 mg/kg	81.5	58	120
EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	0.1 mg/kg	91.0	70	119
EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	0.1 mg/kg	73.7	71	125
EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	0.1 mg/kg	80.0	61	125
EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	0.1 mg/kg	87.0	70	122
EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	0.1 mg/kg	84.9	61	118
EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	0.1 mg/kg	88.6	67	117
EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	0.1 mg/kg	81.6	53	127
EP075A: Phenolic Compounds (Halogenated) (QCLot: 1083135)								
EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	2 mg/kg	88.9	43	119
EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	2 mg/kg	73.1	44	131
EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	2 mg/kg	97.1	43	122
EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	2 mg/kg	78.5	50	129
EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	2 mg/kg	94.4	44	128
EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	2 mg/kg	76.8	44	126
EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	2 mg/kg	87.8	46	126
EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/5 8-90-2	0.05	mg/kg	<0.05	4 mg/kg	89.0	44	124
EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	4 mg/kg	67.5	36	124
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 1083135)								
EP075-EM: Phenol	108-95-2	1	mg/kg	<1	2 mg/kg	77.2	41	120
EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	2 mg/kg	92.5	41	131
EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	4 mg/kg	83.5	43	130
EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	2 mg/kg	73.5	49	130
EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	2 mg/kg	90.5	37	119
EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	12 mg/kg	84.8	23	125
EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	12 mg/kg	87.1	49	133
EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	12 mg/kg	70.3	47	125
EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	12 mg/kg	64.0	48	123
EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	10 mg/kg	69.2	12	132

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 1083135)								
EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	2 mg/kg	100	44	122
EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	2 mg/kg	93.0	54	126
EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	2 mg/kg	95.3	46	126
EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	2 mg/kg	93.6	51	125
EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	2 mg/kg	102	57	127
EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	82.5	55	127
EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	2 mg/kg	105	57	131
EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	2 mg/kg	104	57	131
EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	2 mg/kg	108	56	132
EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	2 mg/kg	105	58	134
EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	4 mg/kg	97.8	55	133
EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	2 mg/kg	97.5	51	135
EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	2 mg/kg	86.3	55	137
EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	2 mg/kg	84.6	54	136
EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	2 mg/kg	87.9	55	137
EP075I: Organochlorine Pesticides (QCLot: 1083135)								
EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	2 mg/kg	98.0	54	130
EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	2 mg/kg	92.6	54	130
EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	2 mg/kg	98.2	54	134
EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	2 mg/kg	98.2	54	132
EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	2 mg/kg	102	55	131
EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	2 mg/kg	103	54	128
EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	2 mg/kg	105	54	128
EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	2 mg/kg	104	56	130
EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	2 mg/kg	104	56	130
EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	2 mg/kg	104	55	131
EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	2 mg/kg	99.4	53	133
EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	2 mg/kg	94.4	54	130
EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	2 mg/kg	110	57	133
EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	2 mg/kg	146	28	174
EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	2 mg/kg	119	40	148
EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	2 mg/kg	107	56	138
EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	2 mg/kg	106	57	135
EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	2 mg/kg	105	51	133
EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	2 mg/kg	104	51	133
EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	2 mg/kg	108	48	136
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1083113)								
EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	39.6 mg/kg	78.5	69	114

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1083136)								
EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	837 mg/kg	97.9	72	130
EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	3061 mg/kg	96.1	77	126
EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	1592 mg/kg	95.9	75	119
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1083113)								
EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	48.9 mg/kg	79.8	69	112
EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1083136)								
EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	1222 mg/kg	97.3	75	123
EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	3919 mg/kg	96.5	77	127
EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	316 mg/kg	90.6	43	123

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 1082864)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	99.1	90	110
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	102	86	111
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	92.4	87	109
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	95.9	87	108
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	95.7	88	109
EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	100	88	114
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	95.3	87	111
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	95.2	85	113
EG020A-T: Tin	7440-31-5	0.001	mg/L	<0.001	0.1 mg/L	101	88	113
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	99.5	87	113
EG020T: Total Metals by ICP-MS (QCLot: 1082865)								
EG020B-T: Silver	7440-22-4	0.001	mg/L	<0.001	0.02 mg/L	108	78	129
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1088092)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	100	81	114
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1084893)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	360 µg/L	117	67	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1084893)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	115	65	125
EP080: BTEXN (QCLot: 1084893)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	97.0	76	120
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	99.5	76	124
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	106	72	124

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080: BTEXN (QCLot: 1084893) - continued								
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	114	72	130
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	110	78	128
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	116	71	129

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG005T: Total Metals by ICP-AES (QCLot: 1082902)							
EM1711572-023	Anonymous	EG005T: Lead	7439-92-1	50 mg/kg	85.3	76	124
		EG005T: Zinc	7440-66-6	50 mg/kg	125	74	128
EM1711572-023	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	107	78	124
		EG005T: Cadmium	7440-43-9	50 mg/kg	92.7	84	116
		EG005T: Copper	7440-50-8	50 mg/kg	122	82	124
		EG005T: Molybdenum	7439-98-7	50 mg/kg	96.9	79	117
		EG005T: Nickel	7440-02-0	50 mg/kg	112	78	120
		EG005T: Selenium	7782-49-2	50 mg/kg	78.4	71	125
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1082903)							
EM1711572-023	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	83.8	76	116
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 1085857)							
EM1711578-004	B17_68391 1.0	EG048G: Hexavalent Chromium	18540-29-9	40 mg/kg	82.2	58	114
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 1083065)							
EM1711550-092	Anonymous	EK026SF: Total Cyanide	57-12-5	20 mg/kg	89.1	77	113
EK040T: Fluoride Total (QCLot: 1083275)							
EM1711495-003	Anonymous	EK040T: Fluoride	16984-48-8	400 mg/kg	91.5	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 1083137)							
EM1711536-014	Anonymous	EP066-EM: Total Polychlorinated biphenyls	----	1 mg/kg	90.7	36	152
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 1083113)							
EM1711578-004	B17_68391 1.0	EP074-UT: Benzene	71-43-2	2 mg/kg	77.8	50	138
		EP074-UT: Toluene	108-88-3	2 mg/kg	79.5	56	134
EP074I: Volatile Halogenated Compounds (QCLot: 1083113)							
EM1711578-004	B17_68391 1.0	EP074-UT: 1.1-Dichloroethene	75-35-4	2 mg/kg	82.1	26	141

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP074I: Volatile Halogenated Compounds (QCLot: 1083113) - continued							
EM1711578-004	B17_68391 1.0	EP074-UT: Trichloroethene	79-01-6	2 mg/kg	79.6	50	134
		EP074-UT: Chlorobenzene	108-90-7	2 mg/kg	86.8	28	134
EP075A: Phenolic Compounds (Halogenated) (QCLot: 1083135)							
EM1711495-003	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	1 mg/kg	99.6	34	118
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	1 mg/kg	77.5	41	139
		EP075-EM: Pentachlorophenol	87-86-5	1 mg/kg	35.4	10	144
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 1083135)							
EM1711495-003	Anonymous	EP075-EM: Phenol	108-95-2	1 mg/kg	87.0	32	134
		EP075-EM: 2-Nitrophenol	88-75-5	1 mg/kg	70.6	13	129
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 1083135)							
EM1711495-003	Anonymous	EP075-EM: Acenaphthene	83-32-9	1 mg/kg	103	46	138
		EP075-EM: Pyrene	129-00-0	1 mg/kg	118	27	169
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1083113)							
EM1711578-004	B17_68391 1.0	EP074-UT: C6 - C9 Fraction	---	28 mg/kg	66.3	43	111
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1083136)							
EM1711536-010	Anonymous	EP071-EM: C10 - C14 Fraction	---	837 mg/kg	95.7	53	123
		EP071-EM: C15 - C28 Fraction	---	3061 mg/kg	94.4	70	124
		EP071-EM: C29 - C36 Fraction	---	1592 mg/kg	95.2	64	118
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1083113)							
EM1711578-004	B17_68391 1.0	EP074-UT: C6 - C10 Fraction	C6_C10	33 mg/kg	64.9	42	106
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1083136)							
EM1711536-010	Anonymous	EP071-EM: >C10 - C16 Fraction	---	1222 mg/kg	95.1	65	123
		EP071-EM: >C16 - C34 Fraction	---	3919 mg/kg	95.1	67	121
		EP071-EM: >C34 - C40 Fraction	---	316 mg/kg	92.1	44	126

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 1082864)							
EM1711467-083	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	97.0	82	118
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	102	75	129
		EG020A-T: Chromium	7440-47-3	1 mg/L	95.2	80	118
		EG020A-T: Copper	7440-50-8	1 mg/L	90.0	81	115
		EG020A-T: Lead	7439-92-1	1 mg/L	93.4	83	121
		EG020A-T: Nickel	7440-02-0	1 mg/L	95.6	80	118
		EG020A-T: Zinc	7440-66-6	1 mg/L	97.5	74	116
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1088092)							

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1088092) - continued							
EM1711467-084	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	90.2	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1084893)							
EM1711510-021	Anonymous	EP080: C6 - C9 Fraction	----	280 µg/L	62.2	43	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1084893)							
EM1711510-021	Anonymous	EP080: C6 - C10 Fraction	C6_C10	330 µg/L	61.8	44	122
EP080: BTEXN (QCLot: 1084893)							
EM1711510-021	Anonymous	EP080: Benzene	71-43-2	20 µg/L	77.9	68	130
		EP080: Toluene	108-88-3	20 µg/L	89.9	72	132

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM1711578**	Page	: 1 of 9
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLIVIA HENDERSON	Telephone	: +61-3-8549 9600
Project	: 2135645A OSAR	Date Samples Received	: 28-Aug-2017
Site	: Site 26	Issue Date	: 01-Sep-2017
Sampler	: ----	No. of samples received	: 5
Order number	: ----	No. of samples analysed	: 5

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA001: pH in soil using 0.01M CaCl extract							
Soil Glass Jar - Unpreserved (EA001)							
B17_68391 0.5, B17_68391 1.0, B17_68391 1.5	**28-Aug-2017**	**31-Aug-2017**	04-Sep-2017	✓	**31-Aug-2017**	31-Aug-2017	✓
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
B17_68391 0.5, B17_68391 1.0, B17_68391 1.5	**28-Aug-2017**	**----**	----	----	**30-Aug-2017**	11-Sep-2017	✓
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
B17_68391 0.5, B17_68391 1.0, B17_68391 1.5	**28-Aug-2017**	**30-Aug-2017**	24-Feb-2018	✓	**30-Aug-2017**	24-Feb-2018	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
B17_68391 0.5, B17_68391 1.0, B17_68391 1.5	**28-Aug-2017**	**30-Aug-2017**	25-Sep-2017	✓	**31-Aug-2017**	25-Sep-2017	✓
EG048: Hexavalent Chromium (Alkaline Digest)							
Soil Glass Jar - Unpreserved (EG048G)							
B17_68391 0.5, B17_68391 1.0, B17_68391 1.5	**28-Aug-2017**	**31-Aug-2017**	25-Sep-2017	✓	**31-Aug-2017**	07-Sep-2017	✓
EK026SF: Total CN by Segmented Flow Analyser							
Soil Glass Jar - Unpreserved (EK026SF)							
B17_68391 0.5, B17_68391 1.0, B17_68391 1.5	**28-Aug-2017**	**30-Aug-2017**	11-Sep-2017	✓	**31-Aug-2017**	13-Sep-2017	✓
EK040T: Fluoride Total							
Soil Glass Jar - Unpreserved (EK040T)							
B17_68391 0.5, B17_68391 1.0, B17_68391 1.5	**28-Aug-2017**	**30-Aug-2017**	25-Sep-2017	✓	**01-Sep-2017**	25-Sep-2017	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066-EM)							
B17_68391 0.5, B17_68391 1.0, B17_68391 1.5	**28-Aug-2017**	**30-Aug-2017**	11-Sep-2017	✓	**30-Aug-2017**	09-Oct-2017	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074A: Monocyclic Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074-UT) B17_68391 0.5, B17_68391 1.0, B17_68391 1.5	**28-Aug-2017**	**30-Aug-2017**	04-Sep-2017	✓	**30-Aug-2017**	04-Sep-2017	✓
EP074H: Naphthalene							
Soil Glass Jar - Unpreserved (EP074-UT) B17_68391 0.5, B17_68391 1.0, B17_68391 1.5	**28-Aug-2017**	**30-Aug-2017**	04-Sep-2017	✓	**30-Aug-2017**	04-Sep-2017	✓
EP074I: Volatile Halogenated Compounds							
Soil Glass Jar - Unpreserved (EP074-UT) B17_68391 0.5, B17_68391 1.0, B17_68391 1.5	**28-Aug-2017**	**30-Aug-2017**	04-Sep-2017	✓	**30-Aug-2017**	04-Sep-2017	✓
EP075A: Phenolic Compounds (Halogenated)							
Soil Glass Jar - Unpreserved (EP075-EM) B17_68391 0.5, B17_68391 1.0, B17_68391 1.5	**28-Aug-2017**	**30-Aug-2017**	11-Sep-2017	✓	**30-Aug-2017**	09-Oct-2017	✓
EP075A: Phenolic Compounds (Non-halogenated)							
Soil Glass Jar - Unpreserved (EP075-EM) B17_68391 0.5, B17_68391 1.0, B17_68391 1.5	**28-Aug-2017**	**30-Aug-2017**	11-Sep-2017	✓	**30-Aug-2017**	09-Oct-2017	✓
EP075B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075-EM) B17_68391 0.5, B17_68391 1.0, B17_68391 1.5	**28-Aug-2017**	**30-Aug-2017**	11-Sep-2017	✓	**30-Aug-2017**	09-Oct-2017	✓
EP075I: Organochlorine Pesticides							
Soil Glass Jar - Unpreserved (EP075-EM) B17_68391 0.5, B17_68391 1.0, B17_68391 1.5	**28-Aug-2017**	**30-Aug-2017**	11-Sep-2017	✓	**30-Aug-2017**	09-Oct-2017	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074-UT) B17_68391 0.5, B17_68391 1.0, B17_68391 1.5	**28-Aug-2017**	**30-Aug-2017**	04-Sep-2017	✓	**30-Aug-2017**	04-Sep-2017	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP074-UT) B17_68391 0.5, B17_68391 1.0, B17_68391 1.5	**28-Aug-2017**	**30-Aug-2017**	04-Sep-2017	✓	**30-Aug-2017**	04-Sep-2017	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unspecified (EG020B-T)							
RB280817	**28-Aug-2017**	**30-Aug-2017**	24-Feb-2018	✓	**30-Aug-2017**	24-Feb-2018	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unspecified (EG035T)							
RB280817	**28-Aug-2017**	**----**	----	----	**01-Sep-2017**	25-Sep-2017	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP080)							
TB280817	**28-Aug-2017**	**31-Aug-2017**	11-Sep-2017	✓	**31-Aug-2017**	11-Sep-2017	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber VOC Vial - Sulfuric Acid (EP080)							
TB280817	**28-Aug-2017**	**31-Aug-2017**	11-Sep-2017	✓	**31-Aug-2017**	11-Sep-2017	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
TB280817	**28-Aug-2017**	**31-Aug-2017**	11-Sep-2017	✓	**31-Aug-2017**	11-Sep-2017	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	7	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	5	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Matrix Spikes (MS) - Continued							
Total Fluoride	EK040T	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	18	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Total Mercury by FIMS	EG035T	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite B	EG020B-T	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Total Mercury by FIMS	EG035T	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite B	EG020B-T	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Total Mercury by FIMS	EG035T	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite B	EG020B-T	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Total Mercury by FIMS	EG035T	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH in soil using a 0.01M CaCl2 extract	EA001	SOIL	In house: Referenced to Rayment and Lyons (2011) 4B3 (mod.) or 4B4 (mod.) 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM (2013) Schedule B(3)
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	SOIL	In house: Referenced to USEPA SW846, Method 3060A. Hexavalent chromium is extracted by alkaline digestion. The digest is determined by photometrically by automatic discrete analyser, following pH adjustment. The instrument uses colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Cyanide by Segmented Flow Analyser	EK026SF	SOIL	In house: Referenced to APHA 4500-CN C / ASTM D7511. Caustic leachates of soil samples are introduced into an automated segmented flow analyser. Complex bound cyanide is decomposed in a continuously flowing stream, at a pH of 3.8, by the effect of UV light. A UV-B lamp (312 nm) and a decomposition spiral of borosilicate glass are used to filter out UV light with a wavelength of less than 290 nm thus preventing the conversion of thiocyanate into cyanide. The hydrogen cyanide present at a pH of 3.8 is separated by gas dialysis. The hydrogen cyanide is then determined photometrically, based on the reaction of cyanide with chloramine-T to form cyanogen chloride. This then reacts with 4-pyridine carboxylic acid and 1,3-dimethylbarbituric acid to give a red colour which is measured at 600 nm. This method is compliant with NEPM (2013) Schedule B(3)
Total Fluoride	EK040T	SOIL	(In-house) Total fluoride is determined by ion specific electrode (ISE) in a solution obtained after a Sodium Carbonate / Potassium Carbonate fusion dissolution.
PCB - VIC EPA 448.3 Screen	EP066-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
TRH - Semivolatile Fraction	EP071-EM	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40.
Volatile Organic Compounds - Ultra-trace	EP074-UT	SOIL	In house: Referenced to USEPA SW 846 - 8260B Extracts are analysed by Purge and Trap, Capillary GC/MS in partial SIM/Scan mode. Quantification is by comparison against an established multi-point calibration curves. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)

Analytical Methods	Method	Matrix	Method Descriptions
Volatile Organic Compounds - Ultra-trace - Summations	EP074-UT-SUM	SOIL	Summation of MAHs and VHCs
Semivolatile Organic Compounds - Waste Classification	EP075-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (2013) Schedule B(3) (Method 502)
SVOC - Waste Classification (Sums)	EP075-EM-SUM	SOIL	Summations for EP075 (EM variation)
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite B	EG020B-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
NaOH leach for CN in Soils	CN-PR	SOIL	In house: APHA 4500 CN. Samples are extracted by end-over-end tumbling with NaOH.
pH in soil using a 0.01M CaCl2 extract	EA001-PR	SOIL	In house: Referenced to Rayment and Higginson 4B1, 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Alkaline digestion for Hexavalent Chromium	EG048PR	SOIL	In house: Referenced to USEPA SW846, Method 3060A.
Total Fluoride	EK040T-PR	SOIL	In house: Samples are fused with Sodium Carbonate / Potassium Carbonate flux.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils - Ultra-trace.	ORG16-UT	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids - VIC EPA Screen	ORG17-EM	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

Preparation Methods	Method	Matrix	Method Descriptions
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

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PO Box 1162 Newcastle NSW, 2300
Tel: (02) 4929 8300 Fax: (02) 4929 8382

Chain of Custody

Order No: 85452

Job Title: OSAR / Mordialloc Bypass.

PB Job Number: 23564SA

Job Location: Site 26

Project Manager: Olivia Henderson.

Laboratory Name: ALS. Springvale

Address: Westall Rd. Springvale.

Results Expected by/on:

Fax Results to: olivia.henderson@wsp.com

Fax Number:

Phone Number:

Contact Name:

Delivery Method:

Quote Number:

Terms of Business	PB	Other	Checked
	✓		

Spreadsheet of Results Required: Y / N

Format:

Turnaround Time Required:

Invoice to: Olivia Henderson.

Comments:

Date Sampled	Time	Sample I.D.	Container Size	Sample Location	Medium*	Preservative Type	Filtered (X)	TPH	BTEX	PAH's	OC/OP/PCB's	Metals**						Initials	Comments/Additional Information and/or Analysis Required
28.8.17		TB280817	Vial		W														
		FB280817	Vial plastic, amber		W														
		B17-68391	250ml Jar	0.5	S														
		B17-68391	↓	1.0	S														
↓		B17-68391	↓	1.5	S														

Environmental Division
Melbourne
Work Order Reference
EM1711578

Telephone : + 61-3-8549 9600

Relinquished by:	Relinquished by:	Relinquished by:
Date & Time: 28/8/17 5.05pm	Date & Time:	Date & Time:
Company: WSP	Company:	Company:
Signature:	Signature:	Signature:
Received in Good Order & Condition by (Name): Scott	Received in Good Order & Condition by (Name):	Received in Good Order & Condition by (Name):
Date & Time: 28/8/17, 17.05	Date & Time:	Date & Time:
Company: ALS	Company:	Company:
Signature:	Signature:	Signature:

Medium*: S = Soil, W = Water, V = Vapour

Legend**: (circle the following to be tested)

Metals: Al As Be Cd Co Cr Cu Fe Hg Li Mg Mn Ni Pb Se Sn V Zn

Samples on Ice: ☐ Yes ☐ No

Please fax back a signed copy when samples are received at the laboratory

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Chain of Custody

Order No: 85452

| | | |

Bharathi Narayanan

From: Henderson, Olivia <Olivia.Henderson@wsp.com>
Sent: Tuesday, 29 August 2017 1:18 PM
To: Graeme Jablonskas
Cc: Ly, Jason; Physick, Paul
Subject: RE: EM1711578-WSP-2135645A

Hi Graeme

Thanks, please schedule the following:

3) B17-68391/0.5 - IWRG621
4) B17-68391/1.0 - IWRG621
5) B17-68391/1.5 - IWRG621
1) TB280817 - BTEXN/TPH C6-C10
2) FB280817 - IWRG621 metals

Cheers

.

-----Original Message-----
From: Graeme Jablonskas [mailto:Graeme.Jablonskas@alsglobal.com]
Sent: Tuesday, 29 August 2017 8:11 AM
To: Henderson, Olivia <Olivia.Henderson@wsp.com>
Subject: FW: EM1711578-WSP-2135645A

Hi Olivia

Samples received. Awaiting analysis.

Kind Regards
Graeme Jablonskas
Senior Project Manager - Springvale
Environmental

T +61 3 8549 9600 D +61 3 8549 9609
F +61 3 8549 9626
graeme.jablonskas@alsglobal.com
2-4 Westall Rd
Springvale Vic 3171
Australia

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-----Original Message-----

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1711735**	Page	: 1 of 9
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLIVIA HENDERSON	Contact	: Steven McGrath
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9600
Project	: 2135645A OSAR	Date Samples Received	: 30-Aug-2017 17:00
Order number	: ----	Date Analysis Commenced	: 31-Aug-2017
C-O-C number	: 85453	Issue Date	: 05-Sep-2017 16:04
Sampler	: ----		
Site	: Site 26		
Quote number	: ME-525-16		
No. of samples received	: 8		
No. of samples analysed	: 5		

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Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	Senior Semivolatile Instrument Chemist	Melbourne Organics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	B17-68389 0.2	B17-68389 0.5	B17-68389 1.0	----	----
			Client sampling date / time	30-Aug-2017 00:00	30-Aug-2017 00:00	30-Aug-2017 00:00	----	----
Compound	CAS Number	LOR	Unit	EM1711735-003	EM1711735-004	EM1711735-005	--------	--------
				Result	Result	Result	----	----
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	**6.3**	**5.8**	**5.2**	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**16.2**	**9.8**	**12.3**	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	----	----
Copper	7440-50-8	5	mg/kg	**22**	<5	<5	----	----
Lead	7439-92-1	5	mg/kg	**31**	<5	<5	----	----
Molybdenum	7439-98-7	2	mg/kg	<2	<2	<2	----	----
Nickel	7440-02-0	2	mg/kg	**9**	<2	<2	----	----
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	----	----
Silver	7440-22-4	2	mg/kg	<2	<2	<2	----	----
Tin	7440-31-5	5	mg/kg	<5	<5	<5	----	----
Zinc	7440-66-6	5	mg/kg	**70**	<5	<5	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	----	----
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
EK026SF: Total CN by Segmented Flow Analyser								
Total Cyanide	57-12-5	1	mg/kg	<1	<1	<1	----	----
EK040T: Fluoride Total								
Fluoride	16984-48-8	40	mg/kg	**170**	**250**	<40	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	<0.1	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Sum of monocyclic aromatic hydrocarbons	----	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	B17-68389 0.2	B17-68389 0.5	B17-68389 1.0	----	----
			Client sampling date / time	30-Aug-2017 00:00	30-Aug-2017 00:00	30-Aug-2017 00:00	----	----
Compound	CAS Number	LOR	Unit	EM1711735-003	EM1711735-004	EM1711735-005	--------	--------
				Result	Result	Result	----	----
EP074H: Naphthalene								
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	----	----
EP074I: Volatile Halogenated Compounds								
Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	<0.01	<0.01	----	----
Methylene chloride	75-09-2	0.4	mg/kg	<0.4	<0.4	<0.4	----	----
trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	<0.01	<0.01	----	----
Chloroform	67-66-3	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	<0.01	<0.01	----	----
Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	<0.01	<0.01	----	----
1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
Trichloroethene	79-01-6	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	<0.04	<0.04	----	----
Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	<0.01	<0.01	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	<0.02	<0.02	----	----
1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	<0.01	<0.01	----	----
^ Sum of volatile chlorinated hydrocarbons	----	0.01	mg/kg	<0.01	<0.01	<0.01	----	----
^ Sum of other chlorinated hydrocarbons	----	0.01	mg/kg	<0.01	<0.01	<0.01	----	----
EP075A: Phenolic Compounds (Halogenated)								
2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	<0.03	<0.03	----	----
2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
^ Sum of Phenols (halogenated)	----	0.03	mg/kg	<0.03	<0.03	<0.03	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B17-68389 0.2	B17-68389 0.5	B17-68389 1.0	----	----
				Client sampling date / time	30-Aug-2017 00:00	30-Aug-2017 00:00	30-Aug-2017 00:00	----	----
Compound	CAS Number	LOR	Unit		EM1711735-003	EM1711735-004	EM1711735-005	--------	--------
					Result	Result	Result	----	----
EP075A: Phenolic Compounds (Halogenated) - Continued									
EP075A: Phenolic Compounds (Non-halogenated)									
Phenol	108-95-2	1	mg/kg		<1	<1	<1	----	----
2-Methylphenol	95-48-7	1	mg/kg		<1	<1	<1	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	<1	----	----
2-Nitrophenol	88-75-5	1	mg/kg		<1	<1	<1	----	----
2.4-Dimethylphenol	105-67-9	1	mg/kg		<1	<1	<1	----	----
2.4-Dinitrophenol	51-28-5	5	mg/kg		<5	<5	<5	----	----
4-Nitrophenol	100-02-7	5	mg/kg		<5	<5	<5	----	----
2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg		<5	<5	<5	----	----
Dinoseb	88-85-7	5	mg/kg		<5	<5	<5	----	----
2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg		<5	<5	<5	----	----
^ Sum of Phenols (non-halogenated)	----	1	mg/kg		<1	<1	<1	----	----
EP075B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		0.6	0.6	0.6	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		1.2	1.2	1.2	----	----
EP075I: Organochlorine Pesticides									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B17-68389 0.2	B17-68389 0.5	B17-68389 1.0	----	----
				Client sampling date / time	30-Aug-2017 00:00	30-Aug-2017 00:00	30-Aug-2017 00:00	----	----
Compound	CAS Number	LOR	Unit		EM1711735-003	EM1711735-004	EM1711735-005	--------	--------
					Result	Result	Result	----	----
EP075l: Organochlorine Pesticides - Continued									
alpha-BHC	319-84-6	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
beta-BHC	319-85-7	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
gamma-BHC	58-89-9	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
delta-BHC	319-86-8	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Heptachlor	76-44-8	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Aldrin	309-00-2	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Heptachlor epoxide	1024-57-3	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
cis-Chlordane	5103-71-9	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
trans-Chlordane	5103-74-2	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Endosulfan 1	959-98-8	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Dieldrin	60-57-1	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Endrin aldehyde	7421-93-4	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Endrin	72-20-8	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Endosulfan 2	33213-65-9	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Endosulfan sulfate	1031-07-8	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
4.4`-DDT	50-29-3	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Methoxychlor	72-43-5	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
^ Sum of organochlorine pesticides	----	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
^ Chlordane	57-74-9	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
^ Sum of other organochlorine pesticides	----	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	----	----
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B17-68389 0.2	B17-68389 0.5	B17-68389 1.0	----	----
				Client sampling date / time	30-Aug-2017 00:00	30-Aug-2017 00:00	30-Aug-2017 00:00	----	----
Compound	CAS Number	LOR	Unit		EM1711735-003	EM1711735-004	EM1711735-005	--------	--------
					Result	Result	Result	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	----	----
>C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	----	----
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		101	96.7	102	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		87.1	85.4	81.3	----	----
Toluene-D8	2037-26-5	0.1	%		83.3	81.3	80.0	----	----
4-Bromofluorobenzene	460-00-4	0.1	%		79.2	84.8	83.7	----	----
EP075S: Acid Extractable Surrogates									
Phenol-d6	13127-88-3	0.025	%		117	109	113	----	----
2-Chlorophenol-D4	93951-73-6	0.025	%		108	104	98.8	----	----
2.4.6-Tribromophenol	118-79-6	0.025	%		110	102	105	----	----
EP075T: Base/Neutral Extractable Surrogates									
Nitrobenzene-D5	4165-60-0	0.025	%		108	105	105	----	----
1.2-Dichlorobenzene-D4	2199-69-1	0.025	%		107	99.3	104	----	----
2-Fluorobiphenyl	321-60-8	0.025	%		120	109	114	----	----
Anthracene-d10	1719-06-8	0.025	%		123	113	124	----	----
4-Terphenyl-d14	1718-51-0	0.025	%		134	126	132	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	TB/300817	RB/300817	----	----	----
				Client sampling date / time	30-Aug-2017 00:00	30-Aug-2017 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EM1711735-001	EM1711735-002	--------	--------	--------
					Result	Result	----	----	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		----	<0.001	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		----	<0.0001	----	----	----
Chromium	7440-47-3	0.001	mg/L		----	<0.001	----	----	----
Copper	7440-50-8	0.001	mg/L		----	<0.001	----	----	----
Lead	7439-92-1	0.001	mg/L		----	<0.001	----	----	----
Molybdenum	7439-98-7	0.001	mg/L		----	<0.001	----	----	----
Nickel	7440-02-0	0.001	mg/L		----	<0.001	----	----	----
Selenium	7782-49-2	0.01	mg/L		----	<0.01	----	----	----
Silver	7440-22-4	0.001	mg/L		----	<0.001	----	----	----
Tin	7440-31-5	0.001	mg/L		----	<0.001	----	----	----
Zinc	7440-66-6	0.005	mg/L		----	<0.005	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		----	<0.0001	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	----	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L		<20	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	----	----	----	----
Toluene	108-88-3	2	µg/L		<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	----	----	----	----
^ **Total Xylenes**	1330-20-7	2	µg/L		<2	----	----	----	----
^ **Sum of BTEX**	----	1	µg/L		<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**99.9**	----	----	----	----
Toluene-D8	2037-26-5	2	%		**106**	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		**102**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **SOIL**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	41	122
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	59	119
Toluene-D8	2037-26-5	55	117
4-Bromofluorobenzene	460-00-4	59	123
EP075S: Acid Extractable Surrogates			
Phenol-d6	13127-88-3	28	134
2-Chlorophenol-D4	93951-73-6	27	123
2.4.6-Tribromophenol	118-79-6	25	149
EP075T: Base/Neutral Extractable Surrogates			
Nitrobenzene-D5	4165-60-0	29	125
1.2-Dichlorobenzene-D4	2199-69-1	31	117
2-Fluorobiphenyl	321-60-8	44	136
Anthracene-d10	1719-06-8	53	133
4-Terphenyl-d14	1718-51-0	59	141

Sub-Matrix: **WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	129
Toluene-D8	2037-26-5	70	125
4-Bromofluorobenzene	460-00-4	71	129

Automated Guideline Comparison Report

EPA Victoria Publication IWRG 621 (2009) - Table 2: Soil Hazard Categorisation

Work Order	: **EM1711735**	Page	: 1 of 8
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLIVIA HENDERSON		
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Facsimile	: +61 03 9861 1144	Facsimile	: +61-3-8549 9601
Project	: 2135645A OSAR	Date Received	: 30-Aug-2017 17:00
Order number	: ----	Date Analysed	: 31-Aug-2017
C-O-C number	: 85453	Date Issued	: 05-Sep-2017 16:04
No. of samples received	: 8		
No. of samples analysed	: 5	Quote number	: ME-525-16

General Comments

This guideline comparison report **only** provides evaluation of total concentration data against upper limit thresholds for the 'Fill Material', 'C', 'B' Categories in Table 2 of EPA Publication IWRG621.

This guideline comparison report is **NOT** a soil classification report. Classification of soils as Fill Material, Category C, Category B or Category A requires consideration of a number of other factors including preliminary site investigation, sampling density and statistical calculations, as set out in EPA Publication IWRG 702.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

This guideline comparison report only provides evaluation data where chemical parameters specifically listed within the IWRG621 (2009) guideline are analysed by ALS using the **P-16 package in full**.

Red shading is applied where the result is equal to or greater than the guideline upper limit and/or equal to or lower than the guideline lower limit. Red shading is not applied to the 'Summary of Thresholds Reached or Exceeded'.

For the 'Summary of Thresholds Reached or Exceeded' to accurately function, all samples must be analysed and included in the 'Analytical Results' section of the following report. Please verify that all required IDs are listed and analysed.

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Summary of Thresholds Reached or Exceeded

Results for all samples detailed in this report are below the upper threshold limits for Fill Material.

Analytical Results

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B: Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

			Client sample ID			**B17-68389 0.2**	**B17-68389 0.5**	**B17-68389 1.0**	**----**	**----**
			Sampling date/time	Guideline Lower Limit	Guideline Upper Limit	30-Aug-2017	30-Aug-2017	30-Aug-2017	----	----
Compound	*Method*	*LOR*	*Unit*			**EM1711735-003**	**EM1711735-004**	**EM1711735-005**	**--------**	**--------**
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	2	12.5	**6.3**	**5.8**	**5.2**	**----**	**----**
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	2000	<5	<5	<5	**----**	**----**
Cadmium	EG005T	1	mg/kg	----	400	<1	<1	<1	**----**	**----**
Copper	EG005T	5	mg/kg	----	20000	**22**	<5	<5	**----**	**----**
Lead	EG005T	5	mg/kg	----	6000	**31**	<5	<5	**----**	**----**
Molybdenum	EG005T	2	mg/kg	----	4000	<2	<2	<2	**----**	**----**
Nickel	EG005T	2	mg/kg	----	12000	**9**	<2	<2	**----**	**----**
Selenium	EG005T	5	mg/kg	----	200	<5	<5	<5	**----**	**----**
Silver	EG005T	2	mg/kg	----	720	<2	<2	<2	**----**	**----**
Zinc	EG005T	5	mg/kg	----	140000	**70**	<5	<5	**----**	**----**
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	300	<0.1	<0.1	<0.1	**----**	**----**
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	2000	<0.5	<0.5	<0.5	**----**	**----**
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	10000	<1	<1	<1	**----**	**----**
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	40000	**170**	**250**	<40	**----**	**----**
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	16	<0.2	<0.2	<0.2	**----**	**----**
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	240	<0.2	<0.2	<0.2	**----**	**----**
EP074I: Volatile Halogenated Compounds										
Vinyl chloride	EP074-UT	0.02	mg/kg	----	4.8	<0.02	<0.02	<0.02	**----**	**----**
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	11	<0.02	<0.02	<0.02	**----**	**----**
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	50	<0.01	<0.01	<0.01	**----**	**----**
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	320	<0.03	<0.03	<0.03	**----**	**----**
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	2200	<1	<1	<1	**----**	**----**
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	20	<0.5	<0.5	<0.5	**----**	**----**
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	400	<0.5	<0.5	<0.5	**----**	**----**

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B: Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

			Client sample ID	Guideline Lower Limit	Guideline Upper Limit	**B17-68389 0.2**	**B17-68389 0.5**	**B17-68389 1.0**	**----**	**----**
			Sampling date/time			30-Aug-2017	30-Aug-2017	30-Aug-2017	----	----
Compound	*Method*	*LOR*	*Unit*			**EM1711735-003**	**EM1711735-004**	**EM1711735-005**	**--------**	**--------**
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
EP075I: Organochlorine Pesticides										
Heptachlor	EP075-EM	0.03	mg/kg	----	4.8	<0.03	<0.03	<0.03	**----**	**----**
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	4.8	<0.03	<0.03	<0.03	**----**	**----**
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50	<0.05	<0.05	<0.05	**----**	**----**
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	16	<0.03	<0.03	<0.03	**----**	**----**
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	50	<0.03	<0.03	<0.03	**----**	**----**
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	2600	<10	<10	<10	**----**	**----**
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	40000	<50	<50	<50	**----**	**----**

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category C: Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	B17-68389 0.2	B17-68389 0.5	B17-68389 1.0	----	----
Client sample ID										
Sampling date/time						30-Aug-2017	30-Aug-2017	30-Aug-2017	----	----
						EM1711735-003	EM1711735-004	EM1711735-005	--------	--------
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	4	9	**6.3**	**5.8**	**5.2**	----	----
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	500	<5	<5	<5	----	----
Cadmium	EG005T	1	mg/kg	----	100	<1	<1	<1	----	----
Copper	EG005T	5	mg/kg	----	5000	**22**	<5	<5	----	----
Lead	EG005T	5	mg/kg	----	1500	**31**	<5	<5	----	----
Molybdenum	EG005T	2	mg/kg	----	1000	<2	<2	<2	----	----
Nickel	EG005T	2	mg/kg	----	3000	**9**	<2	<2	----	----
Selenium	EG005T	5	mg/kg	----	50	<5	<5	<5	----	----
Silver	EG005T	2	mg/kg	----	180	<2	<2	<2	----	----
Tin	EG005T	5	mg/kg	----	500	<5	<5	<5	----	----
Zinc	EG005T	5	mg/kg	----	35000	**70**	<5	<5	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	75	<0.1	<0.1	<0.1	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	500	<0.5	<0.5	<0.5	----	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	2500	<1	<1	<1	----	----
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	10000	**170**	**250**	<40	----	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	4	<0.2	<0.2	<0.2	----	----
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	70	<0.2	<0.2	<0.2	----	----
EP074I: Volatile Halogenated Compounds										
Vinyl chloride	EP074-UT	0.02	mg/kg	----	1.2	<0.02	<0.02	<0.02	----	----
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	2.8	<0.02	<0.02	<0.02	----	----
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	10	<0.01	<0.01	<0.01	----	----
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	10	<0.03	<0.03	<0.03	----	----
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	560	<1	<1	<1	----	----
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	5	<0.5	<0.5	<0.5	----	----
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	100	<0.5	<0.5	<0.5	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category C: Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	*Client sample ID* / *Sampling date/time*				
						B17-68389 0.2 30-Aug-2017 **EM1711735-003**	**B17-68389 0.5** 30-Aug-2017 **EM1711735-004**	**B17-68389 1.0** 30-Aug-2017 **EM1711735-005**	**----** ---- --------	**----** ---- --------
EP075I: Organochlorine Pesticides										
Heptachlor	EP075-EM	0.03	mg/kg	----	1.2	<0.03	<0.03	<0.03	----	----
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	1.2	<0.03	<0.03	<0.03	----	----
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50	<0.05	<0.05	<0.05	----	----
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	4	<0.03	<0.03	<0.03	----	----
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	10	<0.03	<0.03	<0.03	----	----
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	650	<10	<10	<10	----	----
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	10000	<50	<50	<50	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material: Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

				Client sample ID	Guideline Lower Limit	Guideline Upper Limit	B17-68389 0.2	B17-68389 0.5	B17-68389 1.0	----	----
				Sampling date/time			30-Aug-2017	30-Aug-2017	30-Aug-2017	----	----
Compound	*Method*	*LOR*	*Unit*				EM1711735-003	EM1711735-004	EM1711735-005	--------	--------
EA001: pH in soil using 0.01M CaCl extract											
pH (CaCl2)	EA001	0.1	pH Unit		4	9	**6.3**	**5.8**	**5.2**	----	----
EG005T: Total Metals by ICP-AES											
Arsenic	EG005T	5	mg/kg		----	20	<5	<5	<5	----	----
Cadmium	EG005T	1	mg/kg		----	3	<1	<1	<1	----	----
Copper	EG005T	5	mg/kg		----	100	**22**	<5	<5	----	----
Lead	EG005T	5	mg/kg		----	300	**31**	<5	<5	----	----
Molybdenum	EG005T	2	mg/kg		----	40	<2	<2	<2	----	----
Nickel	EG005T	2	mg/kg		----	60	**9**	<2	<2	----	----
Selenium	EG005T	5	mg/kg		----	10	<5	<5	<5	----	----
Silver	EG005T	2	mg/kg		----	10	<2	<2	<2	----	----
Tin	EG005T	5	mg/kg		----	50	<5	<5	<5	----	----
Zinc	EG005T	5	mg/kg		----	200	**70**	<5	<5	----	----
EG035T: Total Recoverable Mercury by FIMS											
Mercury	EG035T	0.1	mg/kg		----	1	<0.1	<0.1	<0.1	----	----
EG048: Hexavalent Chromium (Alkaline Digest)											
Hexavalent Chromium	EG048G	0.5	mg/kg		----	1	<0.5	<0.5	<0.5	----	----
EK026SF: Total CN by Segmented Flow Analyser											
Total Cyanide	EK026SF	1	mg/kg		----	50	<1	<1	<1	----	----
EK040T: Fluoride Total											
Fluoride	EK040T	40	mg/kg		----	450	**170**	**250**	<40	----	----
EP066: Polychlorinated Biphenyls (PCB)											
Total Polychlorinated biphenyls	EP066-EM	0.1	mg/kg		----	2	<0.1	<0.1	<0.1	----	----
EP074A: Monocyclic Aromatic Hydrocarbons											
Benzene	EP074-UT	0.2	mg/kg		----	1	<0.2	<0.2	<0.2	----	----
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg		----	7	<0.2	<0.2	<0.2	----	----
EP074I: Volatile Halogenated Compounds											
Sum of volatile chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg		----	1	<0.01	<0.01	<0.01	----	----
EP075A: Phenolic Compounds (Halogenated)											
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg		----	1	<0.03	<0.03	<0.03	----	----
EP075A: Phenolic Compounds (Non-halogenated)											
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg		----	60	<1	<1	<1	----	----
EP075B: Polynuclear Aromatic Hydrocarbons											
Benzo(a)pyrene	EP075-EM	0.5	mg/kg		----	1	<0.5	<0.5	<0.5	----	----
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg		----	20	<0.5	<0.5	<0.5	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material: Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	*Client sample ID* / *Sampling date/time*				
						B17-68389 0.2 30-Aug-2017 **EM1711735-003**	**B17-68389 0.5** 30-Aug-2017 **EM1711735-004**	**B17-68389 1.0** 30-Aug-2017 **EM1711735-005**	**----** ---- --------	**----** ---- --------
EP075I: Organochlorine Pesticides										
Sum of organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	1	<0.03	<0.03	<0.03	----	----
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	100	<10	<10	<10	----	----
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	1000	<50	<50	<50	----	----

Note: Red shading is applied where the result is equal to or greater than the guideline upper limit and/or equal to or lower than the guideline lower limit.

QUALITY CONTROL REPORT

Work Order	: **EM1711735**	Page	: 1 of 14
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLIVIA HENDERSON	Contact	: Steven McGrath
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9600
Project	: 2135645A OSAR	Date Samples Received	: 30-Aug-2017
Order number	: ----	Date Analysis Commenced	: 31-Aug-2017
C-O-C number	: 85453	Issue Date	: 05-Sep-2017
Sampler	: ----		
Site	: Site 26		
Quote number	: ME-525-16		
No. of samples received	: 8		
No. of samples analysed	: 5		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	Senior Semivolatile Instrument Chemist	Melbourne Organics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA001: pH in soil using 0.01M CaCl extract (QC Lot: 1086297)									
EM1711721-006	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	8.1	8.2	1.23	0% - 20%
EM1711735-003	B17-68389 0.2	EA001: pH (CaCl2)	----	0.1	pH Unit	6.3	6.0	4.88	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1085538)									
EM1711703-001	Anonymous	EA055: Moisture Content	----	1	%	21.0	20.7	1.27	0% - 20%
EM1711728-004	Anonymous	EA055: Moisture Content	----	1	%	16.3	17.1	5.13	0% - 50%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1085539)									
EM1711735-004	B17-68389 0.5	EA055: Moisture Content	----	1	%	9.8	9.1	6.67	No Limit
EG005T: Total Metals by ICP-AES (QC Lot: 1085975)									
EM1711623-026	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	19	20	0.00	0% - 50%
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	14	14	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	14	14	0.00	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Tin	7440-31-5	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	24	24	0.00	No Limit
EM1711721-007	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	20	18	12.2	0% - 50%
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	15	14	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG005T: Total Metals by ICP-AES (QC Lot: 1085975) - continued									
EM1711721-007	Anonymous	EG005T: Lead	7439-92-1	5	mg/kg	17	17	0.00	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Tin	7440-31-5	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	22	20	7.28	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1085976)									
EM1711623-026	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EM1711721-007	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EG048: Hexavalent Chromium (Alkaline Digest) (QC Lot: 1087989)									
EM1711730-002	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1711754-004	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EK026SF: Total CN by Segmented Flow Analyser (QC Lot: 1088700)									
EM1711730-002	Anonymous	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.00	No Limit
EM1711754-004	Anonymous	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.00	No Limit
EK040T: Fluoride Total (QC Lot: 1088000)									
EM1711721-008	Anonymous	EK040T: Fluoride	16984-48-8	40	mg/kg	140	120	13.7	No Limit
EM1711745-005	Anonymous	EK040T: Fluoride	16984-48-8	40	mg/kg	150	150	0.00	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 1085329)									
EM1711721-002	Anonymous	EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 1085990)									
EM1711735-003	B17-68389 0.2	EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074H: Naphthalene (QC Lot: 1085990)									
EM1711735-003	B17-68389 0.2	EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EP074I: Volatile Halogenated Compounds (QC Lot: 1085990)									
EM1711735-003	B17-68389 0.2	EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074I: Volatile Halogenated Compounds (QC Lot: 1085990) - continued									
EM1711735-003	B17-68389 0.2	EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	<0.04	0.00	No Limit
		EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	<0.4	0.00	No Limit
EP075A: Phenolic Compounds (Halogenated) (QC Lot: 1085327)									
EM1711721-002	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP075A: Phenolic Compounds (Non-halogenated) (QC Lot: 1085327)									
EM1711721-002	Anonymous	EP075-EM: Phenol	108-95-2	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	0.00	No Limit
EP075B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1085327)									
EM1711721-002	Anonymous	EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1085327) - continued									
EM1711721-002	Anonymous	EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP075I: Organochlorine Pesticides (QC Lot: 1085327)									
EM1711721-002	Anonymous	EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1085328)									
EM1711721-002	Anonymous	EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1085990)									
EM1711735-003	B17-68389 0.2	EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1085328)									
EM1711721-002	Anonymous	EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1085990)									
EM1711735-003	B17-68389 0.2	EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
		EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG020T: Total Metals by ICP-MS (QC Lot: 1086513)									
EM1711735-002	RB/300817	EG020B-T: Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	0.00	No Limit
EG020T: Total Metals by ICP-MS (QC Lot: 1086514)									
EM1711774-005	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.012	0.011	0.00	0% - 50%
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.005	0.005	0.00	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.002	0.002	0.00	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.002	0.002	0.00	No Limit
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.005	0.004	0.00	No Limit
		EG020A-T: Tin	7440-31-5	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.009	0.006	36.4	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EM1711735-002	RB/300817	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Tin	7440-31-5	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.00	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1092944)									
EM1711508-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1087692)									
EM1711287-078	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EM1711756-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	80	60	27.4	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1087692)									
EM1711287-078	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EM1711756-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	80	60	27.0	No Limit
EP080: BTEXN (QC Lot: 1087692)									
EM1711287-078	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080: BTEXN (QC Lot: 1087692) - continued									
EM1711287-078	Anonymous	EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
EM1711756-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	19	14	26.9	0% - 50%
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	8	7	21.2	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	9	8	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 1085975)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	92.4	79	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	88.5	85	109
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	90.4	78	108
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	88.5	78	106
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	7.9 mg/kg	101	86	112
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	94.1	82	111
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	100	93	109
EG005T: Silver	7440-22-4	2	mg/kg	<2	2.1 mg/kg	96.0	80	108
EG005T: Tin	7440-31-5	5	mg/kg	<5	5.2 mg/kg	105	88	116
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	93.9	82	111
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1085976)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	86.9	77	104
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 1087989)								
EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	40 mg/kg	90.5	80	120
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 1088700)								
EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	20 mg/kg	90.3	80	110
EK040T: Fluoride Total (QCLot: 1088000)								
EK040T: Fluoride	16984-48-8	40	mg/kg	<40	950 mg/kg	88.0	77	106
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 1085329)								
EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	112	63	133
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 1085990)								
EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	2.1 mg/kg	93.3	74	118
EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	2.1 mg/kg	92.7	70	118
EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2.1 mg/kg	91.2	69	117
EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4.2 mg/kg	88.7	68	116
EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	2.1 mg/kg	93.8	71	117
EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2.1 mg/kg	91.0	70	116
EP074H: Naphthalene (QCLot: 1085990)								
EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	0.6 mg/kg	93.9	74	116
EP074I: Volatile Halogenated Compounds (QCLot: 1085990)								
EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	0.1 mg/kg	95.7	49	133
EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	0.1 mg/kg	91.3	62	127

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP074I: Volatile Halogenated Compounds (QCLot: 1085990) - continued								
EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	2.1 mg/kg	108	65	131
EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	0.1 mg/kg	94.0	68	124
EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	0.1 mg/kg	95.8	74	118
EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	0.1 mg/kg	89.6	72	118
EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	0.1 mg/kg	94.2	67	119
EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	0.1 mg/kg	93.1	65	119
EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	0.1 mg/kg	101	70	122
EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	0.1 mg/kg	94.3	72	124
EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	0.1 mg/kg	96.3	74	122
EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	0.1 mg/kg	90.1	58	120
EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	0.1 mg/kg	96.8	70	119
EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	0.1 mg/kg	98.8	71	125
EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	0.1 mg/kg	84.6	61	125
EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	0.1 mg/kg	94.8	70	122
EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	0.1 mg/kg	92.8	61	118
EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	0.1 mg/kg	94.2	67	117
EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	0.1 mg/kg	92.2	53	127
EP075A: Phenolic Compounds (Halogenated) (QCLot: 1085327)								
EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	2 mg/kg	102	43	119
EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	2 mg/kg	85.9	44	131
EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	2 mg/kg	114	43	122
EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	2 mg/kg	90.5	50	129
EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	2 mg/kg	110	44	128
EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	2 mg/kg	90.4	44	126
EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	2 mg/kg	95.2	46	126
EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/5 8-90-2	0.05	mg/kg	<0.05	4 mg/kg	66.7	44	124
EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	4 mg/kg	50.8	36	124
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 1085327)								
EP075-EM: Phenol	108-95-2	1	mg/kg	<1	2 mg/kg	89.2	41	120
EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	2 mg/kg	111	41	131
EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	4 mg/kg	97.6	43	130
EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	2 mg/kg	84.4	49	130
EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	2 mg/kg	105	37	119
EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	24 mg/kg	54.6	23	125
EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	12 mg/kg	98.9	49	133
EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	12 mg/kg	61.9	47	125
EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	12 mg/kg	69.1	48	123
EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	10 mg/kg	50.9	12	132

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 1085327)								
EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	2 mg/kg	113	44	122
EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	2 mg/kg	108	54	126
EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	2 mg/kg	110	46	126
EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	2 mg/kg	110	51	125
EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	2 mg/kg	103	57	127
EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	2 mg/kg	104	55	127
EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	2 mg/kg	108	57	131
EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	2 mg/kg	108	57	131
EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	2 mg/kg	115	56	132
EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	2 mg/kg	113	58	134
EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	4 mg/kg	112	55	133
EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	2 mg/kg	112	51	135
EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	2 mg/kg	89.3	55	137
EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	2 mg/kg	108	54	136
EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	2 mg/kg	110	55	137
EP075I: Organochlorine Pesticides (QCLot: 1085327)								
EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	2 mg/kg	113	54	130
EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	2 mg/kg	106	54	130
EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	2 mg/kg	111	54	134
EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	2 mg/kg	113	54	132
EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	2 mg/kg	106	55	131
EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	2 mg/kg	103	54	128
EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	2 mg/kg	105	54	128
EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	2 mg/kg	104	56	130
EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	2 mg/kg	105	56	130
EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	2 mg/kg	105	55	131
EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	2 mg/kg	87.8	53	133
EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	2 mg/kg	110	54	130
EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	2 mg/kg	106	57	133
EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	2 mg/kg	131	28	174
EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	2 mg/kg	107	40	148
EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	2 mg/kg	109	56	138
EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	2 mg/kg	111	57	135
EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	2 mg/kg	110	51	133
EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	2 mg/kg	109	51	133
EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	2 mg/kg	110	48	136
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1085328)								
EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	837 mg/kg	93.8	72	130

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1085328) - continued								
EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	3061 mg/kg	95.7	77	126
EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	1592 mg/kg	95.4	75	119
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1085990)								
EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	39.6 mg/kg	90.5	69	114
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1085328)								
EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	1222 mg/kg	96.5	75	123
EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	3919 mg/kg	97.2	77	127
EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	316 mg/kg	95.8	43	123
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1085990)								
EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	48.9 mg/kg	89.4	69	112
EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	----	----	----

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 1086513)								
EG020B-T: Silver	7440-22-4	0.001	mg/L	<0.001	0.02 mg/L	102	78	129
EG020T: Total Metals by ICP-MS (QCLot: 1086514)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	100	90	110
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	107	86	111
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	106	87	109
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	96.7	87	108
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	102	88	109
EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	108	88	114
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	97.9	87	111
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	98.2	85	113
EG020A-T: Tin	7440-31-5	0.001	mg/L	<0.001	0.1 mg/L	103	88	113
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	96.8	87	113
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1092944)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	95.5	81	114
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1087692)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	360 µg/L	108	67	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1087692)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	107	65	125
EP080: BTEXN (QCLot: 1087692)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	96.2	76	120
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	93.4	76	124

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080: BTEXN (QCLot: 1087692) - continued								
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	114	72	124
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	116	72	130
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	123	78	128
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	96.4	71	129

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG005T: Total Metals by ICP-AES (QCLot: 1085975)							
EM1711623-027	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	83.5	78	124
		EG005T: Cadmium	7440-43-9	50 mg/kg	97.8	84	116
		EG005T: Copper	7440-50-8	50 mg/kg	92.6	82	124
		EG005T: Lead	7439-92-1	50 mg/kg	97.9	76	124
		EG005T: Molybdenum	7439-98-7	50 mg/kg	95.2	79	117
		EG005T: Nickel	7440-02-0	50 mg/kg	102	78	120
		EG005T: Selenium	7782-49-2	50 mg/kg	81.9	71	125
		EG005T: Zinc	7440-66-6	50 mg/kg	93.3	74	128
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1085976)							
EM1711623-027	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	77.8	76	116
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 1087989)							
EM1711735-005	B17-68389 1.0	EG048G: Hexavalent Chromium	18540-29-9	40 mg/kg	95.0	58	114
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 1088700)							
EM1711735-003	B17-68389 0.2	EK026SF: Total Cyanide	57-12-5	20 mg/kg	106	77	113
EK040T: Fluoride Total (QCLot: 1088000)							
EM1711721-009	Anonymous	EK040T: Fluoride	16984-48-8	400 mg/kg	107	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 1085329)							
EM1711721-006	Anonymous	EP066-EM: Total Polychlorinated biphenyls	----	1 mg/kg	117	36	152
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 1085990)							
EM1711735-004	B17-68389 0.5	EP074-UT: Benzene	71-43-2	2 mg/kg	99.8	50	138
		EP074-UT: Toluene	108-88-3	2 mg/kg	96.4	56	134
EP074I: Volatile Halogenated Compounds (QCLot: 1085990)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP074I: Volatile Halogenated Compounds (QCLot: 1085990) - continued							
EM1711735-004	B17-68389 0.5	EP074-UT: 1.1-Dichloroethene	75-35-4	2 mg/kg	116	26	141
		EP074-UT: Trichloroethene	79-01-6	2 mg/kg	108	50	134
		EP074-UT: Chlorobenzene	108-90-7	2 mg/kg	106	28	134
EP075A: Phenolic Compounds (Halogenated) (QCLot: 1085327)							
EM1711721-008	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	1 mg/kg	113	34	118
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	1 mg/kg	84.9	41	139
		EP075-EM: Pentachlorophenol	87-86-5	1 mg/kg	54.9	10	144
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 1085327)							
EM1711721-008	Anonymous	EP075-EM: Phenol	108-95-2	1 mg/kg	89.6	32	134
		EP075-EM: 2-Nitrophenol	88-75-5	1 mg/kg	66.7	13	129
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 1085327)							
EM1711721-008	Anonymous	EP075-EM: Acenaphthene	83-32-9	1 mg/kg	115	46	138
		EP075-EM: Pyrene	129-00-0	1 mg/kg	127	27	169
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1085328)							
EM1711721-009	Anonymous	EP071-EM: C10 - C14 Fraction	----	837 mg/kg	93.0	53	123
		EP071-EM: C15 - C28 Fraction	----	3061 mg/kg	94.6	70	124
		EP071-EM: C29 - C36 Fraction	----	1592 mg/kg	94.5	64	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1085990)							
EM1711735-004	B17-68389 0.5	EP074-UT: C6 - C9 Fraction	----	28 mg/kg	81.9	43	111
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1085328)							
EM1711721-009	Anonymous	EP071-EM: >C10 - C16 Fraction	----	1222 mg/kg	95.4	65	123
		EP071-EM: >C16 - C34 Fraction	----	3919 mg/kg	96.2	67	121
		EP071-EM: >C34 - C40 Fraction	----	316 mg/kg	87.4	44	126
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1085990)							
EM1711735-004	B17-68389 0.5	EP074-UT: C6 - C10 Fraction	C6_C10	33 mg/kg	76.5	42	106

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 1086514)							
EM1711735-002	RB/300817	EG020A-T: Arsenic	7440-38-2	1 mg/L	96.0	82	118
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	106	75	129
		EG020A-T: Chromium	7440-47-3	1 mg/L	103	80	118
		EG020A-T: Copper	7440-50-8	1 mg/L	87.8	81	115
		EG020A-T: Lead	7439-92-1	1 mg/L	88.9	83	121
		EG020A-T: Nickel	7440-02-0	1 mg/L	94.3	80	118
		EG020A-T: Zinc	7440-66-6	1 mg/L	96.2	74	116

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1092944)							
EM1711593-001	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	83.4	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1087692)							
EM1711287-087	Anonymous	EP080: C6 - C9 Fraction	----	280 µg/L	47.9	43	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1087692)							
EM1711287-087	Anonymous	EP080: C6 - C10 Fraction	C6_C10	330 µg/L	44.8	44	122
EP080: BTEXN (QCLot: 1087692)							
EM1711287-087	Anonymous	EP080: Benzene	71-43-2	20 µg/L	77.0	68	130
		EP080: Toluene	108-88-3	20 µg/L	81.9	72	132

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM1711735**	Page	: 1 of 9
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLIVIA HENDERSON	Telephone	: +61-3-8549 9600
Project	: 2135645A OSAR	Date Samples Received	: 30-Aug-2017
Site	: Site 26	Issue Date	: 05-Sep-2017
Sampler	: ----	No. of samples received	: 8
Order number	: ----	No. of samples analysed	: 5

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA001: pH in soil using 0.01M CaCl extract							
Soil Glass Jar - Unpreserved (EA001)							
B17-68389 0.2, B17-68389 0.5, B17-68389 1.0	**30-Aug-2017**	**01-Sep-2017**	06-Sep-2017	✓	**01-Sep-2017**	01-Sep-2017	✓
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
B17-68389 0.2, B17-68389 0.5, B17-68389 1.0	**30-Aug-2017**	**----**	----	----	**31-Aug-2017**	13-Sep-2017	✓
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
B17-68389 0.2, B17-68389 0.5, B17-68389 1.0	**30-Aug-2017**	**31-Aug-2017**	26-Feb-2018	✓	**01-Sep-2017**	26-Feb-2018	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
B17-68389 0.2, B17-68389 0.5, B17-68389 1.0	**30-Aug-2017**	**31-Aug-2017**	27-Sep-2017	✓	**04-Sep-2017**	27-Sep-2017	✓
EG048: Hexavalent Chromium (Alkaline Digest)							
Soil Glass Jar - Unpreserved (EG048G)							
B17-68389 0.2, B17-68389 0.5, B17-68389 1.0	**30-Aug-2017**	**01-Sep-2017**	27-Sep-2017	✓	**01-Sep-2017**	08-Sep-2017	✓
EK026SF: Total CN by Segmented Flow Analyser							
Soil Glass Jar - Unpreserved (EK026SF)							
B17-68389 0.2, B17-68389 0.5, B17-68389 1.0	**30-Aug-2017**	**01-Sep-2017**	13-Sep-2017	✓	**04-Sep-2017**	15-Sep-2017	✓
EK040T: Fluoride Total							
Soil Glass Jar - Unpreserved (EK040T)							
B17-68389 0.2, B17-68389 0.5, B17-68389 1.0	**30-Aug-2017**	**01-Sep-2017**	27-Sep-2017	✓	**04-Sep-2017**	27-Sep-2017	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066-EM)							
B17-68389 0.2, B17-68389 0.5, B17-68389 1.0	**30-Aug-2017**	**31-Aug-2017**	13-Sep-2017	✓	**31-Aug-2017**	10-Oct-2017	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074A: Monocyclic Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074-UT) B17-68389 0.2, B17-68389 0.5, B17-68389 1.0	**30-Aug-2017**	**31-Aug-2017**	06-Sep-2017	✓	**01-Sep-2017**	06-Sep-2017	✓
EP074H: Naphthalene							
Soil Glass Jar - Unpreserved (EP074-UT) B17-68389 0.2, B17-68389 0.5, B17-68389 1.0	**30-Aug-2017**	**31-Aug-2017**	06-Sep-2017	✓	**01-Sep-2017**	06-Sep-2017	✓
EP074I: Volatile Halogenated Compounds							
Soil Glass Jar - Unpreserved (EP074-UT) B17-68389 0.2, B17-68389 0.5, B17-68389 1.0	**30-Aug-2017**	**31-Aug-2017**	06-Sep-2017	✓	**01-Sep-2017**	06-Sep-2017	✓
EP075A: Phenolic Compounds (Halogenated)							
Soil Glass Jar - Unpreserved (EP075-EM) B17-68389 0.2, B17-68389 0.5, B17-68389 1.0	**30-Aug-2017**	**31-Aug-2017**	13-Sep-2017	✓	**01-Sep-2017**	10-Oct-2017	✓
EP075A: Phenolic Compounds (Non-halogenated)							
Soil Glass Jar - Unpreserved (EP075-EM) B17-68389 0.2, B17-68389 0.5, B17-68389 1.0	**30-Aug-2017**	**31-Aug-2017**	13-Sep-2017	✓	**01-Sep-2017**	10-Oct-2017	✓
EP075B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075-EM) B17-68389 0.2, B17-68389 0.5, B17-68389 1.0	**30-Aug-2017**	**31-Aug-2017**	13-Sep-2017	✓	**01-Sep-2017**	10-Oct-2017	✓
EP075I: Organochlorine Pesticides							
Soil Glass Jar - Unpreserved (EP075-EM) B17-68389 0.2, B17-68389 0.5, B17-68389 1.0	**30-Aug-2017**	**31-Aug-2017**	13-Sep-2017	✓	**01-Sep-2017**	10-Oct-2017	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074-UT) B17-68389 0.2, B17-68389 0.5, B17-68389 1.0	**30-Aug-2017**	**31-Aug-2017**	06-Sep-2017	✓	**01-Sep-2017**	06-Sep-2017	✓
Soil Glass Jar - Unpreserved (EP071-EM) B17-68389 0.2, B17-68389 0.5, B17-68389 1.0	**30-Aug-2017**	**31-Aug-2017**	13-Sep-2017	✓	**31-Aug-2017**	10-Oct-2017	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP074-UT) B17-68389 0.2, B17-68389 0.5, B17-68389 1.0	**30-Aug-2017**	**31-Aug-2017**	06-Sep-2017	✓	**01-Sep-2017**	06-Sep-2017	✓
Soil Glass Jar - Unpreserved (EP071-EM) B17-68389 0.2, B17-68389 0.5, B17-68389 1.0	**30-Aug-2017**	**31-Aug-2017**	13-Sep-2017	✓	**31-Aug-2017**	10-Oct-2017	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unspecified (EG020B-T)							
RB/300817	**30-Aug-2017**	**31-Aug-2017**	26-Feb-2018	✓	**01-Sep-2017**	26-Feb-2018	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unspecified (EG035T)							
RB/300817	**30-Aug-2017**	**----**	----	----	**05-Sep-2017**	27-Sep-2017	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP080)							
TB/300817	**30-Aug-2017**	**01-Sep-2017**	13-Sep-2017	✓	**01-Sep-2017**	13-Sep-2017	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber VOC Vial - Sulfuric Acid (EP080)							
TB/300817	**30-Aug-2017**	**01-Sep-2017**	13-Sep-2017	✓	**01-Sep-2017**	13-Sep-2017	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
TB/300817	**30-Aug-2017**	**01-Sep-2017**	13-Sep-2017	✓	**01-Sep-2017**	13-Sep-2017	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	3	21	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	10	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Matrix Spikes (MS) - Continued							
Total Fluoride	EK040T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Total Mercury by FIMS	EG035T	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite B	EG020B-T	1	1	**100.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Total Mercury by FIMS	EG035T	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite B	EG020B-T	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Total Mercury by FIMS	EG035T	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite B	EG020B-T	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Total Mercury by FIMS	EG035T	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH in soil using a 0.01M CaCl2 extract	EA001	SOIL	In house: Referenced to Rayment and Lyons (2011) 4B3 (mod.) or 4B4 (mod.) 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM (2013) Schedule B(3)
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	SOIL	In house: Referenced to USEPA SW846, Method 3060A. Hexavalent chromium is extracted by alkaline digestion. The digest is determined by photometrically by automatic discrete analyser, following pH adjustment. The instrument uses colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Cyanide by Segmented Flow Analyser	EK026SF	SOIL	In house: Referenced to APHA 4500-CN C / ASTM D7511. Caustic leachates of soil samples are introduced into an automated segmented flow analyser. Complex bound cyanide is decomposed in a continuously flowing stream, at a pH of 3.8, by the effect of UV light. A UV-B lamp (312 nm) and a decomposition spiral of borosilicate glass are used to filter out UV light with a wavelength of less than 290 nm thus preventing the conversion of thiocyanate into cyanide. The hydrogen cyanide present at a pH of 3.8 is separated by gas dialysis. The hydrogen cyanide is then determined photometrically, based on the reaction of cyanide with chloramine-T to form cyanogen chloride. This then reacts with 4-pyridine carboxylic acid and 1,3-dimethylbarbituric acid to give a red colour which is measured at 600 nm. This method is compliant with NEPM (2013) Schedule B(3)
Total Fluoride	EK040T	SOIL	(In-house) Total fluoride is determined by ion specific electrode (ISE) in a solution obtained after a Sodium Carbonate / Potassium Carbonate fusion dissolution.
PCB - VIC EPA 448.3 Screen	EP066-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
TRH - Semivolatile Fraction	EP071-EM	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40.
Volatile Organic Compounds - Ultra-trace	EP074-UT	SOIL	In house: Referenced to USEPA SW 846 - 8260B Extracts are analysed by Purge and Trap, Capillary GC/MS in partial SIM/Scan mode. Quantification is by comparison against an established multi-point calibration curves. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)

Analytical Methods	Method	Matrix	Method Descriptions
Volatile Organic Compounds - Ultra-trace - Summations	EP074-UT-SUM	SOIL	Summation of MAHs and VHCs
Semivolatile Organic Compounds - Waste Classification	EP075-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (2013) Schedule B(3) (Method 502)
SVOC - Waste Classification (Sums)	EP075-EM-SUM	SOIL	Summations for EP075 (EM variation)
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite B	EG020B-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
NaOH leach for CN in Soils	CN-PR	SOIL	In house: APHA 4500 CN. Samples are extracted by end-over-end tumbling with NaOH.
pH in soil using a 0.01M CaCl2 extract	EA001-PR	SOIL	In house: Referenced to Rayment and Higginson 4B1, 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Alkaline digestion for Hexavalent Chromium	EG048PR	SOIL	In house: Referenced to USEPA SW846, Method 3060A.
Total Fluoride	EK040T-PR	SOIL	In house: Samples are fused with Sodium Carbonate / Potassium Carbonate flux.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils - Ultra-trace.	ORG16-UT	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids - VIC EPA Screen	ORG17-EM	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

Preparation Methods	Method	Matrix	Method Descriptions
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EM1711735**

Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLIVIA HENDERSON	Contact	: Steven McGrath
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: ohenderson@pb.com.au	E-mail	: steven.mcgrath@alsglobal.com
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9600
Facsimile	: +61 03 9861 1144	Facsimile	: +61-3-8549 9601
Project	: 2135645A OSAR	Page	: 1 of 3
Order number	: ----	Quote number	: EM2016PARBRIVIC0006 (ME-525-16)
C-O-C number	: 85453	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Site 26		
Sampler	:		

Dates

Date Samples Received	: 30-Aug-2017 17:00	Issue Date	: 31-Aug-2017
Client Requested Due Date	: 05-Sep-2017	Scheduled Reporting Date	: **05-Sep-2017**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 5.2°C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 8 / 5

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.
- **Analytical work for this work order will be conducted at ALS Springvale.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - P-16 IWRG 621
EM1711735-003	30-Aug-2017 00:00	B17-68389 0.2		✓	✓
EM1711735-004	30-Aug-2017 00:00	B17-68389 0.5		✓	✓
EM1711735-005	30-Aug-2017 00:00	B17-68389 1.0		✓	✓
EM1711735-006	30-Aug-2017 00:00	B17-68388 0.4	✓		
EM1711735-007	30-Aug-2017 00:00	B17-68388 0.7	✓		
EM1711735-008	30-Aug-2017 00:00	B17-68388 1.0	✓		

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - IWRG621 Metals (Total) IWRG621 Total Metals in Water (inc. total Cr)	WATER - W-18 TRH(C6 - C9)/BTEXN
EM1711735-001	30-Aug-2017 00:00	TB/300817		✓
EM1711735-002	30-Aug-2017 00:00	RB/300817	✓	

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ALL INVOICES

- A4 - AU Tax Invoice (INV)	Email	apinvoices@pb.com.au

OLFA NAZARIO

- *AU Certificate of Analysis - NATA (COA)	Email	onazario@pb.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	onazario@pb.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	onazario@pb.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	onazario@pb.com.au
- Chain of Custody (CoC) (COC)	Email	onazario@pb.com.au
- EDI Format - ENMRG (ENMRG)	Email	onazario@pb.com.au
- EDI Format - ESDAT (ESDAT)	Email	onazario@pb.com.au
- EPA Waste Classification & Categorisation Guideline Report (COA_GL_EPA_WASTE)	Email	onazario@pb.com.au

OLIVIA HENDERSON

- *AU Certificate of Analysis - NATA (COA)	Email	ohenderson@pb.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	ohenderson@pb.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	ohenderson@pb.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	ohenderson@pb.com.au
- A4 - AU Tax Invoice (INV)	Email	ohenderson@pb.com.au
- Chain of Custody (CoC) (COC)	Email	ohenderson@pb.com.au
- EDI Format - ENMRG (ENMRG)	Email	ohenderson@pb.com.au
- EDI Format - ESDAT (ESDAT)	Email	ohenderson@pb.com.au
- EPA Waste Classification & Categorisation Guideline Report (COA_GL_EPA_WASTE)	Email	ohenderson@pb.com.au

WSP | PARSONS BRINCKERHOFF

ABN 80 078 004 798

White Page - Laboratory Copy
Yellow Page - Project File Copy
Pink Page - Remains in Book

☐ **Adelaide** Level 1, 1 King William Street, GPO Box 398 Adelaide SA 5001 Tel: (08) 8405 4300 Fax: (08) 8405 4301

☐ **Brisbane** Level 3, Northbank Plaza 69 Ann Street, GPO Box 2907 Brisbane QLD 4001 Tel: (07) 3854 6200 Fax: (07) 3854 6500

☑ **Melbourne** Level 15, 28 Freshwater Place, Tel: (03) 9861 1111 Fax: (03) 9861 1144

☐ **Sydney** Level 27, Ernst & Young Centre 680 George Street, GPO Box 5394, Sydney NSW 2001 Tel: (02) 9272 5100 Fax: (02) 9272 5101

☐ **Perth** Level 5, 503 Murray Street, PO Box 7181 Cloisters Square WA 6850 Tel: (08) 9489 9700 Fax: (08) 9489 9777

☐ **Singleton** 188 John Street, PO Box 115 Singleton NSW 2330 Tel: (02) 6572 3377 Fax: (02) 6572 4080

☐ **Newcastle** Level 3, 51-55 Bolton Street, Suite 1 PO Box 1162 Newcastle NSW, 2300 Tel: (02) 4929 8300 Fax: (02) 4929 8382

Chain of Custody

Order No: 85453

Job Title: OSAR / MORDIALLOC BYPASS.

PB Job Number: 2135645A

Job Location: Site 26

Project Manager: Olivia Henderson

Laboratory Name: ALS Springvale

Results Expected by/on:

Fax Results to: olivia.henderson@wsp.com

Address:

Fax Number:

Phone Number:

Spreadsheet of Results Required: (Y) N

Format:

Turnaround Time Required:

Invoice to:

Comments:

Terms of Business	PB	Other	Checked
	✓		

Contact Name:

Delivery Method:

Quote Number:

Date Sampled	Time / ID's	Sample I.D.	Container Size	Sample Location	Medium*	Preservative Type	Filtered (X)	TPH	BTEX	PAH's	OC/OP/PCB's	Metals**	IwR621	IwR621 Metals	BTEXN	TPH C6-C10	Initials	Comments/Additional Information and/or Analysis Required
30/8/17	1	TB/300817	Vial x1		W										/	/		
	2	RB/300817	1x Vial, plastic amber.		W									/				
	3	B17-68389	Jar-250ml	0.2	S								/					
	4	B17-68389	↓	0.5	S								/					
↓	5	B17-68389	↓	1.0	S								/					
	6	B17-68388	250ml Jar	0.4	S													
	7	B17-68388	↓	0.7	S													
↓	8	B17-68388	↓	1.0	S													

Environmental Division
Melbourne
Work Order Reference
EM1711735

Telephone : +61-3-8549 9600

Relinquished by:	Relinquished by:	Relinquished by:
Date & Time: 30/8/17 17:00	Date & Time:	Date & Time:
Company: WSP	Company:	Company:
Signature:	Signature:	Signature:
Received in Good Order & Condition by (Name): Scott	Received in Good Order & Condition by (Name):	Received in Good Order & Condition by (Name):
Date & Time: 30/8/17, 17:00	Date & Time:	Date & Time:
Company: ALS	Company:	Company:
Signature:	Signature:	Signature:

Medium*: S = Soil, W = Water, V = Vapour

Legend**: (circle the following to be tested)

Metals: Al As Be Cd Co Cr Cu Fe Hg Li Mg Mn Ni Pb Se Sn V Zn

Samples on Ice: ☐ Yes ☐ No

Please fax back a signed copy when samples are received at the laboratory

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1712226**	Page	: 1 of 9
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLIVIA HENDERSON	Contact	: Graeme Jablonskas
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9609
Project	: 2135645A	Date Samples Received	: 07-Sep-2017 17:30
Order number	: ----	Date Analysis Commenced	: 08-Sep-2017
C-O-C number	: 85454	Issue Date	: 13-Sep-2017 16:37
Sampler	: ----		
Site	: Site 26		
Quote number	: ME-525-16		
No. of samples received	: 5		
No. of samples analysed	: 5		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	LW17-26-01 0.5	LW17-26-01 1.5	LW17-26-01 2.0	----	----
			Client sampling date / time	07-Sep-2017 00:00	07-Sep-2017 00:00	07-Sep-2017 00:00	----	----
Compound	CAS Number	LOR	Unit	EM1712226-003	EM1712226-004	EM1712226-005	--------	--------
				Result	Result	Result	----	----
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	**7.1**	**7.3**	**7.0**	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**19.5**	**14.0**	**14.4**	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	**6**	**8**	**9**	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	----	----
Copper	7440-50-8	5	mg/kg	**29**	**17**	**18**	----	----
Lead	7439-92-1	5	mg/kg	**16**	**43**	**38**	----	----
Molybdenum	7439-98-7	2	mg/kg	<2	<2	<2	----	----
Nickel	7440-02-0	2	mg/kg	**19**	**33**	**30**	----	----
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	----	----
Silver	7440-22-4	2	mg/kg	<2	<2	<2	----	----
Tin	7440-31-5	5	mg/kg	<5	<5	<5	----	----
Zinc	7440-66-6	5	mg/kg	**21**	**65**	**61**	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	----	----
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
EK026SF: Total CN by Segmented Flow Analyser								
Total Cyanide	57-12-5	1	mg/kg	<1	<1	<1	----	----
EK040T: Fluoride Total								
Fluoride	16984-48-8	40	mg/kg	**340**	**290**	**140**	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	<0.1	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Sum of monocyclic aromatic hydrocarbons	----	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	LW17-26-01 0.5	LW17-26-01 1.5	LW17-26-01 2.0	----	----
				Client sampling date / time	07-Sep-2017 00:00	07-Sep-2017 00:00	07-Sep-2017 00:00	----	----
Compound	CAS Number	LOR	Unit		EM1712226-003	EM1712226-004	EM1712226-005	--------	--------
					Result	Result	Result	----	----
EP074H: Naphthalene									
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	----	----
EP074I: Volatile Halogenated Compounds									
Vinyl chloride	75-01-4	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
1.1-Dichloroethene	75-35-4	0.01	mg/kg		<0.01	<0.01	<0.01	----	----
Methylene chloride	75-09-2	0.4	mg/kg		<0.4	<0.4	<0.4	----	----
trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg		<0.01	<0.01	<0.01	----	----
Chloroform	67-66-3	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
1.1.1-Trichloroethane	71-55-6	0.01	mg/kg		<0.01	<0.01	<0.01	----	----
Carbon Tetrachloride	56-23-5	0.01	mg/kg		<0.01	<0.01	<0.01	----	----
1.2-Dichloroethane	107-06-2	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
Trichloroethene	79-01-6	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
1.1.2-Trichloroethane	79-00-5	0.04	mg/kg		<0.04	<0.04	<0.04	----	----
Tetrachloroethene	127-18-4	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg		<0.01	<0.01	<0.01	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
Hexachlorobutadiene	87-68-3	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
Chlorobenzene	108-90-7	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
1.4-Dichlorobenzene	106-46-7	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
1.2-Dichlorobenzene	95-50-1	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg		<0.01	<0.01	<0.01	----	----
^ Sum of volatile chlorinated hydrocarbons	----	0.01	mg/kg		<0.01	<0.01	<0.01	----	----
^ Sum of other chlorinated hydrocarbons	----	0.01	mg/kg		<0.01	<0.01	<0.01	----	----
EP075A: Phenolic Compounds (Halogenated)									
2-Chlorophenol	95-57-8	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
2.4-Dichlorophenol	120-83-2	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
2.6-Dichlorophenol	87-65-0	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Pentachlorophenol	87-86-5	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
^ Sum of Phenols (halogenated)	----	0.03	mg/kg		<0.03	<0.03	<0.03	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	LW17-26-01 0.5	LW17-26-01 1.5	LW17-26-01 2.0	----	----
				Client sampling date / time	07-Sep-2017 00:00	07-Sep-2017 00:00	07-Sep-2017 00:00	----	----
Compound	CAS Number	LOR	Unit		EM1712226-003	EM1712226-004	EM1712226-005	--------	--------
					Result	Result	Result	----	----
EP075A: Phenolic Compounds (Halogenated) - Continued									
EP075A: Phenolic Compounds (Non-halogenated)									
Phenol	108-95-2	1	mg/kg		<1	<1	<1	----	----
2-Methylphenol	95-48-7	1	mg/kg		<1	<1	<1	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	<1	----	----
2-Nitrophenol	88-75-5	1	mg/kg		<1	<1	<1	----	----
2.4-Dimethylphenol	105-67-9	1	mg/kg		<1	<1	<1	----	----
2.4-Dinitrophenol	51-28-5	5	mg/kg		<5	<5	<5	----	----
4-Nitrophenol	100-02-7	5	mg/kg		<5	<5	<5	----	----
2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg		<5	<5	<5	----	----
Dinoseb	88-85-7	5	mg/kg		<5	<5	<5	----	----
2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg		<5	<5	<5	----	----
^ Sum of Phenols (non-halogenated)	----	1	mg/kg		<1	<1	<1	----	----
EP075B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		0.6	0.6	0.6	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		1.2	1.2	1.2	----	----
EP075I: Organochlorine Pesticides									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	LW17-26-01 0.5	LW17-26-01 1.5	LW17-26-01 2.0	----	----
				Client sampling date / time	07-Sep-2017 00:00	07-Sep-2017 00:00	07-Sep-2017 00:00	----	----
Compound	CAS Number	LOR	Unit		EM1712226-003	EM1712226-004	EM1712226-005	--------	--------
					Result	Result	Result	----	----
EP075l: Organochlorine Pesticides - Continued									
alpha-BHC	319-84-6	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
beta-BHC	319-85-7	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
gamma-BHC	58-89-9	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
delta-BHC	319-86-8	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Heptachlor	76-44-8	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Aldrin	309-00-2	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Heptachlor epoxide	1024-57-3	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
cis-Chlordane	5103-71-9	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
trans-Chlordane	5103-74-2	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Endosulfan 1	959-98-8	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Dieldrin	60-57-1	0.03	mg/kg		<0.03	<0.03	**0.04**	----	----
Endrin aldehyde	7421-93-4	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Endrin	72-20-8	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Endosulfan 2	33213-65-9	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Endosulfan sulfate	1031-07-8	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
4.4`-DDT	50-29-3	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Methoxychlor	72-43-5	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
^ Sum of organochlorine pesticides	----	0.03	mg/kg		<0.03	<0.03	**0.04**	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.03	mg/kg		<0.03	<0.03	**0.04**	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
^ Chlordane	57-74-9	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
^ Sum of other organochlorine pesticides	----	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	----	----
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	LW17-26-01 0.5	LW17-26-01 1.5	LW17-26-01 2.0	----	----
				Client sampling date / time	07-Sep-2017 00:00	07-Sep-2017 00:00	07-Sep-2017 00:00	----	----
Compound	CAS Number	LOR	Unit		EM1712226-003	EM1712226-004	EM1712226-005	--------	--------
					Result	Result	Result	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	----	----
>C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	----	----
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		93.2	89.2	97.8	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		74.9	78.2	82.2	----	----
Toluene-D8	2037-26-5	0.1	%		66.1	72.0	72.9	----	----
4-Bromofluorobenzene	460-00-4	0.1	%		80.3	84.8	74.9	----	----
EP075S: Acid Extractable Surrogates									
Phenol-d6	13127-88-3	0.025	%		81.2	95.5	101	----	----
2-Chlorophenol-D4	93951-73-6	0.025	%		84.4	95.6	99.1	----	----
2.4.6-Tribromophenol	118-79-6	0.025	%		89.4	102	112	----	----
EP075T: Base/Neutral Extractable Surrogates									
Nitrobenzene-D5	4165-60-0	0.025	%		73.3	69.7	73.6	----	----
1.2-Dichlorobenzene-D4	2199-69-1	0.025	%		81.4	80.4	85.5	----	----
2-Fluorobiphenyl	321-60-8	0.025	%		118	116	127	----	----
Anthracene-d10	1719-06-8	0.025	%		95.7	95.8	99.7	----	----
4-Terphenyl-d14	1718-51-0	0.025	%		91.7	97.0	101	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	TB070917	RB070917	----	----	----
				Client sampling date / time	07-Sep-2017 00:00	07-Sep-2017 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EM1712226-001	EM1712226-002	--------	--------	--------
					Result	Result	----	----	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		----	<0.001	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		----	<0.0001	----	----	----
Chromium	7440-47-3	0.001	mg/L		----	<0.001	----	----	----
Copper	7440-50-8	0.001	mg/L		----	<0.001	----	----	----
Lead	7439-92-1	0.001	mg/L		----	<0.001	----	----	----
Molybdenum	7439-98-7	0.001	mg/L		----	<0.001	----	----	----
Nickel	7440-02-0	0.001	mg/L		----	<0.001	----	----	----
Selenium	7782-49-2	0.01	mg/L		----	<0.01	----	----	----
Silver	7440-22-4	0.001	mg/L		----	<0.001	----	----	----
Tin	7440-31-5	0.001	mg/L		----	<0.001	----	----	----
Zinc	7440-66-6	0.005	mg/L		----	<0.005	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		----	<0.0001	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	----	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		<20	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	----	----	----	----
Toluene	108-88-3	2	µg/L		<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	----	----	----	----
^ Total Xylenes	1330-20-7	2	µg/L		<2	----	----	----	----
^ Sum of BTEX	----	1	µg/L		<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**106**	----	----	----	----
Toluene-D8	2037-26-5	2	%		**90.1**	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		**102**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **SOIL**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	41	122
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	59	119
Toluene-D8	2037-26-5	55	117
4-Bromofluorobenzene	460-00-4	59	123
EP075S: Acid Extractable Surrogates			
Phenol-d6	13127-88-3	28	134
2-Chlorophenol-D4	93951-73-6	27	123
2.4.6-Tribromophenol	118-79-6	25	149
EP075T: Base/Neutral Extractable Surrogates			
Nitrobenzene-D5	4165-60-0	29	125
1.2-Dichlorobenzene-D4	2199-69-1	31	117
2-Fluorobiphenyl	321-60-8	44	136
Anthracene-d10	1719-06-8	53	133
4-Terphenyl-d14	1718-51-0	59	141

Sub-Matrix: **WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	129
Toluene-D8	2037-26-5	70	125
4-Bromofluorobenzene	460-00-4	71	129

Automated Guideline Comparison Report

EPA Victoria Publication IWRG 621 (2009) - Table 2: Soil Hazard Categorisation

Work Order	: **EM1712226**	Page	: 1 of 8
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLIVIA HENDERSON		
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: ohenderson@pb.com.au	E-mail	: graeme.jablonskas@alsglobal.com
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9609
Facsimile	: +61 03 9861 1144	Facsimile	: +61-3-8549 9601
Project	: 2135645A	Date Received	: 07-Sep-2017 17:30
Order number	: ----	Date Analysed	: 08-Sep-2017
C-O-C number	: 85454	Date Issued	: 13-Sep-2017 16:37
No. of samples received	: 5		
No. of samples analysed	: 5	Quote number	: ME-525-16

General Comments

This guideline comparison report **only** provides evaluation of total concentration data against upper limit thresholds for the 'Fill Material', 'C', 'B' Categories in Table 2 of EPA Publication IWRG621.

This guideline comparison report is **NOT** a soil classification report. Classification of soils as Fill Material, Category C, Category B or Category A requires consideration of a number of other factors including preliminary site investigation, sampling density and statistical calculations, as set out in EPA Publication IWRG 702.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

This guideline comparison report only provides evaluation data where chemical parameters specifically listed within the IWRG621 (2009) guideline are analysed by ALS using the **P-16 package in full**.

Red shading is applied where the result is equal to or greater than the guideline upper limit and/or equal to or lower than the guideline lower limit. Red shading is not applied to the 'Summary of Thresholds Reached or Exceeded'.

For the 'Summary of Thresholds Reached or Exceeded' to accurately function, all samples must be analysed and included in the 'Analytical Results' section of the following report. Please verify that all required IDs are listed and analysed.

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Summary of Thresholds Reached or Exceeded

Results for all samples detailed in this report are below the upper threshold limits for Fill Material.

Analytical Results

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B: Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

			Client sample ID	Guideline Lower Limit	Guideline Upper Limit	**LW17-26-01 0.5**	**LW17-26-01 1.5**	**LW17-26-01 2.0**	----	----
			Sampling date/time			07-Sep-2017	07-Sep-2017	07-Sep-2017	----	----
Compound	*Method*	*LOR*	*Unit*			**EM1712226-003**	**EM1712226-004**	**EM1712226-005**	--------	--------
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	2	12.5	**7.1**	**7.3**	**7.0**	----	----
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	2000	**6**	**8**	**9**	----	----
Cadmium	EG005T	1	mg/kg	----	400	<1	<1	<1	----	----
Copper	EG005T	5	mg/kg	----	20000	**29**	**17**	**18**	----	----
Lead	EG005T	5	mg/kg	----	6000	**16**	**43**	**38**	----	----
Molybdenum	EG005T	2	mg/kg	----	4000	<2	<2	<2	----	----
Nickel	EG005T	2	mg/kg	----	12000	**19**	**33**	**30**	----	----
Selenium	EG005T	5	mg/kg	----	200	<5	<5	<5	----	----
Silver	EG005T	2	mg/kg	----	720	<2	<2	<2	----	----
Zinc	EG005T	5	mg/kg	----	140000	**21**	**65**	**61**	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	300	<0.1	<0.1	<0.1	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	2000	<0.5	<0.5	<0.5	----	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	10000	<1	<1	<1	----	----
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	40000	**340**	**290**	**140**	----	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	16	<0.2	<0.2	<0.2	----	----
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	240	<0.2	<0.2	<0.2	----	----
EP074I: Volatile Halogenated Compounds										
Vinyl chloride	EP074-UT	0.02	mg/kg	----	4.8	<0.02	<0.02	<0.02	----	----
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	11	<0.02	<0.02	<0.02	----	----
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	50	<0.01	<0.01	<0.01	----	----
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	320	<0.03	<0.03	<0.03	----	----
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	2200	<1	<1	<1	----	----
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	20	<0.5	<0.5	<0.5	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B: Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	*Client sample ID* **LW17-26-01 0.5**	**LW17-26-01 1.5**	**LW17-26-01 2.0**	**----**	**----**
						Sampling date/time 07-Sep-2017	07-Sep-2017	07-Sep-2017	----	----
						EM1712226-003	**EM1712226-004**	**EM1712226-005**	--------	--------
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	400	<0.5	<0.5	<0.5	**----**	**----**
EP075I: Organochlorine Pesticides										
Heptachlor	EP075-EM	0.03	mg/kg	----	4.8	<0.03	<0.03	<0.03	**----**	**----**
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	4.8	<0.03	<0.03	**0.04**	**----**	**----**
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50	<0.05	<0.05	<0.05	**----**	**----**
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	16	<0.03	<0.03	<0.03	**----**	**----**
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	50	<0.03	<0.03	<0.03	**----**	**----**
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	2600	<10	<10	<10	**----**	**----**
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	40000	<50	<50	<50	**----**	**----**

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category C: Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

				Client sample ID	Guideline Lower Limit	Guideline Upper Limit	LW17-26-01 0.5	LW17-26-01 1.5	LW17-26-01 2.0	----	----
				Sampling date/time			07-Sep-2017	07-Sep-2017	07-Sep-2017	----	----
Compound	*Method*	*LOR*	*Unit*				EM1712226-003	EM1712226-004	EM1712226-005	--------	--------
EA001: pH in soil using 0.01M CaCl extract											
pH (CaCl2)	EA001	0.1	pH Unit		4	9	**7.1**	**7.3**	**7.0**	----	----
EG005T: Total Metals by ICP-AES											
Arsenic	EG005T	5	mg/kg		----	500	**6**	**8**	**9**	----	----
Cadmium	EG005T	1	mg/kg		----	100	<1	<1	<1	----	----
Copper	EG005T	5	mg/kg		----	5000	**29**	**17**	**18**	----	----
Lead	EG005T	5	mg/kg		----	1500	**16**	**43**	**38**	----	----
Molybdenum	EG005T	2	mg/kg		----	1000	<2	<2	<2	----	----
Nickel	EG005T	2	mg/kg		----	3000	**19**	**33**	**30**	----	----
Selenium	EG005T	5	mg/kg		----	50	<5	<5	<5	----	----
Silver	EG005T	2	mg/kg		----	180	<2	<2	<2	----	----
Tin	EG005T	5	mg/kg		----	500	<5	<5	<5	----	----
Zinc	EG005T	5	mg/kg		----	35000	**21**	**65**	**61**	----	----
EG035T: Total Recoverable Mercury by FIMS											
Mercury	EG035T	0.1	mg/kg		----	75	<0.1	<0.1	<0.1	----	----
EG048: Hexavalent Chromium (Alkaline Digest)											
Hexavalent Chromium	EG048G	0.5	mg/kg		----	500	<0.5	<0.5	<0.5	----	----
EK026SF: Total CN by Segmented Flow Analyser											
Total Cyanide	EK026SF	1	mg/kg		----	2500	<1	<1	<1	----	----
EK040T: Fluoride Total											
Fluoride	EK040T	40	mg/kg		----	10000	**340**	**290**	**140**	----	----
EP074A: Monocyclic Aromatic Hydrocarbons											
Benzene	EP074-UT	0.2	mg/kg		----	4	<0.2	<0.2	<0.2	----	----
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg		----	70	<0.2	<0.2	<0.2	----	----
EP074I: Volatile Halogenated Compounds											
Vinyl chloride	EP074-UT	0.02	mg/kg		----	1.2	<0.02	<0.02	<0.02	----	----
Hexachlorobutadiene	EP074-UT	0.02	mg/kg		----	2.8	<0.02	<0.02	<0.02	----	----
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg		----	10	<0.01	<0.01	<0.01	----	----
EP075A: Phenolic Compounds (Halogenated)											
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg		----	10	<0.03	<0.03	<0.03	----	----
EP075A: Phenolic Compounds (Non-halogenated)											
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg		----	560	<1	<1	<1	----	----
EP075B: Polynuclear Aromatic Hydrocarbons											
Benzo(a)pyrene	EP075-EM	0.5	mg/kg		----	5	<0.5	<0.5	<0.5	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category C: Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

				Client sample ID	Guideline Lower Limit	Guideline Upper Limit	LW17-26-01 0.5	LW17-26-01 1.5	LW17-26-01 2.0	----	----
				Sampling date/time			07-Sep-2017	07-Sep-2017	07-Sep-2017	----	----
Compound	*Method*	*LOR*	*Unit*				EM1712226-003	EM1712226-004	EM1712226-005	--------	--------
EP075B: Polynuclear Aromatic Hydrocarbons - Continued											
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	100	<0.5	<0.5	<0.5	----	----
EP075I: Organochlorine Pesticides											
Heptachlor	EP075-EM	0.03	mg/kg	----	1.2	<0.03	<0.03	<0.03	----	----
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	1.2	<0.03	<0.03	**0.04**	----	----
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50	<0.05	<0.05	<0.05	----	----
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	4	<0.03	<0.03	<0.03	----	----
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	10	<0.03	<0.03	<0.03	----	----
EP080/071: Total Petroleum Hydrocarbons											
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	650	<10	<10	<10	----	----
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	10000	<50	<50	<50	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material: Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

				Client sample ID		LW17-26-01 0.5	LW17-26-01 1.5	LW17-26-01 2.0	----	----
				Sampling date/time		07-Sep-2017	07-Sep-2017	07-Sep-2017	----	----
Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	EM1712226-003	EM1712226-004	EM1712226-005	--------	--------
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	4	9	**7.1**	**7.3**	**7.0**	----	----
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	20	**6**	**8**	**9**	----	----
Cadmium	EG005T	1	mg/kg	----	3	<1	<1	<1	----	----
Copper	EG005T	5	mg/kg	----	100	**29**	**17**	**18**	----	----
Lead	EG005T	5	mg/kg	----	300	**16**	**43**	**38**	----	----
Molybdenum	EG005T	2	mg/kg	----	40	<2	<2	<2	----	----
Nickel	EG005T	2	mg/kg	----	60	**19**	**33**	**30**	----	----
Selenium	EG005T	5	mg/kg	----	10	<5	<5	<5	----	----
Silver	EG005T	2	mg/kg	----	10	<2	<2	<2	----	----
Tin	EG005T	5	mg/kg	----	50	<5	<5	<5	----	----
Zinc	EG005T	5	mg/kg	----	200	**21**	**65**	**61**	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	1	<0.1	<0.1	<0.1	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	1	<0.5	<0.5	<0.5	----	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	50	<1	<1	<1	----	----
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	450	**340**	**290**	**140**	----	----
EP066: Polychlorinated Biphenyls (PCB)										
Total Polychlorinated biphenyls	EP066-EM	0.1	mg/kg	----	2	<0.1	<0.1	<0.1	----	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	1	<0.2	<0.2	<0.2	----	----
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	7	<0.2	<0.2	<0.2	----	----
EP074I: Volatile Halogenated Compounds										
Sum of volatile chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	1	<0.01	<0.01	<0.01	----	----
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	1	<0.03	<0.03	<0.03	----	----
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	60	<1	<1	<1	----	----
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	1	<0.5	<0.5	<0.5	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material: Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	*Client sample ID* / *Sampling date/time*				
						LW17-26-01 0.5	**LW17-26-01 1.5**	**LW17-26-01 2.0**	**----**	**----**
						07-Sep-2017	07-Sep-2017	07-Sep-2017	----	----
						EM1712226-003	**EM1712226-004**	**EM1712226-005**	**--------**	**--------**
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	20	<0.5	<0.5	<0.5	**----**	**----**
EP075I: Organochlorine Pesticides										
Sum of organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	1	<0.03	<0.03	**0.04**	**----**	**----**
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	100	<10	<10	<10	**----**	**----**
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	1000	<50	<50	<50	**----**	**----**

Note: Red shading is applied where the result is equal to or greater than the guideline upper limit and/or equal to or lower than the guideline lower limit.

QUALITY CONTROL REPORT

Work Order	: **EM1712226**	Page	: 1 of 16
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLIVIA HENDERSON	Contact	: Graeme Jablonskas
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9609
Project	: 2135645A	Date Samples Received	: 07-Sep-2017
Order number	: ----	Date Analysis Commenced	: 08-Sep-2017
C-O-C number	: 85454	Issue Date	: 13-Sep-2017
Sampler	: ----		
Site	: Site 26		
Quote number	: ME-525-16		
No. of samples received	: 5		
No. of samples analysed	: 5		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA001: pH in soil using 0.01M CaCl extract (QC Lot: 1101037)									
EM1712219-017	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	8.1	8.1	0.00	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1101062)									
EM1712224-004	Anonymous	EA055: Moisture Content	----	1	%	7.7	8.1	4.84	No Limit
EG005T: Total Metals by ICP-AES (QC Lot: 1101110)									
EM1712223-002	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	18	17	0.00	No Limit
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	8	6	32.3	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	24	11	70.8	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	41	43	3.67	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Tin	7440-31-5	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	44	26	52.1	No Limit
EM1712226-003	LW17-26-01 0.5	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	19	14	29.5	No Limit
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	6	5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	29	20	37.4	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	16	14	17.0	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Tin	7440-31-5	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	21	20	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1101111)									
EM1712226-003	LW17-26-01 0.5	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EG048: Hexavalent Chromium (Alkaline Digest) (QC Lot: 1101039)									
EM1712164-001	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1712219-014	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EK026SF: Total CN by Segmented Flow Analyser (QC Lot: 1102413)									
EM1712185-022	Anonymous	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.00	No Limit
EM1712223-005	Anonymous	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.00	No Limit
EK040T: Fluoride Total (QC Lot: 1101031)									
EM1712142-050	Anonymous	EK040T: Fluoride	16984-48-8	40	mg/kg	160	170	6.77	No Limit
EM1712219-010	Anonymous	EK040T: Fluoride	16984-48-8	40	mg/kg	220	200	8.65	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 1101073)									
EM1712136-001	Anonymous	EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EM1712223-001	Anonymous	EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.2	<0.2	0.00	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 1100999)									
EM1712164-001	Anonymous	EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1712219-017	Anonymous	EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074H: Naphthalene (QC Lot: 1100999)									
EM1712164-001	Anonymous	EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EM1712219-017	Anonymous	EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EP074I: Volatile Halogenated Compounds (QC Lot: 1100999)									
EM1712164-001	Anonymous	EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074I: Volatile Halogenated Compounds (QC Lot: 1100999) - continued									
EM1712164-001	Anonymous	EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	<0.04	0.00	No Limit
		EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	<0.4	0.00	No Limit
EM1712219-017	Anonymous	EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	<0.04	0.00	No Limit
		EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	<0.4	0.00	No Limit
EP075A: Phenolic Compounds (Halogenated) (QC Lot: 1101071)									
EM1712136-001	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075A: Phenolic Compounds (Halogenated) (QC Lot: 1101071) - continued									
EM1712136-001	Anonymous	EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EM1712223-001	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg	<0.15	<0.15	0.00	No Limit
		EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP075A: Phenolic Compounds (Non-halogenated) (QC Lot: 1101071)									
EM1712136-001	Anonymous	EP075-EM: Phenol	108-95-2	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	0.00	No Limit
EM1712223-001	Anonymous	EP075-EM: Phenol	108-95-2	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	2	1	0.00	No Limit
		EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<6	<6	0.00	No Limit
		EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	0.00	No Limit
EP075B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1101071)									
EM1712136-001	Anonymous	EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1101071) - continued									
EM1712136-001	Anonymous	EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1712223-001	Anonymous	EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	2.6	1.7	42.7	No Limit
		EP075-EM: Fluorene	86-73-7	0.5	mg/kg	0.5	<0.5	0.00	No Limit
		EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	4.7	4.3	8.60	No Limit
		EP075-EM: Anthracene	120-12-7	0.5	mg/kg	3.8	3.3	14.1	No Limit
		EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	16.4	13.8	17.2	0% - 20%
		EP075-EM: Pyrene	129-00-0	0.5	mg/kg	18.8	15.4	19.8	0% - 20%
		EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	10.8	9.1	17.7	0% - 20%
		EP075-EM: Chrysene	218-01-9	0.5	mg/kg	11.2	9.5	17.2	0% - 20%
		EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	28.9	29.0	0.00	0% - 20%
		EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	17.6	17.3	1.87	0% - 20%
		EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	12.6	11.2	12.0	0% - 20%
		EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	3.0	2.3	27.0	No Limit
		EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	14.4	12.0	18.1	0% - 20%
EP075I: Organochlorine Pesticides (QC Lot: 1101071)									
EM1712136-001	Anonymous	EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075I: Organochlorine Pesticides (QC Lot: 1101071) - continued									
EM1712136-001	Anonymous	EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EM1712223-001	Anonymous	EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.07	<0.07	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1100999)									
EM1712164-001	Anonymous	EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EM1712219-017	Anonymous	EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1101072)									
EM1712136-001	Anonymous	EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EM1712223-001	Anonymous	EP071-EM: C15 - C28 Fraction	----	100	mg/kg	1070	990	7.27	0% - 50%
		EP071-EM: C29 - C36 Fraction	----	100	mg/kg	970	910	5.98	No Limit
		EP071-EM: C10 - C14 Fraction	----	50	mg/kg	260	250	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1100999)									
EM1712164-001	Anonymous	EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1100999) - continued									
EM1712164-001	Anonymous	EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	0.00	No Limit
EM1712219-017	Anonymous	EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
		EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1101072)									
EM1712136-001	Anonymous	EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EM1712223-001	Anonymous	EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	1630	1490	8.63	0% - 50%
		EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	520	530	2.32	No Limit
		EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	290	310	6.11	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG020T: Total Metals by ICP-MS (QC Lot: 1101137)									
EM1712172-006	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	0.0002	0.0002	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.004	0.004	0.00	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.217	0.215	0.798	0% - 20%
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.157	0.158	0.00	0% - 20%
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.009	0.009	0.00	No Limit
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.426	0.416	2.36	0% - 20%
		EG020A-T: Tin	7440-31-5	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.147	0.146	1.14	0% - 20%
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EM1712226-002	RB070917	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Tin	7440-31-5	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.008	36.4	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EG020T: Total Metals by ICP-MS (QC Lot: 1101139)									
EM1712226-002	RB070917	EG020B-T: Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1108472)									
EM1712226-002	RB070917	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1101199)									
EM1712219-018	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1101199)									
EM1712219-018	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 1101199)									
EM1712219-018	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 1101110)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	100	79	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	97.2	85	109
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	100	78	108
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	96.2	78	106
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	7.9 mg/kg	102	86	112
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	102	82	111
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	101	93	109
EG005T: Silver	7440-22-4	2	mg/kg	<2	2.1 mg/kg	84.4	80	108
EG005T: Tin	7440-31-5	5	mg/kg	<5	5.2 mg/kg	96.2	88	116
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	102	82	111
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1101111)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	85.0	77	104
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 1101039)								
EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	40 mg/kg	83.8	80	120
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 1102413)								
EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	20 mg/kg	94.4	80	110
EK040T: Fluoride Total (QCLot: 1101031)								
EK040T: Fluoride	16984-48-8	40	mg/kg	<40	950 mg/kg	92.2	77	106
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 1101073)								
EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	113	63	133
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 1100999)								
EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	2.1 mg/kg	92.8	74	118
EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	2.1 mg/kg	94.2	70	118
EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2.1 mg/kg	90.8	69	117
EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4.2 mg/kg	89.8	68	116
EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	2.1 mg/kg	95.1	71	117
EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2.1 mg/kg	92.3	70	116
EP074H: Naphthalene (QCLot: 1100999)								
EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	0.6 mg/kg	101	74	116
EP074I: Volatile Halogenated Compounds (QCLot: 1100999)								
EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	0.1 mg/kg	92.7	49	133
EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	0.1 mg/kg	87.7	62	127

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP074I: Volatile Halogenated Compounds (QCLot: 1100999) - continued								
EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	2.1 mg/kg	91.2	65	131
EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	0.1 mg/kg	90.6	68	124
EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	0.1 mg/kg	88.6	74	118
EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	0.1 mg/kg	82.3	72	118
EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	0.1 mg/kg	88.6	67	119
EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	0.1 mg/kg	84.9	65	119
EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	0.1 mg/kg	102	70	122
EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	0.1 mg/kg	85.1	72	124
EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	0.1 mg/kg	96.7	74	122
EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	0.1 mg/kg	89.1	58	120
EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	0.1 mg/kg	89.1	70	119
EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	0.1 mg/kg	98.0	71	125
EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	0.1 mg/kg	76.5	61	125
EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	0.1 mg/kg	93.7	70	122
EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	0.1 mg/kg	86.9	61	118
EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	0.1 mg/kg	91.0	67	117
EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	0.1 mg/kg	84.7	53	127
EP075A: Phenolic Compounds (Halogenated) (QCLot: 1101071)								
EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	2 mg/kg	65.0	43	119
EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	2 mg/kg	93.0	44	131
EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	2 mg/kg	101	43	122
EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	2 mg/kg	112	50	129
EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	2 mg/kg	103	44	128
EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	2 mg/kg	112	44	126
EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	2 mg/kg	74.0	46	126
EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/5 8-90-2	0.05	mg/kg	<0.05	4 mg/kg	84.6	44	124
EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	4 mg/kg	110	36	124
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 1101071)								
EP075-EM: Phenol	108-95-2	1	mg/kg	<1	2 mg/kg	114	41	120
EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	2 mg/kg	95.3	41	131
EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	4 mg/kg	98.8	43	130
EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	2 mg/kg	82.3	49	130
EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	2 mg/kg	63.7	37	119
EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	12 mg/kg	78.8	23	125
EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	12 mg/kg	73.7	49	133
EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	12 mg/kg	78.1	47	125
EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	12 mg/kg	101	48	123
EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	10 mg/kg	68.8	12	132

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 1101071)								
EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	2 mg/kg	98.1	44	122
EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	2 mg/kg	102	54	126
EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	2 mg/kg	99.0	46	126
EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	2 mg/kg	90.5	51	125
EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	2 mg/kg	98.3	57	127
EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	2 mg/kg	64.3	55	127
EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	2 mg/kg	96.7	57	131
EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	2 mg/kg	97.6	57	131
EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	2 mg/kg	96.0	56	132
EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	2 mg/kg	98.8	58	134
EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	4 mg/kg	100	55	133
EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	2 mg/kg	93.5	51	135
EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	2 mg/kg	98.0	55	137
EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	2 mg/kg	98.3	54	136
EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	2 mg/kg	96.0	55	137
EP075I: Organochlorine Pesticides (QCLot: 1101071)								
EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	2 mg/kg	111	54	130
EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	2 mg/kg	112	54	130
EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	2 mg/kg	112	54	134
EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	2 mg/kg	111	54	132
EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	2 mg/kg	98.6	55	131
EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	2 mg/kg	96.1	54	128
EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	2 mg/kg	96.1	54	128
EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	2 mg/kg	99.4	56	130
EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	2 mg/kg	99.3	56	130
EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	2 mg/kg	100	55	131
EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	2 mg/kg	100	53	133
EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	2 mg/kg	98.8	54	130
EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	2 mg/kg	97.5	57	133
EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	2 mg/kg	104	28	174
EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	2 mg/kg	92.9	40	148
EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	2 mg/kg	98.4	56	138
EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	2 mg/kg	100	57	135
EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	2 mg/kg	100	51	133
EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	2 mg/kg	95.9	51	133
EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	2 mg/kg	96.8	48	136
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1100999)								
EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	39.6 mg/kg	92.8	69	114

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1101072)								
EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	837 mg/kg	94.8	72	130
EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	3061 mg/kg	98.9	77	126
EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	1592 mg/kg	94.6	75	119
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1100999)								
EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	48.9 mg/kg	92.7	69	112
EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1101072)								
EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	1222 mg/kg	94.1	75	123
EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	3919 mg/kg	98.5	77	127
EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	316 mg/kg	96.1	43	123

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 1101137)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	97.6	90	110
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	97.0	86	111
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	98.9	87	109
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	94.4	87	108
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	96.6	88	109
EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	103	88	114
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	94.4	87	111
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	91.0	85	113
EG020A-T: Tin	7440-31-5	0.001	mg/L	<0.001	0.1 mg/L	99.2	88	113
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	96.3	87	113
EG020T: Total Metals by ICP-MS (QCLot: 1101139)								
EG020B-T: Silver	7440-22-4	0.001	mg/L	<0.001	0.02 mg/L	97.5	78	129
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1108472)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	95.4	81	114
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1101199)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	360 µg/L	97.3	67	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1101199)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	92.8	65	125
EP080: BTEXN (QCLot: 1101199)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	94.9	76	120
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	113	76	124
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	98.2	72	124

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080: BTEXN (QCLot: 1101199) - continued								
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	106	72	130
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	108	78	128
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	104	71	129

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG005T: Total Metals by ICP-AES (QCLot: 1101110)							
EM1712226-004	LW17-26-01 1.5	EG005T: Arsenic	7440-38-2	50 mg/kg	98.8	78	124
		EG005T: Cadmium	7440-43-9	50 mg/kg	96.3	84	116
		EG005T: Copper	7440-50-8	50 mg/kg	92.0	82	124
		EG005T: Lead	7439-92-1	50 mg/kg	94.9	76	124
		EG005T: Molybdenum	7439-98-7	50 mg/kg	79.2	79	117
		EG005T: Nickel	7440-02-0	50 mg/kg	92.6	78	120
		EG005T: Selenium	7782-49-2	50 mg/kg	89.8	71	125
		EG005T: Zinc	7440-66-6	50 mg/kg	91.5	74	128
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1101111)							
EM1712226-004	LW17-26-01 1.5	EG035T: Mercury	7439-97-6	5 mg/kg	92.7	76	116
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 1101039)							
EM1712185-022	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	40 mg/kg	61.6	58	114
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 1102413)							
EM1712193-001	Anonymous	EK026SF: Total Cyanide	57-12-5	20 mg/kg	97.1	77	113
EK040T: Fluoride Total (QCLot: 1101031)							
EM1712142-065	Anonymous	EK040T: Fluoride	16984-48-8	400 mg/kg	94.0	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 1101073)							
EM1712136-009	Anonymous	EP066-EM: Total Polychlorinated biphenyls	----	1 mg/kg	97.8	36	152
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 1100999)							
EM1712185-022	Anonymous	EP074-UT: Benzene	71-43-2	2 mg/kg	82.0	50	138
		EP074-UT: Toluene	108-88-3	2 mg/kg	89.0	56	134
EP074I: Volatile Halogenated Compounds (QCLot: 1100999)							
EM1712185-022	Anonymous	EP074-UT: 1.1-Dichloroethene	75-35-4	2 mg/kg	68.8	26	141

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP074I: Volatile Halogenated Compounds (QCLot: 1100999) - continued							
EM1712185-022	Anonymous	EP074-UT: Trichloroethene	79-01-6	2 mg/kg	87.7	50	134
		EP074-UT: Chlorobenzene	108-90-7	2 mg/kg	92.3	28	134
EP075A: Phenolic Compounds (Halogenated) (QCLot: 1101071)							
EM1712136-003	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	1 mg/kg	103	34	118
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	1 mg/kg	119	41	139
		EP075-EM: Pentachlorophenol	87-86-5	1 mg/kg	33.9	10	144
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 1101071)							
EM1712136-003	Anonymous	EP075-EM: Phenol	108-95-2	1 mg/kg	86.4	32	134
		EP075-EM: 2-Nitrophenol	88-75-5	1 mg/kg	78.1	13	129
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 1101071)							
EM1712136-003	Anonymous	EP075-EM: Acenaphthene	83-32-9	1 mg/kg	88.9	46	138
		EP075-EM: Pyrene	129-00-0	1 mg/kg	110	27	169
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1100999)							
EM1712185-022	Anonymous	EP074-UT: C6 - C9 Fraction	----	28 mg/kg	62.8	43	111
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1101072)							
EM1712136-006	Anonymous	EP071-EM: C10 - C14 Fraction	----	837 mg/kg	92.7	53	123
		EP071-EM: C15 - C28 Fraction	----	3061 mg/kg	96.6	70	124
		EP071-EM: C29 - C36 Fraction	----	1592 mg/kg	90.8	64	118
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1100999)							
EM1712185-022	Anonymous	EP074-UT: C6 - C10 Fraction	C6_C10	33 mg/kg	59.1	42	106
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1101072)							
EM1712136-006	Anonymous	EP071-EM: >C10 - C16 Fraction	----	1222 mg/kg	91.9	65	123
		EP071-EM: >C16 - C34 Fraction	----	3919 mg/kg	95.7	67	121
		EP071-EM: >C34 - C40 Fraction	----	316 mg/kg	88.1	44	126

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 1101137)							
EM1712172-006	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	99.4	82	118
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	108	75	129
		EG020A-T: Chromium	7440-47-3	1 mg/L	82.3	80	118
		EG020A-T: Copper	7440-50-8	1 mg/L	93.1	81	115
		EG020A-T: Lead	7439-92-1	1 mg/L	96.0	83	121
		EG020A-T: Nickel	7440-02-0	1 mg/L	108	80	118
		EG020A-T: Zinc	7440-66-6	1 mg/L	102	74	116
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1108472)							

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1108472) - continued							
EM1712229-059	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	98.9	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1101199)							
EM1712219-019	Anonymous	EP080: C6 - C9 Fraction	----	280 µg/L	60.8	43	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1101199)							
EM1712219-019	Anonymous	EP080: C6 - C10 Fraction	C6_C10	330 µg/L	59.3	44	122
EP080: BTEXN (QCLot: 1101199)							
EM1712219-019	Anonymous	EP080: Benzene	71-43-2	20 µg/L	80.7	68	130
		EP080: Toluene	108-88-3	20 µg/L	83.6	72	132

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM1712226**	Page	: 1 of 9
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLIVIA HENDERSON	Telephone	: +61-3-8549 9609
Project	: 2135645A	Date Samples Received	: 07-Sep-2017
Site	: Site 26	Issue Date	: 13-Sep-2017
Sampler	: ----	No. of samples received	: 5
Order number	: ----	No. of samples analysed	: 5

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
Total Mercury by FIMS	1	12	8.33	10.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / *Container* / Client Sample ID(s)		*Sample Date*	*Extraction / Preparation*			*Analysis*		
			Date extracted	*Due for extraction*	*Evaluation*	*Date analysed*	*Due for analysis*	*Evaluation*
EA001: pH in soil using 0.01M CaCl extract								
Soil Glass Jar - Unpreserved (EA001)								
LW17-26-01 0.5, LW17-26-01 2.0	LW17-26-01 1.5,	**07-Sep-2017**	**08-Sep-2017**	14-Sep-2017	✓	**08-Sep-2017**	08-Sep-2017	✓
EA055: Moisture Content (Dried @ 105-110°C)								
Soil Glass Jar - Unpreserved (EA055)								
LW17-26-01 0.5, LW17-26-01 2.0	LW17-26-01 1.5,	**07-Sep-2017**	**----**	----	----	**08-Sep-2017**	21-Sep-2017	✓
EG005T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T)								
LW17-26-01 0.5, LW17-26-01 2.0	LW17-26-01 1.5,	**07-Sep-2017**	**08-Sep-2017**	06-Mar-2018	✓	**08-Sep-2017**	06-Mar-2018	✓
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T)								
LW17-26-01 0.5, LW17-26-01 2.0	LW17-26-01 1.5,	**07-Sep-2017**	**08-Sep-2017**	05-Oct-2017	✓	**11-Sep-2017**	05-Oct-2017	✓
EG048: Hexavalent Chromium (Alkaline Digest)								
Soil Glass Jar - Unpreserved (EG048G)								
LW17-26-01 0.5, LW17-26-01 2.0	LW17-26-01 1.5,	**07-Sep-2017**	**08-Sep-2017**	05-Oct-2017	✓	**08-Sep-2017**	15-Sep-2017	✓
EK026SF: Total CN by Segmented Flow Analyser								
Soil Glass Jar - Unpreserved (EK026SF)								
LW17-26-01 0.5, LW17-26-01 2.0	LW17-26-01 1.5,	**07-Sep-2017**	**08-Sep-2017**	21-Sep-2017	✓	**11-Sep-2017**	22-Sep-2017	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EK040T: Fluoride Total								
Soil Glass Jar - Unpreserved (EK040T)								
LW17-26-01 0.5, LW17-26-01 2.0	LW17-26-01 1.5,	**07-Sep-2017**	**08-Sep-2017**	05-Oct-2017	✓	**11-Sep-2017**	05-Oct-2017	✓
EP066: Polychlorinated Biphenyls (PCB)								
Soil Glass Jar - Unpreserved (EP066-EM)								
LW17-26-01 0.5, LW17-26-01 2.0	LW17-26-01 1.5,	**07-Sep-2017**	**08-Sep-2017**	21-Sep-2017	✓	**08-Sep-2017**	18-Oct-2017	✓
EP074A: Monocyclic Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP074-UT)								
LW17-26-01 0.5, LW17-26-01 2.0	LW17-26-01 1.5,	**07-Sep-2017**	**08-Sep-2017**	14-Sep-2017	✓	**08-Sep-2017**	14-Sep-2017	✓
EP074H: Naphthalene								
Soil Glass Jar - Unpreserved (EP074-UT)								
LW17-26-01 0.5, LW17-26-01 2.0	LW17-26-01 1.5,	**07-Sep-2017**	**08-Sep-2017**	14-Sep-2017	✓	**08-Sep-2017**	14-Sep-2017	✓
EP074I: Volatile Halogenated Compounds								
Soil Glass Jar - Unpreserved (EP074-UT)								
LW17-26-01 0.5, LW17-26-01 2.0	LW17-26-01 1.5,	**07-Sep-2017**	**08-Sep-2017**	14-Sep-2017	✓	**08-Sep-2017**	14-Sep-2017	✓
EP075A: Phenolic Compounds (Halogenated)								
Soil Glass Jar - Unpreserved (EP075-EM)								
LW17-26-01 0.5, LW17-26-01 2.0	LW17-26-01 1.5,	**07-Sep-2017**	**08-Sep-2017**	21-Sep-2017	✓	**08-Sep-2017**	18-Oct-2017	✓
EP075A: Phenolic Compounds (Non-halogenated)								
Soil Glass Jar - Unpreserved (EP075-EM)								
LW17-26-01 0.5, LW17-26-01 2.0	LW17-26-01 1.5,	**07-Sep-2017**	**08-Sep-2017**	21-Sep-2017	✓	**08-Sep-2017**	18-Oct-2017	✓
EP075B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075-EM)								
LW17-26-01 0.5, LW17-26-01 2.0	LW17-26-01 1.5,	**07-Sep-2017**	**08-Sep-2017**	21-Sep-2017	✓	**08-Sep-2017**	18-Oct-2017	✓
EP075I: Organochlorine Pesticides								
Soil Glass Jar - Unpreserved (EP075-EM)								
LW17-26-01 0.5, LW17-26-01 2.0	LW17-26-01 1.5,	**07-Sep-2017**	**08-Sep-2017**	21-Sep-2017	✓	**08-Sep-2017**	18-Oct-2017	✓
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP074-UT)								
LW17-26-01 0.5, LW17-26-01 2.0	LW17-26-01 1.5,	**07-Sep-2017**	**08-Sep-2017**	14-Sep-2017	✓	**08-Sep-2017**	14-Sep-2017	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP074-UT)							
LW17-26-01 0.5, LW17-26-01 1.5, LW17-26-01 2.0	**07-Sep-2017**	**08-Sep-2017**	14-Sep-2017	✓	**08-Sep-2017**	14-Sep-2017	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unspecified (EG020B-T)							
RB070917	**07-Sep-2017**	**08-Sep-2017**	06-Mar-2018	✓	**08-Sep-2017**	06-Mar-2018	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unspecified (EG035T)							
RB070917	**07-Sep-2017**	**----**	----	----	**13-Sep-2017**	05-Oct-2017	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP080)							
TB070917	**07-Sep-2017**	**08-Sep-2017**	21-Sep-2017	✓	**08-Sep-2017**	21-Sep-2017	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber VOC Vial - Sulfuric Acid (EP080)							
TB070917	**07-Sep-2017**	**08-Sep-2017**	21-Sep-2017	✓	**08-Sep-2017**	21-Sep-2017	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
TB070917	**07-Sep-2017**	**08-Sep-2017**	21-Sep-2017	✓	**08-Sep-2017**	21-Sep-2017	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	1	7	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	3	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Matrix Spikes (MS) - Continued							
Total Fluoride	EK040T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Total Mercury by FIMS	EG035T	1	12	**8.33**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite B	EG020B-T	1	1	**100.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Total Mercury by FIMS	EG035T	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite B	EG020B-T	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Total Mercury by FIMS	EG035T	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite B	EG020B-T	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Total Mercury by FIMS	EG035T	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH in soil using a 0.01M CaCl2 extract	EA001	SOIL	In house: Referenced to Rayment and Lyons (2011) 4B3 (mod.) or 4B4 (mod.) 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM (2013) Schedule B(3)
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	SOIL	In house: Referenced to USEPA SW846, Method 3060A. Hexavalent chromium is extracted by alkaline digestion. The digest is determined by photometrically by automatic discrete analyser, following pH adjustment. The instrument uses colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Cyanide by Segmented Flow Analyser	EK026SF	SOIL	In house: Referenced to APHA 4500-CN C / ASTM D7511. Caustic leachates of soil samples are introduced into an automated segmented flow analyser. Complex bound cyanide is decomposed in a continuously flowing stream, at a pH of 3.8, by the effect of UV light. A UV-B lamp (312 nm) and a decomposition spiral of borosilicate glass are used to filter out UV light with a wavelength of less than 290 nm thus preventing the conversion of thiocyanate into cyanide. The hydrogen cyanide present at a pH of 3.8 is separated by gas dialysis. The hydrogen cyanide is then determined photometrically, based on the reaction of cyanide with chloramine-T to form cyanogen chloride. This then reacts with 4-pyridine carboxylic acid and 1,3-dimethylbarbituric acid to give a red colour which is measured at 600 nm. This method is compliant with NEPM (2013) Schedule B(3)
Total Fluoride	EK040T	SOIL	(In-house) Total fluoride is determined by ion specific electrode (ISE) in a solution obtained after a Sodium Carbonate / Potassium Carbonate fusion dissolution.
PCB - VIC EPA 448.3 Screen	EP066-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
TRH - Semivolatile Fraction	EP071-EM	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40.
Volatile Organic Compounds - Ultra-trace	EP074-UT	SOIL	In house: Referenced to USEPA SW 846 - 8260B Extracts are analysed by Purge and Trap, Capillary GC/MS in partial SIM/Scan mode. Quantification is by comparison against an established multi-point calibration curves. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)

Analytical Methods	Method	Matrix	Method Descriptions
Volatile Organic Compounds - Ultra-trace - Summations	EP074-UT-SUM	SOIL	Summation of MAHs and VHCs
Semivolatile Organic Compounds - Waste Classification	EP075-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (2013) Schedule B(3) (Method 502)
SVOC - Waste Classification (Sums)	EP075-EM-SUM	SOIL	Summations for EP075 (EM variation)
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite B	EG020B-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
NaOH leach for CN in Soils	CN-PR	SOIL	In house: APHA 4500 CN. Samples are extracted by end-over-end tumbling with NaOH.
pH in soil using a 0.01M CaCl2 extract	EA001-PR	SOIL	In house: Referenced to Rayment and Higginson 4B1, 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Alkaline digestion for Hexavalent Chromium	EG048PR	SOIL	In house: Referenced to USEPA SW846, Method 3060A.
Total Fluoride	EK040T-PR	SOIL	In house: Samples are fused with Sodium Carbonate / Potassium Carbonate flux.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils - Ultra-trace.	ORG16-UT	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids - VIC EPA Screen	ORG17-EM	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

Preparation Methods	Method	Matrix	Method Descriptions
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

ALS Environmental

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EM1712226**

Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLIVIA HENDERSON	Contact	: Graeme Jablonskas
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: ohenderson@pb.com.au	E-mail	: graeme.jablonskas@alsglobal.com
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9609
Facsimile	: +61 03 9861 1144	Facsimile	: +61-3-8549 9601
Project	: 2135645A	Page	: 1 of 3
Order number	: ----	Quote number	: EM2016PARBRIVIC0006 (ME-525-16)
C-O-C number	: 85454	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Site 26		
Sampler	:		

Dates

Date Samples Received	: 07-Sep-2017 17:30	Issue Date	: 08-Sep-2017
Client Requested Due Date	: 14-Sep-2017	Scheduled Reporting Date	: **14-Sep-2017**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 3.4°C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 5 / 5

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.
- **Analytical work for this work order will be conducted at ALS Springvale.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA055-103 Moisture Content	SOIL - P-16 IWRG 621
EM1712226-003	07-Sep-2017 00:00	LW17-26-01 0.5	✓	✓
EM1712226-004	07-Sep-2017 00:00	LW17-26-01 1.5	✓	✓
EM1712226-005	07-Sep-2017 00:00	LW17-26-01 2.0	✓	✓

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - IWRG621 Metals (Total) IWRG621 Total Metals in Water (inc. total Cr)	WATER - W-18 TRH(C6 - C9)/BTEXN
EM1712226-001	07-Sep-2017 00:00	TB070917		✓
EM1712226-002	07-Sep-2017 00:00	RB070917	✓	

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ALL INVOICES

- A4 - AU Tax Invoice (INV)	Email	apinvoices@pb.com.au

OLFA NAZARIO

- *AU Certificate of Analysis - NATA (COA)	Email	onazario@pb.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	onazario@pb.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	onazario@pb.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	onazario@pb.com.au
- Chain of Custody (CoC) (COC)	Email	onazario@pb.com.au
- EDI Format - ENMRG (ENMRG)	Email	onazario@pb.com.au
- EDI Format - ESDAT (ESDAT)	Email	onazario@pb.com.au
- EPA Waste Classification & Categorisation Guideline Report (COA_GL_EPA_WASTE)	Email	onazario@pb.com.au

OLIVIA HENDERSON

- *AU Certificate of Analysis - NATA (COA)	Email	ohenderson@pb.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	ohenderson@pb.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	ohenderson@pb.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	ohenderson@pb.com.au
- A4 - AU Tax Invoice (INV)	Email	ohenderson@pb.com.au
- Chain of Custody (CoC) (COC)	Email	ohenderson@pb.com.au
- EDI Format - ENMRG (ENMRG)	Email	ohenderson@pb.com.au
- EDI Format - ESDAT (ESDAT)	Email	ohenderson@pb.com.au
- EPA Waste Classification & Categorisation Guideline Report (COA_GL_EPA_WASTE)	Email	ohenderson@pb.com.au

WSP | PARSONS BRINCKERHOFF

White Page - Laboratory Copy
Yellow Page - Project File Copy
Pink Page - Remains in Book

ABN 80 078 004 798

☐ **Adelaide** Level 1, 1 King William Street, GPO Box 398 Adelaide SA 5001 Tel: (08) 8405 4300 Fax: (08) 8405 4301

☐ **Brisbane** Level 3, Northbank Plaza 69 Ann Street, GPO Box 2907 Brisbane QLD 4001 Tel: (07) 3854 6200 Fax: (07) 3854 6500

☑ **Melbourne** Level 15, 28 Freshwater Place, Tel: (03) 9861 1111 Fax: (03) 9861 1144

☐ **Sydney** Level 27, Ernst & Young Centre 680 George Street, GPO Box 5394, Sydney NSW 2001 Tel: (02) 9272 5100 Fax: (02) 9272 5101

☐ **Perth** Level 5, 503 Murray Street, PO Box 7181 Cloisters Square WA 6850 Tel: (08) 9489 9700 Fax: (08) 9489 9777

☐ **Singleton** 188 John Street, PO Box 115 Singleton NSW 2330 Tel: (02) 6572 3377 Fax: (02) 6572 4080

☐ **Newcastle** Level 3, 51-55 Bolton Street, Suite 1 PO Box 1162 Newcastle NSW, 2300 Tel: (02) 4929 8300 Fax: (02) 4929 8382

Chain of Custody

Order No: 85454

Job Title: OSAR / NORDIALLOC BYPASS

PB Job Number: 213564SA

Job Location: Site 26

Project Manager: Olivia Henderson

Laboratory Name: ALS SPRINGVALE

Results Expected by/on:

Address:

Fax Results to: olivia.Henderson@WSP.com

Fax Number:

Phone Number:

Spreadsheet of Results Required: (Y) N

Format:

Turnaround Time Required:

Invoice to: Olivia Henderson

Comments:

Terms of Business	PB	Other	Checked
	✓		

Date Sampled	Time	Sample I.D.	Container Size	Sample Location	Medium*	Preservative Type	Filtered (X)	TPH	BTEX	PAHs	OC/OP/PCBs	Metals**	Eurofins 6021	Eurofins 6021 metals	BTEXN	TPH C6-C10	Initials	Comments/Additional Information and/or Analysis Required
7/9/17	1	TB070917	Vial		W										/	/		
↓	2	RB070917	amber glass vial, metal		W									/				
	-	3																
	3	LW17-26-01	250ml Jar	0.5	S								/					
	4	LW17-26-01	↓	1.5	S								/					
	5	LW17-26-01	↓	2-0	S								/					

Environmental Division
Melbourne
Work Order Reference
EM1712226

Telephone : +61-3-8549 9600

Relinquished by:	J. Ly	Relinquished by:	Relinquished by:
Date & Time:	7/9/17 530pm	Date & Time:	Date & Time:
Company:	WSP	Company:	Company:
Signature:		Signature:	Signature:
Received in Good Order & Condition by (Name):		Received in Good Order & Condition by (Name):	Received in Good Order & Condition by (Name):
Date & Time:		Date & Time:	Date & Time:
Company:	7/9/17 @ 5.30pm	Company:	Company:
Signature:		Signature:	Signature:

Medium*: S = Soil, W = Water, V = Vapour

Legend**: (circle the following to be tested)

Metals: Al As Be Cd Co Cr Cu Fe Hg Li Mg Mn Ni Pb Se Sn V Zn

Samples on Ice: ☐ Yes ☐ No

Please fax back a signed copy when samples are received at the laboratory

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1712631**	Page	: 1 of 8
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLFA NAZARIO	Contact	: Graeme Jablonskas
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9609
Project	: 2135645A	Date Samples Received	: 14-Sep-2017 18:00
Order number	: ----	Date Analysis Commenced	: 15-Sep-2017
C-O-C number	: 85455	Issue Date	: 20-Sep-2017 11:26
Sampler	: ----		
Site	: Site 32		
Quote number	: ME-525-16		
No. of samples received	: 3		
No. of samples analysed	: 1		

ilac-MRA NATA
Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B17-68317 0.5	----	----	----	----
				Client sampling date / time	14-Sep-2017 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM1712631-003	--------	--------	--------	--------
					Result	----	----	----	----
EA001: pH in soil using 0.01M CaCl extract									
pH (CaCl2)	----	0.1	pH Unit		**4.3**	----	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		**7.7**	----	----	----	----
EG005T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		**15**	----	----	----	----
Cadmium	7440-43-9	1	mg/kg		<1	----	----	----	----
Copper	7440-50-8	5	mg/kg		<5	----	----	----	----
Lead	7439-92-1	5	mg/kg		**9**	----	----	----	----
Molybdenum	7439-98-7	2	mg/kg		<2	----	----	----	----
Nickel	7440-02-0	2	mg/kg		<2	----	----	----	----
Selenium	7782-49-2	5	mg/kg		<5	----	----	----	----
Silver	7440-22-4	2	mg/kg		<2	----	----	----	----
Tin	7440-31-5	5	mg/kg		<5	----	----	----	----
Zinc	7440-66-6	5	mg/kg		<5	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	----	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)									
Hexavalent Chromium	18540-29-9	0.5	mg/kg		<0.5	----	----	----	----
EK026SF: Total CN by Segmented Flow Analyser									
Total Cyanide	57-12-5	1	mg/kg		<1	----	----	----	----
EK040T: Fluoride Total									
Fluoride	16984-48-8	40	mg/kg		**390**	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		<0.1	----	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons									
Benzene	71-43-2	0.2	mg/kg		<0.2	----	----	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	----	----	----	----
Styrene	100-42-5	0.5	mg/kg		<0.5	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	----	----	----	----
^ Sum of monocyclic aromatic hydrocarbons	----	0.2	mg/kg		<0.2	----	----	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg		<0.5	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B17-68317 0.5	----	----	----	----
				Client sampling date / time	14-Sep-2017 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM1712631-003	--------	--------	--------	--------
					Result	----	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons - Continued									
EP074H: Naphthalene									
Naphthalene	91-20-3	1	mg/kg		<1	----	----	----	----
EP074I: Volatile Halogenated Compounds									
Vinyl chloride	75-01-4	0.02	mg/kg		<0.02	----	----	----	----
1.1-Dichloroethene	75-35-4	0.01	mg/kg		<0.01	----	----	----	----
Methylene chloride	75-09-2	0.4	mg/kg		<0.4	----	----	----	----
trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg		<0.02	----	----	----	----
cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg		<0.01	----	----	----	----
Chloroform	67-66-3	0.02	mg/kg		<0.02	----	----	----	----
1.1.1-Trichloroethane	71-55-6	0.01	mg/kg		<0.01	----	----	----	----
Carbon Tetrachloride	56-23-5	0.01	mg/kg		<0.01	----	----	----	----
1.2-Dichloroethane	107-06-2	0.02	mg/kg		<0.02	----	----	----	----
Trichloroethene	79-01-6	0.02	mg/kg		<0.02	----	----	----	----
1.1.2-Trichloroethane	79-00-5	0.04	mg/kg		<0.04	----	----	----	----
Tetrachloroethene	127-18-4	0.02	mg/kg		<0.02	----	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg		<0.01	----	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg		<0.02	----	----	----	----
Hexachlorobutadiene	87-68-3	0.02	mg/kg		<0.02	----	----	----	----
Chlorobenzene	108-90-7	0.02	mg/kg		<0.02	----	----	----	----
1.4-Dichlorobenzene	106-46-7	0.02	mg/kg		<0.02	----	----	----	----
1.2-Dichlorobenzene	95-50-1	0.02	mg/kg		<0.02	----	----	----	----
1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg		<0.01	----	----	----	----
^ **Sum of volatile chlorinated hydrocarbons**	----	0.01	mg/kg		<0.01	----	----	----	----
^ **Sum of other chlorinated hydrocarbons**	----	0.01	mg/kg		<0.01	----	----	----	----
EP075A: Phenolic Compounds (Halogenated)									
2-Chlorophenol	95-57-8	0.03	mg/kg		<0.03	----	----	----	----
2.4-Dichlorophenol	120-83-2	0.03	mg/kg		<0.03	----	----	----	----
2.6-Dichlorophenol	87-65-0	0.03	mg/kg		<0.03	----	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg		<0.03	----	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg		<0.05	----	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg		<0.05	----	----	----	----
2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg		<0.03	----	----	----	----
2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg		<0.05	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B17-68317 0.5	----	----	----	----
				Client sampling date / time	14-Sep-2017 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM1712631-003	--------	--------	--------	--------
					Result	----	----	----	----
EP075A: Phenolic Compounds (Halogenated) - Continued									
Pentachlorophenol	87-86-5	0.2	mg/kg		<0.2	----	----	----	----
^ Sum of Phenols (halogenated)	----	0.03	mg/kg		<0.03	----	----	----	----
EP075A: Phenolic Compounds (Non-halogenated)									
Phenol	108-95-2	1	mg/kg		<1	----	----	----	----
2-Methylphenol	95-48-7	1	mg/kg		<1	----	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	----	----	----	----
2-Nitrophenol	88-75-5	1	mg/kg		<1	----	----	----	----
2.4-Dimethylphenol	105-67-9	1	mg/kg		<1	----	----	----	----
2.4-Dinitrophenol	51-28-5	5	mg/kg		<5	----	----	----	----
4-Nitrophenol	100-02-7	5	mg/kg		<5	----	----	----	----
2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg		<5	----	----	----	----
Dinoseb	88-85-7	5	mg/kg		<5	----	----	----	----
2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg		<5	----	----	----	----
^ Sum of Phenols (non-halogenated)	----	1	mg/kg		<1	----	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	----	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	----	----	----	----
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg		<0.5	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		0.6	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B17-68317 0.5	----	----	----	----
				Client sampling date / time	14-Sep-2017 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM1712631-003	--------	--------	--------	--------
					Result	----	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons - Continued									
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		1.2	----	----	----	----
EP075I: Organochlorine Pesticides									
alpha-BHC	319-84-6	0.03	mg/kg		<0.03	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg		<0.03	----	----	----	----
beta-BHC	319-85-7	0.03	mg/kg		<0.03	----	----	----	----
gamma-BHC	58-89-9	0.03	mg/kg		<0.03	----	----	----	----
delta-BHC	319-86-8	0.03	mg/kg		<0.03	----	----	----	----
Heptachlor	76-44-8	0.03	mg/kg		<0.03	----	----	----	----
Aldrin	309-00-2	0.03	mg/kg		<0.03	----	----	----	----
Heptachlor epoxide	1024-57-3	0.03	mg/kg		<0.03	----	----	----	----
cis-Chlordane	5103-71-9	0.03	mg/kg		<0.03	----	----	----	----
trans-Chlordane	5103-74-2	0.03	mg/kg		<0.03	----	----	----	----
Endosulfan 1	959-98-8	0.03	mg/kg		<0.03	----	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	----	----	----	----
Dieldrin	60-57-1	0.03	mg/kg		<0.03	----	----	----	----
Endrin aldehyde	7421-93-4	0.03	mg/kg		<0.03	----	----	----	----
Endrin	72-20-8	0.03	mg/kg		<0.03	----	----	----	----
Endosulfan 2	33213-65-9	0.03	mg/kg		<0.03	----	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	----	----	----	----
Endosulfan sulfate	1031-07-8	0.03	mg/kg		<0.03	----	----	----	----
4.4`-DDT	50-29-3	0.05	mg/kg		<0.05	----	----	----	----
Methoxychlor	72-43-5	0.03	mg/kg		<0.03	----	----	----	----
^ Sum of organochlorine pesticides	----	0.03	mg/kg		<0.03	----	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.03	mg/kg		<0.03	----	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	----	----	----	----
^ Chlordane	57-74-9	0.03	mg/kg		<0.03	----	----	----	----
^ Sum of other organochlorine pesticides	----	0.03	mg/kg		<0.03	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	----	----	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	----	----	----	----
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B17-68317 0.5	----	----	----	----
				Client sampling date / time	14-Sep-2017 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM1712631-003	--------	--------	--------	--------
					Result	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons - Continued									
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
>C10 - C16 Fraction	----	50	mg/kg		<50	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	----	----	----	----
>C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	----	----	----	----
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	----	----	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		78.1	----	----	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		87.0	----	----	----	----
Toluene-D8	2037-26-5	0.1	%		91.2	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%		95.2	----	----	----	----
EP075S: Acid Extractable Surrogates									
Phenol-d6	13127-88-3	0.025	%		91.8	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.025	%		89.0	----	----	----	----
2.4.6-Tribromophenol	118-79-6	0.025	%		98.4	----	----	----	----
EP075T: Base/Neutral Extractable Surrogates									
Nitrobenzene-D5	4165-60-0	0.025	%		85.4	----	----	----	----
1.2-Dichlorobenzene-D4	2199-69-1	0.025	%		88.8	----	----	----	----
2-Fluorobiphenyl	321-60-8	0.025	%		99.4	----	----	----	----
Anthracene-d10	1719-06-8	0.025	%		96.6	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.025	%		103	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	CAS Number	Recovery Limits (%) Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	41	122
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	59	119
Toluene-D8	2037-26-5	55	117
4-Bromofluorobenzene	460-00-4	59	123
EP075S: Acid Extractable Surrogates			
Phenol-d6	13127-88-3	28	134
2-Chlorophenol-D4	93951-73-6	27	123
2.4.6-Tribromophenol	118-79-6	25	149
EP075T: Base/Neutral Extractable Surrogates			
Nitrobenzene-D5	4165-60-0	29	125
1.2-Dichlorobenzene-D4	2199-69-1	31	117
2-Fluorobiphenyl	321-60-8	44	136
Anthracene-d10	1719-06-8	53	133
4-Terphenyl-d14	1718-51-0	59	141

Automated Guideline Comparison Report

EPA Victoria Publication IWRG 621 (2009) - Table 2: Soil Hazard Categorisation

Work Order	: **EM1712631**	Page	: 1 of 8
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLFA NAZARIO		
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: onazario@pb.com.au	E-mail	: graeme.jablonskas@alsglobal.com
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9609
Facsimile	: +61 03 9861 1144	Facsimile	: +61-3-8549 9601
Project	: 2135645A	Date Received	: 14-Sep-2017 18:00
Order number	: ----	Date Analysed	: 15-Sep-2017
C-O-C number	: 85455	Date Issued	: 20-Sep-2017 11:26
No. of samples received	: 3		
No. of samples analysed	: 1	Quote number	: ME-525-16

General Comments

This guideline comparison report **only** provides evaluation of total concentration data against upper limit thresholds for the 'Fill Material', 'C', 'B' Categories in Table 2 of EPA Publication IWRG621.

This guideline comparison report is **NOT** a soil classification report. Classification of soils as Fill Material, Category C, Category B or Category A requires consideration of a number of other factors including preliminary site investigation, sampling density and statistical calculations, as set out in EPA Publication IWRG 702.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

This guideline comparison report only provides evaluation data where chemical parameters specifically listed within the IWRG621 (2009) guideline are analysed by ALS using the **P-16 package in full**.

Red shading is applied where the result is equal to or greater than the guideline upper limit and/or equal to or lower than the guideline lower limit. Red shading is not applied to the 'Summary of Thresholds Reached or Exceeded'.

For the 'Summary of Thresholds Reached or Exceeded' to accurately function, all samples must be analysed and included in the 'Analytical Results' section of the following report. Please verify that all required IDs are listed and analysed.

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Summary of Thresholds Reached or Exceeded

Results for all samples detailed in this report are below the upper threshold limits for Fill Material.

Analytical Results

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B: Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Client sample ID: B17-68317 0.5	----	----	----	----
				Sampling date/time		14-Sep-2017 15:00	----	----	----	----
						EM1712631-003	--------	--------	--------	--------
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	2	12.5	**4.3**	----	----	----	----
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	2000	**15**	----	----	----	----
Cadmium	EG005T	1	mg/kg	----	400	<1	----	----	----	----
Copper	EG005T	5	mg/kg	----	20000	<5	----	----	----	----
Lead	EG005T	5	mg/kg	----	6000	**9**	----	----	----	----
Molybdenum	EG005T	2	mg/kg	----	4000	<2	----	----	----	----
Nickel	EG005T	2	mg/kg	----	12000	<2	----	----	----	----
Selenium	EG005T	5	mg/kg	----	200	<5	----	----	----	----
Silver	EG005T	2	mg/kg	----	720	<2	----	----	----	----
Zinc	EG005T	5	mg/kg	----	140000	<5	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	300	<0.1	----	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	2000	<0.5	----	----	----	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	10000	<1	----	----	----	----
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	40000	**390**	----	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	16	<0.2	----	----	----	----
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	240	<0.2	----	----	----	----
EP074I: Volatile Halogenated Compounds										
Vinyl chloride	EP074-UT	0.02	mg/kg	----	4.8	<0.02	----	----	----	----
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	11	<0.02	----	----	----	----
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	50	<0.01	----	----	----	----
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	320	<0.03	----	----	----	----
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	2200	<1	----	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons										

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B: Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Client sample ID: **B17-68317 0.5**	----	----	----	----
						Sampling date/time: 14-Sep-2017 15:00	----	----	----	----
						EM1712631-003	--------	--------	--------	--------
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	20	<0.5	----	----	----	----
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	400	<0.5	----	----	----	----
EP075I: Organochlorine Pesticides										
Heptachlor	EP075-EM	0.03	mg/kg	----	4.8	<0.03	----	----	----	----
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	4.8	<0.03	----	----	----	----
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50	<0.05	----	----	----	----
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	16	<0.03	----	----	----	----
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	50	<0.03	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	2600	<10	----	----	----	----
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	40000	<50	----	----	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category C: Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Client sample ID: B17-68317 0.5	----	----	----	----
				Sampling date/time		14-Sep-2017 15:00	----	----	----	----
						EM1712631-003	--------	--------	--------	--------
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	4	9	**4.3**	----	----	----	----
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	500	**15**	----	----	----	----
Cadmium	EG005T	1	mg/kg	----	100	<1	----	----	----	----
Copper	EG005T	5	mg/kg	----	5000	<5	----	----	----	----
Lead	EG005T	5	mg/kg	----	1500	**9**	----	----	----	----
Molybdenum	EG005T	2	mg/kg	----	1000	<2	----	----	----	----
Nickel	EG005T	2	mg/kg	----	3000	<2	----	----	----	----
Selenium	EG005T	5	mg/kg	----	50	<5	----	----	----	----
Silver	EG005T	2	mg/kg	----	180	<2	----	----	----	----
Tin	EG005T	5	mg/kg	----	500	<5	----	----	----	----
Zinc	EG005T	5	mg/kg	----	35000	<5	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	75	<0.1	----	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	500	<0.5	----	----	----	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	2500	<1	----	----	----	----
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	10000	**390**	----	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	4	<0.2	----	----	----	----
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	70	<0.2	----	----	----	----
EP074I: Volatile Halogenated Compounds										
Vinyl chloride	EP074-UT	0.02	mg/kg	----	1.2	<0.02	----	----	----	----
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	2.8	<0.02	----	----	----	----
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	10	<0.01	----	----	----	----
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	10	<0.03	----	----	----	----
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	560	<1	----	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons										

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category C: Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Client sample ID: B17-68317 0.5	----	----	----	----
						Sampling date/time: 14-Sep-2017 15:00	----	----	----	----
						EM1712631-003	--------	--------	--------	--------
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	5	<0.5	----	----	----	----
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	100	<0.5	----	----	----	----
EP075I: Organochlorine Pesticides										
Heptachlor	EP075-EM	0.03	mg/kg	----	1.2	<0.03	----	----	----	----
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	1.2	<0.03	----	----	----	----
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50	<0.05	----	----	----	----
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	4	<0.03	----	----	----	----
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	10	<0.03	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	650	<10	----	----	----	----
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	10000	<50	----	----	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material: Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Client sample ID: B17-68317 0.5	----	----	----	----
				Sampling date/time		14-Sep-2017 15:00	----	----	----	----
						EM1712631-003	--------	--------	--------	--------
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	4	9	**4.3**	----	----	----	----
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	20	**15**	----	----	----	----
Cadmium	EG005T	1	mg/kg	----	3	<1	----	----	----	----
Copper	EG005T	5	mg/kg	----	100	<5	----	----	----	----
Lead	EG005T	5	mg/kg	----	300	**9**	----	----	----	----
Molybdenum	EG005T	2	mg/kg	----	40	<2	----	----	----	----
Nickel	EG005T	2	mg/kg	----	60	<2	----	----	----	----
Selenium	EG005T	5	mg/kg	----	10	<5	----	----	----	----
Silver	EG005T	2	mg/kg	----	10	<2	----	----	----	----
Tin	EG005T	5	mg/kg	----	50	<5	----	----	----	----
Zinc	EG005T	5	mg/kg	----	200	<5	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	1	<0.1	----	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	1	<0.5	----	----	----	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	50	<1	----	----	----	----
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	450	**390**	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)										
Total Polychlorinated biphenyls	EP066-EM	0.1	mg/kg	----	2	<0.1	----	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	1	<0.2	----	----	----	----
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	7	<0.2	----	----	----	----
EP074I: Volatile Halogenated Compounds										
Sum of volatile chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	1	<0.01	----	----	----	----
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	1	<0.03	----	----	----	----
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	60	<1	----	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons										

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material: Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

			Client sample ID	Guideline	Guideline	**B17-68317 0.5**	**----**	**----**	**----**	**----**
			Sampling date/time			14-Sep-2017 15:00	----	----	----	----
Compound	*Method*	*LOR*	*Unit*	Lower Limit	Upper Limit	**EM1712631-003**	**--------**	**--------**	**--------**	**--------**
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	1	<0.5	**----**	**----**	**----**	**----**
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	20	<0.5	**----**	**----**	**----**	**----**
EP075I: Organochlorine Pesticides										
Sum of organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	1	<0.03	**----**	**----**	**----**	**----**
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	100	<10	**----**	**----**	**----**	**----**
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	1000	<50	**----**	**----**	**----**	**----**

Note: Red shading is applied where the result is equal to or greater than the guideline upper limit and/or equal to or lower than the guideline lower limit.

QUALITY CONTROL REPORT

Work Order	: **EM1712631**	Page	: 1 of 11
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLFA NAZARIO	Contact	: Graeme Jablonskas
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9609
Project	: 2135645A	Date Samples Received	: 14-Sep-2017
Order number	: ----	Date Analysis Commenced	: 15-Sep-2017
C-O-C number	: 85455	Issue Date	: 20-Sep-2017
Sampler	: ----		
Site	: Site 32		
Quote number	: ME-525-16		
No. of samples received	: 3		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA001: pH in soil using 0.01M CaCl extract (QC Lot: 1116044)									
EM1712597-006	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	7.5	7.6	1.32	0% - 20%
EM1712599-003	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	8.3	8.4	1.20	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1116174)									
EM1712631-003	B17-68317 0.5	EA055: Moisture Content	----	1	%	7.7	7.9	2.20	No Limit
EM1712647-010	Anonymous	EA055: Moisture Content	----	1	%	35.0	29.1	18.4	0% - 20%
EG005T: Total Metals by ICP-AES (QC Lot: 1116659)									
EM1712631-003	B17-68317 0.5	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	15	15	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	9	10	12.2	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Tin	7440-31-5	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.00	No Limit
EM1712675-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	6	6	0.00	No Limit
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	6	6	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG005T: Total Metals by ICP-AES (QC Lot: 1116659) - continued									
EM1712675-001	Anonymous	EG005T: Tin	7440-31-5	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1116658)									
EM1712631-003	B17-68317 0.5	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EM1712675-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EG048: Hexavalent Chromium (Alkaline Digest) (QC Lot: 1115615)									
EM1712503-001	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1712597-013	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EK026SF: Total CN by Segmented Flow Analyser (QC Lot: 1116613)									
EM1712598-003	Anonymous	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.00	No Limit
EM1712675-001	Anonymous	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.00	No Limit
EK040T: Fluoride Total (QC Lot: 1116036)									
EM1712631-003	B17-68317 0.5	EK040T: Fluoride	16984-48-8	40	mg/kg	390	370	5.32	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 1116020)									
EM1712605-024	Anonymous	EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 1116013)									
EM1712605-024	Anonymous	EP074-UT: Benzene	71-43-2	0.2	mg/kg	0.9	0.3	104	No Limit
		EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	0.6	0.7	0.00	No Limit
EP074H: Naphthalene (QC Lot: 1116013)									
EM1712605-024	Anonymous	EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EP074I: Volatile Halogenated Compounds (QC Lot: 1116013)									
EM1712605-024	Anonymous	EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074I: Volatile Halogenated Compounds (QC Lot: 1116013) - continued									
EM1712605-024	Anonymous	EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	<0.04	0.00	No Limit
		EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	<0.4	0.00	No Limit
EP075A: Phenolic Compounds (Halogenated) (QC Lot: 1116018)									
EM1712605-024	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP075A: Phenolic Compounds (Non-halogenated) (QC Lot: 1116018)									
EM1712605-024	Anonymous	EP075-EM: Phenol	108-95-2	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	0.00	No Limit
EP075B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1116018)									
EM1712605-024	Anonymous	EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	0.6	0.00	No Limit
		EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	0.7	0.8	0.00	No Limit
		EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluorene	86-73-7	0.5	mg/kg	0.9	1.0	12.6	No Limit
		EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	1.1	1.2	10.2	No Limit
		EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	0.7	0.7	0.00	No Limit
		EP075-EM: Pyrene	129-00-0	0.5	mg/kg	0.7	0.7	0.00	No Limit
		EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1116018) - continued									
EM1712605-024	Anonymous	EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP075I: Organochlorine Pesticides (QC Lot: 1116018)									
EM1712605-024	Anonymous	EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1116013)									
EM1712605-024	Anonymous	EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1116019)									
EM1712605-024	Anonymous	EP071-EM: C15 - C28 Fraction	----	100	mg/kg	600	690	13.8	No Limit
		EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C10 - C14 Fraction	----	50	mg/kg	320	360	12.8	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1116013)									
EM1712605-024	Anonymous	EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	18	18	0.00	No Limit
		EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	16	17	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1116019)									
EM1712605-024	Anonymous	EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	420	480	11.8	No Limit
		EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1116019) - continued									
EM1712605-024	Anonymous	EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	480	560	13.4	0% - 50%

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 1116659)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	97.9	79	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	93.0	85	109
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	94.5	78	108
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	90.4	78	106
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	7.9 mg/kg	98.4	86	112
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	98.5	82	111
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	98.4	93	109
EG005T: Silver	7440-22-4	2	mg/kg	<2	2.1 mg/kg	93.6	80	108
EG005T: Tin	7440-31-5	5	mg/kg	<5	5.2 mg/kg	105	88	116
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	95.0	82	111
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1116658)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	94.2	77	104
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 1115615)								
EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	40 mg/kg	83.5	80	120
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 1116613)								
EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	20 mg/kg	94.7	80	110
EK040T: Fluoride Total (QCLot: 1116036)								
EK040T: Fluoride	16984-48-8	40	mg/kg	<40	950 mg/kg	99.8	77	106
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 1116020)								
EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	99.8	63	133
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 1116013)								
EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	2.1 mg/kg	100	74	118
EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	2.1 mg/kg	101	70	118
EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2.1 mg/kg	98.5	69	117
EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4.2 mg/kg	97.9	68	116
EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	2.1 mg/kg	102	71	117
EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2.1 mg/kg	99.2	70	116
EP074H: Naphthalene (QCLot: 1116013)								
EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	0.6 mg/kg	96.7	74	116
EP074I: Volatile Halogenated Compounds (QCLot: 1116013)								
EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	0.1 mg/kg	104	49	133
EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	0.1 mg/kg	104	62	127

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP074I: Volatile Halogenated Compounds (QCLot: 1116013) - continued								
EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	2.1 mg/kg	102	65	131
EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	0.1 mg/kg	103	68	124
EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	0.1 mg/kg	97.6	74	118
EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	0.1 mg/kg	88.2	72	118
EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	0.1 mg/kg	98.6	67	119
EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	0.1 mg/kg	97.7	65	119
EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	0.1 mg/kg	102	70	122
EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	0.1 mg/kg	98.6	72	124
EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	0.1 mg/kg	97.7	74	122
EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	0.1 mg/kg	97.9	58	120
EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	0.1 mg/kg	96.3	70	119
EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	0.1 mg/kg	96.1	71	125
EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	0.1 mg/kg	92.6	61	125
EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	0.1 mg/kg	99.2	70	122
EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	0.1 mg/kg	100	61	118
EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	0.1 mg/kg	100	67	117
EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	0.1 mg/kg	96.0	53	127
EP075A: Phenolic Compounds (Halogenated) (QCLot: 1116018)								
EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	2 mg/kg	101	43	119
EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	2 mg/kg	103	44	131
EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	2 mg/kg	102	43	122
EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	2 mg/kg	106	50	129
EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	2 mg/kg	102	44	128
EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	2 mg/kg	104	44	126
EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	2 mg/kg	93.5	46	126
EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/5 8-90-2	0.05	mg/kg	<0.05	4 mg/kg	124	44	124
EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	4 mg/kg	98.5	36	124
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 1116018)								
EP075-EM: Phenol	108-95-2	1	mg/kg	<1	2 mg/kg	108	41	120
EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	2 mg/kg	106	41	131
EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	4 mg/kg	105	43	130
EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	2 mg/kg	103	49	130
EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	2 mg/kg	78.6	37	119
EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	12 mg/kg	102	23	125
EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	12 mg/kg	130	49	133
EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	12 mg/kg	120	47	125
EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	12 mg/kg	112	48	123
EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	10 mg/kg	107	12	132

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 1116018)								
EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	2 mg/kg	101	44	122
EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	2 mg/kg	121	54	126
EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	2 mg/kg	101	46	126
EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	2 mg/kg	104	51	125
EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	2 mg/kg	99.1	57	127
EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	2 mg/kg	77.2	55	127
EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	2 mg/kg	97.6	57	131
EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	2 mg/kg	99.8	57	131
EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	2 mg/kg	97.6	56	132
EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	2 mg/kg	102	58	134
EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	4 mg/kg	99.0	55	133
EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	2 mg/kg	93.7	51	135
EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	2 mg/kg	96.7	55	137
EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	2 mg/kg	97.4	54	136
EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	2 mg/kg	94.8	55	137
EP075I: Organochlorine Pesticides (QCLot: 1116018)								
EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	2 mg/kg	102	54	130
EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	2 mg/kg	102	54	130
EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	2 mg/kg	104	54	134
EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	2 mg/kg	104	54	132
EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	2 mg/kg	100.0	55	131
EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	2 mg/kg	95.7	54	128
EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	2 mg/kg	96.5	54	128
EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	2 mg/kg	97.7	56	130
EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	2 mg/kg	98.2	56	130
EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	2 mg/kg	99.0	55	131
EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	2 mg/kg	97.4	53	133
EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	2 mg/kg	99.7	54	130
EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	2 mg/kg	98.5	57	133
EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	2 mg/kg	90.6	28	174
EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	2 mg/kg	106	40	148
EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	2 mg/kg	98.6	56	138
EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	2 mg/kg	100	57	135
EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	2 mg/kg	103	51	133
EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	2 mg/kg	95.1	51	133
EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	2 mg/kg	98.1	48	136
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1116013)								
EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	39.6 mg/kg	98.2	69	114

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1116019)								
EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	806 mg/kg	99.1	72	130
EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	3006 mg/kg	100	77	126
EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	1584 mg/kg	92.4	75	119
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1116013)								
EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	48.9 mg/kg	98.9	69	112
EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1116019)								
EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	1160 mg/kg	98.8	75	123
EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	3978 mg/kg	95.2	77	127
EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	313 mg/kg	93.4	43	123

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG005T: Total Metals by ICP-AES (QCLot: 1116659)							
EM1712665-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	115	78	124
		EG005T: Cadmium	7440-43-9	50 mg/kg	106	84	116
		EG005T: Copper	7440-50-8	50 mg/kg	92.2	82	124
		EG005T: Lead	7439-92-1	50 mg/kg	81.5	76	124
		EG005T: Molybdenum	7439-98-7	50 mg/kg	98.5	79	117
		EG005T: Nickel	7440-02-0	50 mg/kg	100	78	120
		EG005T: Selenium	7782-49-2	50 mg/kg	102	71	125
		EG005T: Zinc	7440-66-6	50 mg/kg	89.0	74	128
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1116658)							
EM1712665-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	106	76	116
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 1115615)							
EM1712503-002	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	40 mg/kg	80.9	58	114
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 1116613)							
EM1712605-024	Anonymous	EK026SF: Total Cyanide	57-12-5	20 mg/kg	109	77	113
EK040T: Fluoride Total (QCLot: 1116036)							
EM1712634-001	Anonymous	EK040T: Fluoride	16984-48-8	400 mg/kg	95.0	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 1116020)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 1116020) - continued							
EM1712631-003	B17-68317 0.5	EP066-EM: Total Polychlorinated biphenyls	----	1 mg/kg	94.4	36	152
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 1116013)							
EM1712631-003	B17-68317 0.5	EP074-UT: Benzene	71-43-2	2 mg/kg	82.7	50	138
		EP074-UT: Toluene	108-88-3	2 mg/kg	85.1	56	134
EP074I: Volatile Halogenated Compounds (QCLot: 1116013)							
EM1712631-003	B17-68317 0.5	EP074-UT: 1.1-Dichloroethene	75-35-4	2 mg/kg	95.6	26	141
		EP074-UT: Trichloroethene	79-01-6	2 mg/kg	89.0	50	134
		EP074-UT: Chlorobenzene	108-90-7	2 mg/kg	90.6	28	134
EP075A: Phenolic Compounds (Halogenated) (QCLot: 1116018)							
EM1712605-024	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	1 mg/kg	101	34	118
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	1 mg/kg	80.6	41	139
		EP075-EM: Pentachlorophenol	87-86-5	1 mg/kg	84.6	10	144
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 1116018)							
EM1712605-024	Anonymous	EP075-EM: Phenol	108-95-2	1 mg/kg	80.8	32	134
		EP075-EM: 2-Nitrophenol	88-75-5	1 mg/kg	61.2	13	129
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 1116018)							
EM1712605-024	Anonymous	EP075-EM: Acenaphthene	83-32-9	1 mg/kg	88.2	46	138
		EP075-EM: Pyrene	129-00-0	1 mg/kg	107	27	169
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1116013)							
EM1712631-003	B17-68317 0.5	EP074-UT: C6 - C9 Fraction	----	28 mg/kg	68.3	43	111
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1116019)							
EM1712631-003	B17-68317 0.5	EP071-EM: C10 - C14 Fraction	----	806 mg/kg	99.0	53	123
		EP071-EM: C15 - C28 Fraction	----	3006 mg/kg	99.0	70	124
		EP071-EM: C29 - C36 Fraction	----	1584 mg/kg	91.5	64	118
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1116013)							
EM1712631-003	B17-68317 0.5	EP074-UT: C6 - C10 Fraction	C6_C10	33 mg/kg	64.4	42	106
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1116019)							
EM1712631-003	B17-68317 0.5	EP071-EM: >C10 - C16 Fraction	----	1160 mg/kg	98.1	65	123
		EP071-EM: >C16 - C34 Fraction	----	3978 mg/kg	94.2	67	121
		EP071-EM: >C34 - C40 Fraction	----	313 mg/kg	93.5	44	126

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM1712631**	Page	: 1 of 7
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLFA NAZARIO	Telephone	: +61-3-8549 9609
Project	: 2135645A	Date Samples Received	: 14-Sep-2017
Site	: Site 32	Issue Date	: 20-Sep-2017
Sampler	: ----	No. of samples received	: 3
Order number	: ----	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA001: pH in soil using 0.01M CaCl extract							
Soil Glass Jar - Unpreserved (EA001)							
B17-68317 - 0.5	**14-Sep-2017**	**18-Sep-2017**	21-Sep-2017	✓	**18-Sep-2017**	18-Sep-2017	✓
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
B17-68317 - 0.5	**14-Sep-2017**	**----**	----	----	**15-Sep-2017**	28-Sep-2017	✓
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
B17-68317 - 0.5	**14-Sep-2017**	**15-Sep-2017**	13-Mar-2018	✓	**18-Sep-2017**	13-Mar-2018	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
B17-68317 - 0.5	**14-Sep-2017**	**15-Sep-2017**	12-Oct-2017	✓	**18-Sep-2017**	12-Oct-2017	✓
EG048: Hexavalent Chromium (Alkaline Digest)							
Soil Glass Jar - Unpreserved (EG048G)							
B17-68317 - 0.5	**14-Sep-2017**	**15-Sep-2017**	12-Oct-2017	✓	**15-Sep-2017**	22-Sep-2017	✓
EK026SF: Total CN by Segmented Flow Analyser							
Soil Glass Jar - Unpreserved (EK026SF)							
B17-68317 - 0.5	**14-Sep-2017**	**15-Sep-2017**	28-Sep-2017	✓	**18-Sep-2017**	29-Sep-2017	✓
EK040T: Fluoride Total							
Soil Glass Jar - Unpreserved (EK040T)							
B17-68317 - 0.5	**14-Sep-2017**	**15-Sep-2017**	12-Oct-2017	✓	**18-Sep-2017**	12-Oct-2017	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066-EM)							
B17-68317 - 0.5	**14-Sep-2017**	**15-Sep-2017**	28-Sep-2017	✓	**15-Sep-2017**	25-Oct-2017	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074-UT)							
B17-68317 - 0.5	**14-Sep-2017**	**15-Sep-2017**	21-Sep-2017	✓	**15-Sep-2017**	21-Sep-2017	✓
EP074H: Naphthalene							
Soil Glass Jar - Unpreserved (EP074-UT)							
B17-68317 - 0.5	**14-Sep-2017**	**15-Sep-2017**	21-Sep-2017	✓	**15-Sep-2017**	21-Sep-2017	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074I: Volatile Halogenated Compounds							
Soil Glass Jar - Unpreserved (EP074-UT)							
B17-68317 - 0.5	**14-Sep-2017**	**15-Sep-2017**	21-Sep-2017	✓	**15-Sep-2017**	21-Sep-2017	✓
EP075A: Phenolic Compounds (Halogenated)							
Soil Glass Jar - Unpreserved (EP075-EM)							
B17-68317 - 0.5	**14-Sep-2017**	**15-Sep-2017**	28-Sep-2017	✓	**15-Sep-2017**	25-Oct-2017	✓
EP075A: Phenolic Compounds (Non-halogenated)							
Soil Glass Jar - Unpreserved (EP075-EM)							
B17-68317 - 0.5	**14-Sep-2017**	**15-Sep-2017**	28-Sep-2017	✓	**15-Sep-2017**	25-Oct-2017	✓
EP075B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075-EM)							
B17-68317 - 0.5	**14-Sep-2017**	**15-Sep-2017**	28-Sep-2017	✓	**15-Sep-2017**	25-Oct-2017	✓
EP075I: Organochlorine Pesticides							
Soil Glass Jar - Unpreserved (EP075-EM)							
B17-68317 - 0.5	**14-Sep-2017**	**15-Sep-2017**	28-Sep-2017	✓	**15-Sep-2017**	25-Oct-2017	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074-UT)							
B17-68317 - 0.5	**14-Sep-2017**	**15-Sep-2017**	21-Sep-2017	✓	**15-Sep-2017**	21-Sep-2017	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP074-UT)							
B17-68317 - 0.5	**14-Sep-2017**	**15-Sep-2017**	21-Sep-2017	✓	**15-Sep-2017**	21-Sep-2017	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	2	11	**18.18**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	2	11	**18.18**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	10	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	10	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Matrix Spikes (MS) - Continued							
Total Fluoride	EK040T	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH in soil using a 0.01M CaCl2 extract	EA001	SOIL	In house: Referenced to Rayment and Lyons (2011) 4B3 (mod.) or 4B4 (mod.) 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM (2013) Schedule B(3)
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	SOIL	In house: Referenced to USEPA SW846, Method 3060A. Hexavalent chromium is extracted by alkaline digestion. The digest is determined by photometrically by automatic discrete analyser, following pH adjustment. The instrument uses colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Cyanide by Segmented Flow Analyser	EK026SF	SOIL	In house: Referenced to APHA 4500-CN C / ASTM D7511. Caustic leachates of soil samples are introduced into an automated segmented flow analyser. Complex bound cyanide is decomposed in a continuously flowing stream, at a pH of 3.8, by the effect of UV light. A UV-B lamp (312 nm) and a decomposition spiral of borosilicate glass are used to filter out UV light with a wavelength of less than 290 nm thus preventing the conversion of thiocyanate into cyanide. The hydrogen cyanide present at a pH of 3.8 is separated by gas dialysis. The hydrogen cyanide is then determined photometrically, based on the reaction of cyanide with chloramine-T to form cyanogen chloride. This then reacts with 4-pyridine carboxylic acid and 1,3-dimethylbarbituric acid to give a red colour which is measured at 600 nm. This method is compliant with NEPM (2013) Schedule B(3)
Total Fluoride	EK040T	SOIL	(In-house) Total fluoride is determined by ion specific electrode (ISE) in a solution obtained after a Sodium Carbonate / Potassium Carbonate fusion dissolution.
PCB - VIC EPA 448.3 Screen	EP066-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
TRH - Semivolatile Fraction	EP071-EM	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40.
Volatile Organic Compounds - Ultra-trace	EP074-UT	SOIL	In house: Referenced to USEPA SW 846 - 8260B Extracts are analysed by Purge and Trap, Capillary GC/MS in partial SIM/Scan mode. Quantification is by comparison against an established multi-point calibration curves. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)

Analytical Methods	Method	Matrix	Method Descriptions
Volatile Organic Compounds - Ultra-trace - Summations	EP074-UT-SUM	SOIL	Summation of MAHs and VHCs
Semivolatile Organic Compounds - Waste Classification	EP075-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (2013) Schedule B(3) (Method 502)
SVOC - Waste Classification (Sums)	EP075-EM-SUM	SOIL	Summations for EP075 (EM variation)

Preparation Methods	Method	Matrix	Method Descriptions
NaOH leach for CN in Soils	CN-PR	SOIL	In house: APHA 4500 CN. Samples are extracted by end-over-end tumbling with NaOH.
pH in soil using a 0.01M CaCl2 extract	EA001-PR	SOIL	In house: Referenced to Rayment and Higginson 4B1, 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Alkaline digestion for Hexavalent Chromium	EG048PR	SOIL	In house: Referenced to USEPA SW846, Method 3060A.
Total Fluoride	EK040T-PR	SOIL	In house: Samples are fused with Sodium Carbonate / Potassium Carbonate flux.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils - Ultra-trace.	ORG16-UT	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids - VIC EPA Screen	ORG17-EM	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

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ABN 80 078 004 798

White Page - Laboratory Copy
Yellow Page - Project File Copy
Pink Page - Remains in Book

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Chain of Custody

Order No: 85455

Job Title: OSAR

PB Job Number: 2135645A

Job Location: Site 32

Project Manager: OLFA NAZARIO

Results Expected by/on:

Laboratory Name: ALS SPRINGVALE

Terms of Business	PB	Other	Checked
	✓		

Fax Results to: OLFA.NAZARIO@WSP.COM

Address:

Fax Number:

Phone Number:

Contact Name:

Spreadsheet of Results Required: (Y) / N

Delivery Method:

Format:

Quote Number:

Turnaround Time Required:

Invoice to: OLFA NAZARIO.

Comments:

Date Sampled	Time	Sample I.D.	Container Size	Sample Location	Medium*	Preservative Type	Filtered (X)	TPH	BTEX	PAH's	OC/OP/PCB's	Metals**	Hg86-621 Suite					Initials	Comments/Additional Information and/or Analysis Required
14.9.17	1	TB/140917	Vial		W														
	2	RB/140917	Vial Plastic amber		W														
	3	B17-68317	250ml Jar	0.5	S								/						

Environmental Division
Melbourne
Work Order Reference
EM1712631

Telephone : +61-3-8549 9600

Relinquished by: JCW	Relinquished by:	Relinquished by:
Date & Time: 14.9.17. 6pm	Date & Time:	Date & Time:
Company: WSP	Company:	Company:
Signature:	Signature:	Signature:
Received in Good Order & Condition by (Name): Scott	Received in Good Order & Condition by (Name):	Received in Good Order & Condition by (Name):
Date & Time: 14/9/17, 18.00	Date & Time:	Date & Time:
Company: ALS	Company:	Company:
Signature:	Signature:	Signature:

Medium*: S = Soil, W = Water, V = Vapour

Legend**: (circle the following to be tested)

Metals: Al As Be Cd Co Cr Cu Fe Hg Li Mg Mn Ni Pb Se Sn V Zn

Samples on Ice: ☐ Yes ☐ No

Please fax back a signed copy when samples are received at the laboratory

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1713792**	Page	: 1 of 9
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLIVIA HENDERSON	Contact	: Graeme Jablonskas
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9609
Project	: 2135645A	Date Samples Received	: 06-Oct-2017 16:30
Order number	: ----	Date Analysis Commenced	: 09-Oct-2017
C-O-C number	: 85462	Issue Date	: 11-Oct-2017 15:54
Sampler	: ----		
Site	: Site 26		
Quote number	: ME-525-16		
No. of samples received	: 6		
No. of samples analysed	: 6		

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Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	Senior Semivolatile Instrument Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EG020T: EM1713792-002 Total metal results have been confirmed by re-digestion and re-analysis
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	B17-68418/0.7	B17-68417/0.4	B17-68417/0.9	----	----
			Client sampling date / time	04-Oct-2017 00:00	06-Oct-2017 00:00	06-Oct-2017 00:00	----	----
Compound	CAS Number	LOR	Unit	EM1713792-003	EM1713792-005	EM1713792-006	--------	--------
				Result	Result	Result	----	----
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	**7.5**	**8.3**	**5.5**	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**13.0**	**13.4**	**16.9**	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	**6**	**18**	<5	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	----	----
Copper	7440-50-8	5	mg/kg	**19**	**40**	<5	----	----
Lead	7439-92-1	5	mg/kg	**12**	**631**	<5	----	----
Molybdenum	7439-98-7	2	mg/kg	<2	<2	<2	----	----
Nickel	7440-02-0	2	mg/kg	**31**	**24**	<2	----	----
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	----	----
Silver	7440-22-4	2	mg/kg	<2	<2	<2	----	----
Tin	7440-31-5	5	mg/kg	<5	<5	<5	----	----
Zinc	7440-66-6	5	mg/kg	**45**	**126**	<5	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	----	----
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
EK026SF: Total CN by Segmented Flow Analyser								
Total Cyanide	57-12-5	1	mg/kg	<1	<1	<1	----	----
EK040T: Fluoride Total								
Fluoride	16984-48-8	40	mg/kg	**420**	**180**	**100**	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	<0.1	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Sum of monocyclic aromatic hydrocarbons	----	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B17-68418/0.7	B17-68417/0.4	B17-68417/0.9	----	----
				Client sampling date / time	04-Oct-2017 00:00	06-Oct-2017 00:00	06-Oct-2017 00:00	----	----
Compound	CAS Number	LOR	Unit		EM1713792-003	EM1713792-005	EM1713792-006	--------	--------
					Result	Result	Result	----	----
EP074H: Naphthalene									
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	----	----
EP074I: Volatile Halogenated Compounds									
Vinyl chloride	75-01-4	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
1.1-Dichloroethene	75-35-4	0.01	mg/kg		<0.01	<0.01	<0.01	----	----
Methylene chloride	75-09-2	0.4	mg/kg		<0.4	<0.4	<0.4	----	----
trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg		<0.01	<0.01	<0.01	----	----
Chloroform	67-66-3	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
1.1.1-Trichloroethane	71-55-6	0.01	mg/kg		<0.01	<0.01	<0.01	----	----
Carbon Tetrachloride	56-23-5	0.01	mg/kg		<0.01	<0.01	<0.01	----	----
1.2-Dichloroethane	107-06-2	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
Trichloroethene	79-01-6	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
1.1.2-Trichloroethane	79-00-5	0.04	mg/kg		<0.04	<0.04	<0.04	----	----
Tetrachloroethene	127-18-4	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg		<0.01	<0.01	<0.01	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
Hexachlorobutadiene	87-68-3	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
Chlorobenzene	108-90-7	0.02	mg/kg		<0.02	**0.45**	**0.09**	----	----
1.4-Dichlorobenzene	106-46-7	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
1.2-Dichlorobenzene	95-50-1	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg		<0.01	<0.01	<0.01	----	----
^ Sum of volatile chlorinated hydrocarbons	----	0.01	mg/kg		<0.01	**0.45**	**0.09**	----	----
^ Sum of other chlorinated hydrocarbons	----	0.01	mg/kg		<0.01	**0.45**	**0.09**	----	----
EP075A: Phenolic Compounds (Halogenated)									
2-Chlorophenol	95-57-8	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
2.4-Dichlorophenol	120-83-2	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
2.6-Dichlorophenol	87-65-0	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Pentachlorophenol	87-86-5	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
^ Sum of Phenols (halogenated)	----	0.03	mg/kg		<0.03	<0.03	<0.03	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B17-68418/0.7	B17-68417/0.4	B17-68417/0.9	----	----
				Client sampling date / time	04-Oct-2017 00:00	06-Oct-2017 00:00	06-Oct-2017 00:00	----	----
Compound	CAS Number	LOR	Unit		EM1713792-003	EM1713792-005	EM1713792-006	--------	--------
					Result	Result	Result	----	----
EP075A: Phenolic Compounds (Halogenated) - Continued									
EP075A: Phenolic Compounds (Non-halogenated)									
Phenol	108-95-2	1	mg/kg		<1	<1	<1	----	----
2-Methylphenol	95-48-7	1	mg/kg		<1	<1	<1	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	<1	----	----
2-Nitrophenol	88-75-5	1	mg/kg		<1	<1	<1	----	----
2.4-Dimethylphenol	105-67-9	1	mg/kg		<1	<1	<1	----	----
2.4-Dinitrophenol	51-28-5	5	mg/kg		<5	<5	<5	----	----
4-Nitrophenol	100-02-7	5	mg/kg		<5	<5	<5	----	----
2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg		<5	<5	<5	----	----
Dinoseb	88-85-7	5	mg/kg		<5	<5	<5	----	----
2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg		<5	<5	<5	----	----
^ Sum of Phenols (non-halogenated)	----	1	mg/kg		<1	<1	<1	----	----
EP075B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		0.6	0.6	0.6	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		1.2	1.2	1.2	----	----
EP075I: Organochlorine Pesticides									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B17-68418/0.7	B17-68417/0.4	B17-68417/0.9	----	----
				Client sampling date / time	04-Oct-2017 00:00	06-Oct-2017 00:00	06-Oct-2017 00:00	----	----
Compound	CAS Number	LOR	Unit		EM1713792-003	EM1713792-005	EM1713792-006	--------	--------
					Result	Result	Result	----	----
EP075l: Organochlorine Pesticides - Continued									
alpha-BHC	319-84-6	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
beta-BHC	319-85-7	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
gamma-BHC	58-89-9	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
delta-BHC	319-86-8	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Heptachlor	76-44-8	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Aldrin	309-00-2	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Heptachlor epoxide	1024-57-3	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
cis-Chlordane	5103-71-9	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
trans-Chlordane	5103-74-2	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Endosulfan 1	959-98-8	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Dieldrin	60-57-1	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Endrin aldehyde	7421-93-4	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Endrin	72-20-8	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Endosulfan 2	33213-65-9	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Endosulfan sulfate	1031-07-8	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
4.4`-DDT	50-29-3	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Methoxychlor	72-43-5	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
^ Sum of organochlorine pesticides	----	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
^ Chlordane	57-74-9	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
^ Sum of other organochlorine pesticides	----	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	----	----
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	**140**	<100	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	**250**	<100	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	**390**	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B17-68418/0.7	B17-68417/0.4	B17-68417/0.9	----	----
				Client sampling date / time	04-Oct-2017 00:00	06-Oct-2017 00:00	06-Oct-2017 00:00	----	----
Compound	CAS Number	LOR	Unit		EM1713792-003	EM1713792-005	EM1713792-006	--------	--------
					Result	Result	Result	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C16 - C34 Fraction	----	100	mg/kg		<100	**310**	<100	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	**110**	<100	----	----
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		<50	**420**	<50	----	----
>C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	----	----
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**90.5**	**100**	**84.8**	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		**79.0**	**90.0**	**78.4**	----	----
Toluene-D8	2037-26-5	0.1	%		**81.3**	**92.6**	**77.8**	----	----
4-Bromofluorobenzene	460-00-4	0.1	%		**82.0**	**90.2**	**78.2**	----	----
EP075S: Acid Extractable Surrogates									
Phenol-d6	13127-88-3	0.025	%		**88.9**	**83.1**	**86.0**	----	----
2-Chlorophenol-D4	93951-73-6	0.025	%		**73.5**	**74.2**	**71.1**	----	----
2.4.6-Tribromophenol	118-79-6	0.025	%		**84.5**	**96.3**	**85.0**	----	----
EP075T: Base/Neutral Extractable Surrogates									
Nitrobenzene-D5	4165-60-0	0.025	%		**77.3**	**73.4**	**72.6**	----	----
1.2-Dichlorobenzene-D4	2199-69-1	0.025	%		**73.4**	**73.2**	**67.6**	----	----
2-Fluorobiphenyl	321-60-8	0.025	%		**85.5**	**88.6**	**82.4**	----	----
Anthracene-d10	1719-06-8	0.025	%		**88.6**	**101**	**86.4**	----	----
4-Terphenyl-d14	1718-51-0	0.025	%		**95.4**	**107**	**93.6**	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	TB/041017	RB/041017	RB/061017	----	----
				Client sampling date / time	04-Oct-2017 00:00	04-Oct-2017 00:00	06-Oct-2017 00:00	----	----
Compound	CAS Number	LOR	Unit		EM1713792-001	EM1713792-002	EM1713792-004	--------	--------
					Result	Result	Result	----	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		----	**0.018**	<0.001	----	----
Cadmium	7440-43-9	0.0001	mg/L		----	**0.0020**	<0.0001	----	----
Chromium	7440-47-3	0.001	mg/L		----	**0.036**	<0.001	----	----
Copper	7440-50-8	0.001	mg/L		----	**0.001**	<0.001	----	----
Lead	7439-92-1	0.001	mg/L		----	**0.477**	<0.001	----	----
Molybdenum	7439-98-7	0.001	mg/L		----	<0.001	<0.001	----	----
Nickel	7440-02-0	0.001	mg/L		----	**0.046**	<0.001	----	----
Selenium	7782-49-2	0.01	mg/L		----	<0.01	<0.01	----	----
Silver	7440-22-4	0.001	mg/L		----	<0.001	<0.001	----	----
Tin	7440-31-5	0.001	mg/L		----	<0.001	<0.001	----	----
Zinc	7440-66-6	0.005	mg/L		----	**3.38**	<0.005	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		----	<0.0001	<0.0001	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	----	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		<20	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	----	----	----	----
Toluene	108-88-3	2	µg/L		<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	----	----	----	----
^ Total Xylenes	1330-20-7	2	µg/L		<2	----	----	----	----
^ Sum of BTEX	----	1	µg/L		<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**92.9**	----	----	----	----
Toluene-D8	2037-26-5	2	%		**89.8**	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		**111**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	CAS Number	Recovery Limits (%) Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	41	122
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	59	119
Toluene-D8	2037-26-5	55	117
4-Bromofluorobenzene	460-00-4	59	123
EP075S: Acid Extractable Surrogates			
Phenol-d6	13127-88-3	28	134
2-Chlorophenol-D4	93951-73-6	27	123
2.4.6-Tribromophenol	118-79-6	25	149
EP075T: Base/Neutral Extractable Surrogates			
Nitrobenzene-D5	4165-60-0	29	125
1.2-Dichlorobenzene-D4	2199-69-1	31	117
2-Fluorobiphenyl	321-60-8	44	136
Anthracene-d10	1719-06-8	53	133
4-Terphenyl-d14	1718-51-0	59	141

Sub-Matrix: **WATER**

Compound	CAS Number	Recovery Limits (%) Low	High
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	129
Toluene-D8	2037-26-5	70	125
4-Bromofluorobenzene	460-00-4	71	129

Automated Guideline Comparison Report

EPA Victoria Publication IWRG 621 (2009) - Table 2: Soil Hazard Categorisation

Work Order	: **EM1713792**	Page	: 1 of 8
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLIVIA HENDERSON		
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: olivia.henderson@wsp.com	E-mail	: graeme.jablonskas@alsglobal.com
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9609
Facsimile	: +61 03 9861 1144	Facsimile	: +61-3-8549 9601
Project	: 2135645A	Date Received	: 06-Oct-2017 16:30
Order number	: ----	Date Analysed	: 09-Oct-2017
C-O-C number	: 85462	Date Issued	: 11-Oct-2017 15:54
No. of samples received	: 6		
No. of samples analysed	: 6	Quote number	: ME-525-16

General Comments

This guideline comparison report **only** provides evaluation of total concentration data against upper limit thresholds for the 'Fill Material', 'C', 'B' Categories in Table 2 of EPA Publication IWRG621.

This guideline comparison report is **NOT** a soil classification report. Classification of soils as Fill Material, Category C, Category B or Category A requires consideration of a number of other factors including preliminary site investigation, sampling density and statistical calculations, as set out in EPA Publication IWRG 702.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

This guideline comparison report only provides evaluation data where chemical parameters specifically listed within the IWRG621 (2009) guideline are analysed by ALS using the **P-16 package in full**.

Red shading is applied where the result is equal to or greater than the guideline upper limit and/or equal to or lower than the guideline lower limit. Red shading is not applied to the 'Summary of Thresholds Reached or Exceeded'.

For the 'Summary of Thresholds Reached or Exceeded' to accurately function, all samples must be analysed and included in the 'Analytical Results' section of the following report. Please verify that all required IDs are listed and analysed.

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Summary of Thresholds Reached or Exceeded

EPA Victoria Publication IWRG 621 (2009)

Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Client Sample ID	ALS Sample ID	Compound	Method	LOR	Limits	Result
B17-68417/0.4	**EM1713792-005**	Lead	EG005T	5	*< 300 mg/kg*	**631 mg/kg**

Analytical Results

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B: Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

				Client sample ID	Guideline	Guideline	B17-68418/0.7	B17-68417/0.4	B17-68417/0.9	----	----
				Sampling date/time			04-Oct-2017 15:00	06-Oct-2017 15:00	06-Oct-2017 15:00	----	----
Compound	*Method*	*LOR*	*Unit*		Lower Limit	Upper Limit	EM1713792-003	EM1713792-005	EM1713792-006	--------	--------
EA001: pH in soil using 0.01M CaCl extract											
pH (CaCl2)	EA001	0.1	pH Unit		2	12.5	**7.5**	**8.3**	**5.5**	----	----
EG005T: Total Metals by ICP-AES											
Arsenic	EG005T	5	mg/kg		----	2000	**6**	**18**	<5	----	----
Cadmium	EG005T	1	mg/kg		----	400	<1	<1	<1	----	----
Copper	EG005T	5	mg/kg		----	20000	**19**	**40**	<5	----	----
Lead	EG005T	5	mg/kg		----	6000	**12**	**631**	<5	----	----
Molybdenum	EG005T	2	mg/kg		----	4000	<2	<2	<2	----	----
Nickel	EG005T	2	mg/kg		----	12000	**31**	**24**	<2	----	----
Selenium	EG005T	5	mg/kg		----	200	<5	<5	<5	----	----
Silver	EG005T	2	mg/kg		----	720	<2	<2	<2	----	----
Zinc	EG005T	5	mg/kg		----	140000	**45**	**126**	<5	----	----
EG035T: Total Recoverable Mercury by FIMS											
Mercury	EG035T	0.1	mg/kg		----	300	<0.1	<0.1	<0.1	----	----
EG048: Hexavalent Chromium (Alkaline Digest)											
Hexavalent Chromium	EG048G	0.5	mg/kg		----	2000	<0.5	<0.5	<0.5	----	----
EK026SF: Total CN by Segmented Flow Analyser											
Total Cyanide	EK026SF	1	mg/kg		----	10000	<1	<1	<1	----	----
EK040T: Fluoride Total											
Fluoride	EK040T	40	mg/kg		----	40000	**420**	**180**	**100**	----	----
EP074A: Monocyclic Aromatic Hydrocarbons											
Benzene	EP074-UT	0.2	mg/kg		----	16	<0.2	<0.2	<0.2	----	----
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg		----	240	<0.2	<0.2	<0.2	----	----
EP074I: Volatile Halogenated Compounds											
Vinyl chloride	EP074-UT	0.02	mg/kg		----	4.8	<0.02	<0.02	<0.02	----	----
Hexachlorobutadiene	EP074-UT	0.02	mg/kg		----	11	<0.02	<0.02	<0.02	----	----
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg		----	50	<0.01	**0.45**	**0.09**	----	----
EP075A: Phenolic Compounds (Halogenated)											
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg		----	320	<0.03	<0.03	<0.03	----	----
EP075A: Phenolic Compounds (Non-halogenated)											
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg		----	2200	<1	<1	<1	----	----
EP075B: Polynuclear Aromatic Hydrocarbons											
Benzo(a)pyrene	EP075-EM	0.5	mg/kg		----	20	<0.5	<0.5	<0.5	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B: Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	**B17-68418/0.7** 04-Oct-2017 15:00 **EM1713792-003**	**B17-68417/0.4** 06-Oct-2017 15:00 **EM1713792-005**	**B17-68417/0.9** 06-Oct-2017 15:00 **EM1713792-006**	**----** ---- --------	**----** ---- --------
Client sample ID										
Sampling date/time										
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	400	<0.5	<0.5	<0.5	**----**	**----**
EP075I: Organochlorine Pesticides										
Heptachlor	EP075-EM	0.03	mg/kg	----	4.8	<0.03	<0.03	<0.03	**----**	**----**
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	4.8	<0.03	<0.03	<0.03	**----**	**----**
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50	<0.05	<0.05	<0.05	**----**	**----**
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	16	<0.03	<0.03	<0.03	**----**	**----**
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	50	<0.03	<0.03	<0.03	**----**	**----**
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	2600	<10	<10	<10	**----**	**----**
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	40000	<50	**390**	<50	**----**	**----**

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category C: Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

				Client sample ID	Guideline	Guideline	B17-68418/0.7	B17-68417/0.4	B17-68417/0.9	----	----
				Sampling date/time			04-Oct-2017 15:00	06-Oct-2017 15:00	06-Oct-2017 15:00	----	----
Compound	*Method*	*LOR*	*Unit*		Lower Limit	Upper Limit	EM1713792-003	EM1713792-005	EM1713792-006	--------	--------
EA001: pH in soil using 0.01M CaCl extract											
pH (CaCl2)	EA001	0.1	pH Unit		4	9	**7.5**	**8.3**	**5.5**	----	----
EG005T: Total Metals by ICP-AES											
Arsenic	EG005T	5	mg/kg		----	500	**6**	**18**	<5	----	----
Cadmium	EG005T	1	mg/kg		----	100	<1	<1	<1	----	----
Copper	EG005T	5	mg/kg		----	5000	**19**	**40**	<5	----	----
Lead	EG005T	5	mg/kg		----	1500	**12**	**631**	<5	----	----
Molybdenum	EG005T	2	mg/kg		----	1000	<2	<2	<2	----	----
Nickel	EG005T	2	mg/kg		----	3000	**31**	**24**	<2	----	----
Selenium	EG005T	5	mg/kg		----	50	<5	<5	<5	----	----
Silver	EG005T	2	mg/kg		----	180	<2	<2	<2	----	----
Tin	EG005T	5	mg/kg		----	500	<5	<5	<5	----	----
Zinc	EG005T	5	mg/kg		----	35000	**45**	**126**	<5	----	----
EG035T: Total Recoverable Mercury by FIMS											
Mercury	EG035T	0.1	mg/kg		----	75	<0.1	<0.1	<0.1	----	----
EG048: Hexavalent Chromium (Alkaline Digest)											
Hexavalent Chromium	EG048G	0.5	mg/kg		----	500	<0.5	<0.5	<0.5	----	----
EK026SF: Total CN by Segmented Flow Analyser											
Total Cyanide	EK026SF	1	mg/kg		----	2500	<1	<1	<1	----	----
EK040T: Fluoride Total											
Fluoride	EK040T	40	mg/kg		----	10000	**420**	**180**	**100**	----	----
EP074A: Monocyclic Aromatic Hydrocarbons											
Benzene	EP074-UT	0.2	mg/kg		----	4	<0.2	<0.2	<0.2	----	----
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg		----	70	<0.2	<0.2	<0.2	----	----
EP074I: Volatile Halogenated Compounds											
Vinyl chloride	EP074-UT	0.02	mg/kg		----	1.2	<0.02	<0.02	<0.02	----	----
Hexachlorobutadiene	EP074-UT	0.02	mg/kg		----	2.8	<0.02	<0.02	<0.02	----	----
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg		----	10	<0.01	**0.45**	**0.09**	----	----
EP075A: Phenolic Compounds (Halogenated)											
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg		----	10	<0.03	<0.03	<0.03	----	----
EP075A: Phenolic Compounds (Non-halogenated)											
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg		----	560	<1	<1	<1	----	----
EP075B: Polynuclear Aromatic Hydrocarbons											
Benzo(a)pyrene	EP075-EM	0.5	mg/kg		----	5	<0.5	<0.5	<0.5	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category C: Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	*Client sample ID* / *Sampling date/time* / Guideline Lower Limit	Guideline Upper Limit	**B17-68418/0.7** 04-Oct-2017 15:00 **EM1713792-003**	**B17-68417/0.4** 06-Oct-2017 15:00 **EM1713792-005**	**B17-68417/0.9** 06-Oct-2017 15:00 **EM1713792-006**	**----** ---- --------	**----** ---- --------
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	100	<0.5	<0.5	<0.5	**----**	**----**
EP075I: Organochlorine Pesticides										
Heptachlor	EP075-EM	0.03	mg/kg	----	1.2	<0.03	<0.03	<0.03	**----**	**----**
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	1.2	<0.03	<0.03	<0.03	**----**	**----**
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50	<0.05	<0.05	<0.05	**----**	**----**
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	4	<0.03	<0.03	<0.03	**----**	**----**
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	10	<0.03	<0.03	<0.03	**----**	**----**
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	650	<10	<10	<10	**----**	**----**
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	10000	<50	**390**	<50	**----**	**----**

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material: Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	B17-68418/0.7 (Client sample ID) 04-Oct-2017 15:00 (Sampling date/time) EM1713792-003	B17-68417/0.4 06-Oct-2017 15:00 EM1713792-005	B17-68417/0.9 06-Oct-2017 15:00 EM1713792-006	---- ---- --------	---- ---- --------
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	4	9	**7.5**	**8.3**	**5.5**	----	----
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	20	**6**	**18**	<5	----	----
Cadmium	EG005T	1	mg/kg	----	3	<1	<1	<1	----	----
Copper	EG005T	5	mg/kg	----	100	**19**	**40**	<5	----	----
Lead	EG005T	5	mg/kg	----	300	**12**	**631**	<5	----	----
Molybdenum	EG005T	2	mg/kg	----	40	<2	<2	<2	----	----
Nickel	EG005T	2	mg/kg	----	60	**31**	**24**	<2	----	----
Selenium	EG005T	5	mg/kg	----	10	<5	<5	<5	----	----
Silver	EG005T	2	mg/kg	----	10	<2	<2	<2	----	----
Tin	EG005T	5	mg/kg	----	50	<5	<5	<5	----	----
Zinc	EG005T	5	mg/kg	----	200	**45**	**126**	<5	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	1	<0.1	<0.1	<0.1	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	1	<0.5	<0.5	<0.5	----	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	50	<1	<1	<1	----	----
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	450	**420**	**180**	**100**	----	----
EP066: Polychlorinated Biphenyls (PCB)										
Total Polychlorinated biphenyls	EP066-EM	0.1	mg/kg	----	2	<0.1	<0.1	<0.1	----	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	1	<0.2	<0.2	<0.2	----	----
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	7	<0.2	<0.2	<0.2	----	----
EP074I: Volatile Halogenated Compounds										
Sum of volatile chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	1	<0.01	**0.45**	**0.09**	----	----
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	1	<0.03	<0.03	<0.03	----	----
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	60	<1	<1	<1	----	----
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	1	<0.5	<0.5	<0.5	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material: Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	*Client sample ID* **B17-68418/0.7**	**B17-68417/0.4**	**B17-68417/0.9**	**----**	**----**
						Sampling date/time 04-Oct-2017 15:00	06-Oct-2017 15:00	06-Oct-2017 15:00	----	----
						EM1713792-003	**EM1713792-005**	**EM1713792-006**	--------	--------
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	20	<0.5	<0.5	<0.5	**----**	**----**
EP075I: Organochlorine Pesticides										
Sum of organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	1	<0.03	<0.03	<0.03	**----**	**----**
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	100	<10	<10	<10	**----**	**----**
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	1000	<50	**390**	<50	**----**	**----**

Note: Red shading is applied where the result is equal to or greater than the guideline upper limit and/or equal to or lower than the guideline lower limit.

QUALITY CONTROL REPORT

Work Order	: **EM1713792**	Page	: 1 of 15
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLIVIA HENDERSON	Contact	: Graeme Jablonskas
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9609
Project	: 2135645A	Date Samples Received	: 06-Oct-2017
Order number	: ----	Date Analysis Commenced	: 09-Oct-2017
C-O-C number	: 85462	Issue Date	: 11-Oct-2017
Sampler	: ----		
Site	: Site 26		
Quote number	: ME-525-16		
No. of samples received	: 6		
No. of samples analysed	: 6		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	Senior Semivolatile Instrument Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA001: pH in soil using 0.01M CaCl extract (QC Lot: 1160382)									
EM1713740-012	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	6.7	6.5	3.03	0% - 20%
EM1713792-005	B17-68417/0.4	EA001: pH (CaCl2)	----	0.1	pH Unit	8.3	8.2	1.21	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1160450)									
EM1713740-045	Anonymous	EA055: Moisture Content	----	1	%	8.3	8.1	3.46	No Limit
EM1713791-001	Anonymous	EA055: Moisture Content	----	1	%	5.2	5.4	2.87	No Limit
EG005T: Total Metals by ICP-AES (QC Lot: 1160370)									
EM1713755-005	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Tin	7440-31-5	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1160371)									
EM1713755-005	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EG048: Hexavalent Chromium (Alkaline Digest) (QC Lot: 1161365)									
EM1713734-002	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1713797-001	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EK026SF: Total CN by Segmented Flow Analyser (QC Lot: 1160578)									
EM1713752-006	Anonymous	EK026SF: Total Cyanide	57-12-5	1	mg/kg	1	2	0.00	No Limit
EK040T: Fluoride Total (QC Lot: 1160482)									

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EK040T: Fluoride Total (QC Lot: 1160482) - continued									
EM1713791-001	Anonymous	EK040T: Fluoride	16984-48-8	40	mg/kg	240	240	0.00	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 1160496)									
EM1713558-010	Anonymous	EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EM1713791-001	Anonymous	EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 1160411)									
EM1713791-001	Anonymous	EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074H: Naphthalene (QC Lot: 1160411)									
EM1713791-001	Anonymous	EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EP074I: Volatile Halogenated Compounds (QC Lot: 1160411)									
EM1713791-001	Anonymous	EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	<0.04	0.00	No Limit
		EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	<0.4	0.00	No Limit
EP075A: Phenolic Compounds (Halogenated) (QC Lot: 1160498)									
EM1713558-010	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075A: Phenolic Compounds (Halogenated) (QC Lot: 1160498) - continued									
EM1713558-010	Anonymous	EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EM1713791-001	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP075A: Phenolic Compounds (Non-halogenated) (QC Lot: 1160498)									
EM1713558-010	Anonymous	EP075-EM: Phenol	108-95-2	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	0.00	No Limit
EM1713791-001	Anonymous	EP075-EM: Phenol	108-95-2	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	0.00	No Limit
EP075B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1160498)									
EM1713558-010	Anonymous	EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1160498) - continued									
EM1713558-010	Anonymous	EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1713791-001	Anonymous	EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP075I: Organochlorine Pesticides (QC Lot: 1160498)									
EM1713558-010	Anonymous	EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075I: Organochlorine Pesticides (QC Lot: 1160498) - continued									
EM1713558-010	Anonymous	EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EM1713791-001	Anonymous	EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1160411)									
EM1713791-001	Anonymous	EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1160497)									
EM1713558-010	Anonymous	EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EM1713791-001	Anonymous	EP071-EM: C15 - C28 Fraction	----	100	mg/kg	510	570	10.7	No Limit
		EP071-EM: C29 - C36 Fraction	----	100	mg/kg	320	340	7.56	No Limit
		EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1160411)									
EM1713791-001	Anonymous	EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
		EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1160497)									
EM1713558-010	Anonymous	EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EM1713791-001	Anonymous	EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	700	780	9.67	No Limit
		EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	120	130	10.1	No Limit
		EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	80	90	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG020T: Total Metals by ICP-MS (QC Lot: 1160666)									
EM1713688-001	Anonymous	EG020B-T: Silver	7440-22-4	0.001	mg/L	0.005	0.002	96.9	No Limit
EM1713792-004	RB/061017	EG020B-T: Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	0.00	No Limit
EG020T: Total Metals by ICP-MS (QC Lot: 1160667)									
EM1713688-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	0.0002	0.0002	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.001	0.001	0.00	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	0.002	0.001	0.00	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.008	0.008	0.00	No Limit
		EG020A-T: Tin	7440-31-5	0.001	mg/L	0.002	<0.001	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.018	0.015	23.7	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EM1713712-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	0.0007	0.0008	16.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.037	0.036	0.00	0% - 20%
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.073	0.070	4.66	0% - 20%
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.202	0.190	6.30	0% - 20%
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.020	0.019	0.00	0% - 50%
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	1.45	1.44	0.468	0% - 20%
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.946	0.942	0.385	0% - 20%
		EG020A-T: Tin	7440-31-5	0.001	mg/L	0.056	0.059	4.75	0% - 20%
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.446	0.433	2.80	0% - 20%
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EG020T: Total Metals by ICP-MS (QC Lot: 1160670)									
EM1713792-004	RB/061017	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG020T: Total Metals by ICP-MS (QC Lot: 1160670) - continued									
EM1713792-004	RB/061017	EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Tin	7440-31-5	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.00	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1160834)									
EM1713721-004	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1160041)									
EM1713713-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EM1713790-004	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1160041)									
EM1713713-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EM1713790-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 1160041)									
EM1713713-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
EM1713790-004	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 1160370)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	89.5	79	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	85.6	85	109
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	88.3	78	108
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	88.2	78	106
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	7.9 mg/kg	90.8	86	112
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	92.2	82	111
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	97.7	93	109
EG005T: Silver	7440-22-4	2	mg/kg	<2	2.1 mg/kg	93.4	80	108
EG005T: Tin	7440-31-5	5	mg/kg	<5	5.2 mg/kg	105	88	116
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	88.4	82	111
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1160371)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	95.8	77	104
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 1161365)								
EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	40 mg/kg	84.0	80	120
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 1160578)								
EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	20 mg/kg	98.1	80	110
EK040T: Fluoride Total (QCLot: 1160482)								
EK040T: Fluoride	16984-48-8	40	mg/kg	<40	950 mg/kg	84.6	77	106
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 1160496)								
EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	94.6	63	133
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 1160411)								
EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	2.1 mg/kg	97.7	74	118
EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	2.1 mg/kg	95.9	70	118
EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2.1 mg/kg	95.8	69	117
EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4.2 mg/kg	94.1	68	116
EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	2.1 mg/kg	103	71	117
EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2.1 mg/kg	99.3	70	116
EP074H: Naphthalene (QCLot: 1160411)								
EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	0.6 mg/kg	104	74	116
EP074I: Volatile Halogenated Compounds (QCLot: 1160411)								
EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	0.1 mg/kg	103	49	133
EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	0.1 mg/kg	97.5	62	127

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP074I: Volatile Halogenated Compounds (QCLot: 1160411) - continued								
EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	2.1 mg/kg	95.6	65	131
EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	0.1 mg/kg	95.4	68	124
EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	0.1 mg/kg	94.3	74	118
EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	0.1 mg/kg	94.9	72	118
EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	0.1 mg/kg	99.9	67	119
EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	0.1 mg/kg	99.5	65	119
EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	0.1 mg/kg	98.9	70	122
EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	0.1 mg/kg	97.4	72	124
EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	0.1 mg/kg	103	74	122
EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	0.1 mg/kg	95.8	58	120
EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	0.1 mg/kg	97.4	70	119
EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	0.1 mg/kg	108	71	125
EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	0.1 mg/kg	98.6	61	125
EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	0.1 mg/kg	97.3	70	122
EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	0.1 mg/kg	98.1	61	118
EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	0.1 mg/kg	98.7	67	117
EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	0.1 mg/kg	102	53	127
EP075A: Phenolic Compounds (Halogenated) (QCLot: 1160498)								
EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	2 mg/kg	85.7	43	119
EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	2 mg/kg	73.0	44	131
EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	2 mg/kg	86.2	43	122
EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	2 mg/kg	77.8	50	129
EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	2 mg/kg	83.0	44	128
EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	2 mg/kg	74.4	44	126
EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	2 mg/kg	82.4	46	126
EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/5 8-90-2	0.05	mg/kg	<0.05	4 mg/kg	82.9	44	124
EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	4 mg/kg	66.0	36	124
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 1160498)								
EP075-EM: Phenol	108-95-2	1	mg/kg	<1	2 mg/kg	80.6	41	120
EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	2 mg/kg	86.1	41	131
EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	4 mg/kg	79.9	43	130
EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	2 mg/kg	72.8	49	130
EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	2 mg/kg	77.0	37	119
EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	24 mg/kg	32.4	23	125
EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	12 mg/kg	81.9	49	133
EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	12 mg/kg	59.4	47	125
EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	12 mg/kg	73.2	48	123
EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	10 mg/kg	49.5	12	132

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 1160498)								
EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	2 mg/kg	85.5	44	122
EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	2 mg/kg	87.0	54	126
EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	2 mg/kg	85.2	46	126
EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	2 mg/kg	89.1	51	125
EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	2 mg/kg	91.8	57	127
EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	2 mg/kg	97.6	55	127
EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	2 mg/kg	94.8	57	131
EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	2 mg/kg	97.0	57	131
EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	2 mg/kg	101	56	132
EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	2 mg/kg	104	58	134
EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	4 mg/kg	102	55	133
EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	2 mg/kg	96.9	51	135
EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	2 mg/kg	99.6	55	137
EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	2 mg/kg	99.2	54	136
EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	2 mg/kg	97.6	55	137
EP075I: Organochlorine Pesticides (QCLot: 1160498)								
EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	2 mg/kg	91.6	54	130
EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	2 mg/kg	91.0	54	130
EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	2 mg/kg	95.3	54	134
EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	2 mg/kg	94.0	54	132
EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	2 mg/kg	93.9	55	131
EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	2 mg/kg	91.7	54	128
EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	2 mg/kg	91.9	54	128
EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	2 mg/kg	95.8	56	130
EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	2 mg/kg	96.8	56	130
EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	2 mg/kg	97.0	55	131
EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	2 mg/kg	96.2	53	133
EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	2 mg/kg	97.2	54	130
EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	2 mg/kg	97.5	57	133
EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	2 mg/kg	104	28	174
EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	2 mg/kg	97.0	40	148
EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	2 mg/kg	99.8	56	138
EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	2 mg/kg	99.8	57	135
EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	2 mg/kg	101	51	133
EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	2 mg/kg	97.4	51	133
EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	2 mg/kg	98.4	48	136
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1160411)								
EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	39.6 mg/kg	108	69	114

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1160497)								
EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	806 mg/kg	95.0	72	130
EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	3006 mg/kg	98.6	77	126
EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	1584 mg/kg	95.0	75	119
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1160411)								
EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	48.9 mg/kg	105	69	112
EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1160497)								
EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	1160 mg/kg	91.4	75	123
EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	3978 mg/kg	96.9	77	127
EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	313 mg/kg	93.8	43	123

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 1160666)								
EG020B-T: Silver	7440-22-4	0.001	mg/L	<0.001	0.02 mg/L	102	78	129
EG020T: Total Metals by ICP-MS (QCLot: 1160667)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	104	90	110
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	104	86	111
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	99.0	87	109
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	99.4	87	108
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	100	88	109
EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	102	88	114
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	102	87	111
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	100.0	85	113
EG020A-T: Tin	7440-31-5	0.001	mg/L	<0.001	0.1 mg/L	104	88	113
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	100.0	87	113
EG020T: Total Metals by ICP-MS (QCLot: 1160670)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	105	90	110
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	105	86	111
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	103	87	109
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	98.8	87	108
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	101	88	109
EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	103	88	114
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	104	87	111
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	103	85	113
EG020A-T: Tin	7440-31-5	0.001	mg/L	<0.001	0.1 mg/L	103	88	113
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	101	87	113

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1160834)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	92.2	81	114
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1160041)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	360 µg/L	116	67	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1160041)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	112	65	125
EP080: BTEXN (QCLot: 1160041)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	110	76	120
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	120	76	124
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	124	72	124
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	125	72	130
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	123	78	128
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	128	71	129

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
				Concentration	MS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 1160370)							
EM1713791-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	92.0	78	124
		EG005T: Cadmium	7440-43-9	50 mg/kg	91.8	84	116
		EG005T: Copper	7440-50-8	50 mg/kg	95.9	82	124
		EG005T: Lead	7439-92-1	50 mg/kg	83.9	76	124
		EG005T: Molybdenum	7439-98-7	50 mg/kg	95.7	79	117
		EG005T: Nickel	7440-02-0	50 mg/kg	83.4	78	120
		EG005T: Selenium	7782-49-2	50 mg/kg	82.1	71	125
		EG005T: Zinc	7440-66-6	50 mg/kg	96.3	74	128
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1160371)							
EM1713791-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	85.3	76	116
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 1161365)							
EM1713734-004	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	40 mg/kg	91.0	58	114
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 1160578)							
EM1713752-007	Anonymous	EK026SF: Total Cyanide	57-12-5	20 mg/kg	86.5	77	113
EK040T: Fluoride Total (QCLot: 1160482)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EK040T: Fluoride Total (QCLot: 1160482) - continued							
EM1713792-003	B17-68418/0.7	EK040T: Fluoride	16984-48-8	400 mg/kg	92.0	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 1160496)							
EM1713558-020	Anonymous	EP066-EM: Total Polychlorinated biphenyls	----	1 mg/kg	85.3	36	152
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 1160411)							
EM1713792-003	B17-68418/0.7	EP074-UT: Benzene	71-43-2	2 mg/kg	82.8	50	138
		EP074-UT: Toluene	108-88-3	2 mg/kg	84.4	56	134
EP074I: Volatile Halogenated Compounds (QCLot: 1160411)							
EM1713792-003	B17-68418/0.7	EP074-UT: 1.1-Dichloroethene	75-35-4	2 mg/kg	85.8	26	141
		EP074-UT: Trichloroethene	79-01-6	2 mg/kg	86.9	50	134
		EP074-UT: Chlorobenzene	108-90-7	2 mg/kg	97.0	28	134
EP075A: Phenolic Compounds (Halogenated) (QCLot: 1160498)							
EM1713558-016	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	1 mg/kg	83.6	34	118
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	1 mg/kg	75.8	41	139
		EP075-EM: Pentachlorophenol	87-86-5	1 mg/kg	45.6	10	144
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 1160498)							
EM1713558-016	Anonymous	EP075-EM: Phenol	108-95-2	1 mg/kg	77.1	32	134
		EP075-EM: 2-Nitrophenol	88-75-5	1 mg/kg	71.0	13	129
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 1160498)							
EM1713558-016	Anonymous	EP075-EM: Acenaphthene	83-32-9	1 mg/kg	89.6	46	138
		EP075-EM: Pyrene	129-00-0	1 mg/kg	100	27	169
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1160411)							
EM1713792-003	B17-68418/0.7	EP074-UT: C6 - C9 Fraction	----	28 mg/kg	55.0	43	111
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1160497)							
EM1713740-012	Anonymous	EP071-EM: C10 - C14 Fraction	----	806 mg/kg	92.7	53	123
		EP071-EM: C15 - C28 Fraction	----	3006 mg/kg	97.1	70	124
		EP071-EM: C29 - C36 Fraction	----	1584 mg/kg	93.8	64	118
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1160411)							
EM1713792-003	B17-68418/0.7	EP074-UT: C6 - C10 Fraction	C6_C10	33 mg/kg	55.9	42	106
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1160497)							
EM1713740-012	Anonymous	EP071-EM: >C10 - C16 Fraction	----	1160 mg/kg	89.6	65	123
		EP071-EM: >C16 - C34 Fraction	----	3978 mg/kg	95.5	67	121
		EP071-EM: >C34 - C40 Fraction	----	313 mg/kg	93.0	44	126

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EG020T: Total Metals by ICP-MS (QCLot: 1160667)							
EM1713688-001	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	104	82	118
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	101	75	129
		EG020A-T: Chromium	7440-47-3	1 mg/L	94.6	80	118
		EG020A-T: Copper	7440-50-8	1 mg/L	94.4	81	115
		EG020A-T: Lead	7439-92-1	1 mg/L	90.8	83	121
		EG020A-T: Nickel	7440-02-0	1 mg/L	98.8	80	118
		EG020A-T: Zinc	7440-66-6	1 mg/L	96.4	74	116
EG020T: Total Metals by ICP-MS (QCLot: 1160670)							
EM1713792-004	RB/061017	EG020A-T: Arsenic	7440-38-2	1 mg/L	94.6	82	118
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	95.1	75	129
		EG020A-T: Chromium	7440-47-3	1 mg/L	94.7	80	118
		EG020A-T: Copper	7440-50-8	1 mg/L	89.1	81	115
		EG020A-T: Lead	7439-92-1	1 mg/L	89.2	83	121
		EG020A-T: Nickel	7440-02-0	1 mg/L	92.9	80	118
		EG020A-T: Zinc	7440-66-6	1 mg/L	92.5	74	116
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1160834)							
EM1713721-002	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	92.5	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1160041)							
EM1713790-002	Anonymous	EP080: C6 - C9 Fraction	----	280 µg/L	91.8	43	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1160041)							
EM1713790-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	330 µg/L	88.3	44	122
EP080: BTEXN (QCLot: 1160041)							
EM1713790-002	Anonymous	EP080: Benzene	71-43-2	20 µg/L	108	68	130
		EP080: Toluene	108-88-3	20 µg/L	113	72	132

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM1713792**	Page	: 1 of 9
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLIVIA HENDERSON	Telephone	: +61-3-8549 9609
Project	: 2135645A	Date Samples Received	: 06-Oct-2017
Site	: Site 26	Issue Date	: 11-Oct-2017
Sampler	: ----	No. of samples received	: 6
Order number	: ----	No. of samples analysed	: 6

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA001: pH in soil using 0.01M CaCl extract							
Soil Glass Jar - Unpreserved (EA001) B17-68418/0.7	**04-Oct-2017**	**09-Oct-2017**	11-Oct-2017	✓	**09-Oct-2017**	09-Oct-2017	✓
Soil Glass Jar - Unpreserved (EA001) B17-68417/0.4, B17-68417/0.9	**06-Oct-2017**	**09-Oct-2017**	13-Oct-2017	✓	**09-Oct-2017**	09-Oct-2017	✓
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055) B17-68418/0.7	**04-Oct-2017**	**----**	----	----	**09-Oct-2017**	18-Oct-2017	✓
Soil Glass Jar - Unpreserved (EA055) B17-68417/0.4, B17-68417/0.9	**06-Oct-2017**	**----**	----	----	**09-Oct-2017**	20-Oct-2017	✓
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T) B17-68418/0.7	**04-Oct-2017**	**09-Oct-2017**	02-Apr-2018	✓	**10-Oct-2017**	02-Apr-2018	✓
Soil Glass Jar - Unpreserved (EG005T) B17-68417/0.4, B17-68417/0.9	**06-Oct-2017**	**09-Oct-2017**	04-Apr-2018	✓	**10-Oct-2017**	04-Apr-2018	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T) B17-68418/0.7	**04-Oct-2017**	**09-Oct-2017**	01-Nov-2017	✓	**09-Oct-2017**	01-Nov-2017	✓
Soil Glass Jar - Unpreserved (EG035T) B17-68417/0.4, B17-68417/0.9	**06-Oct-2017**	**09-Oct-2017**	03-Nov-2017	✓	**09-Oct-2017**	03-Nov-2017	✓
EG048: Hexavalent Chromium (Alkaline Digest)							
Soil Glass Jar - Unpreserved (EG048G) B17-68418/0.7	**04-Oct-2017**	**09-Oct-2017**	01-Nov-2017	✓	**10-Oct-2017**	16-Oct-2017	✓
Soil Glass Jar - Unpreserved (EG048G) B17-68417/0.4, B17-68417/0.9	**06-Oct-2017**	**09-Oct-2017**	03-Nov-2017	✓	**10-Oct-2017**	16-Oct-2017	✓
EK026SF: Total CN by Segmented Flow Analyser							
Soil Glass Jar - Unpreserved (EK026SF) B17-68418/0.7	**04-Oct-2017**	**09-Oct-2017**	18-Oct-2017	✓	**10-Oct-2017**	23-Oct-2017	✓
Soil Glass Jar - Unpreserved (EK026SF) B17-68417/0.4, B17-68417/0.9	**06-Oct-2017**	**09-Oct-2017**	20-Oct-2017	✓	**10-Oct-2017**	23-Oct-2017	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EK040T: Fluoride Total							
Soil Glass Jar - Unpreserved (EK040T) B17-68418/0.7	**04-Oct-2017**	**09-Oct-2017**	01-Nov-2017	✓	**10-Oct-2017**	01-Nov-2017	✓
Soil Glass Jar - Unpreserved (EK040T) B17-68417/0.4, B17-68417/0.9	**06-Oct-2017**	**09-Oct-2017**	03-Nov-2017	✓	**10-Oct-2017**	03-Nov-2017	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066-EM) B17-68418/0.7	**04-Oct-2017**	**09-Oct-2017**	18-Oct-2017	✓	**09-Oct-2017**	18-Nov-2017	✓
Soil Glass Jar - Unpreserved (EP066-EM) B17-68417/0.4, B17-68417/0.9	**06-Oct-2017**	**09-Oct-2017**	20-Oct-2017	✓	**09-Oct-2017**	18-Nov-2017	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074-UT) B17-68418/0.7	**04-Oct-2017**	**09-Oct-2017**	11-Oct-2017	✓	**09-Oct-2017**	11-Oct-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT) B17-68417/0.4, B17-68417/0.9	**06-Oct-2017**	**09-Oct-2017**	13-Oct-2017	✓	**09-Oct-2017**	13-Oct-2017	✓
EP074H: Naphthalene							
Soil Glass Jar - Unpreserved (EP074-UT) B17-68418/0.7	**04-Oct-2017**	**09-Oct-2017**	11-Oct-2017	✓	**09-Oct-2017**	11-Oct-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT) B17-68417/0.4, B17-68417/0.9	**06-Oct-2017**	**09-Oct-2017**	13-Oct-2017	✓	**09-Oct-2017**	13-Oct-2017	✓
EP074I: Volatile Halogenated Compounds							
Soil Glass Jar - Unpreserved (EP074-UT) B17-68418/0.7	**04-Oct-2017**	**09-Oct-2017**	11-Oct-2017	✓	**09-Oct-2017**	11-Oct-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT) B17-68417/0.4, B17-68417/0.9	**06-Oct-2017**	**09-Oct-2017**	13-Oct-2017	✓	**09-Oct-2017**	13-Oct-2017	✓
EP075A: Phenolic Compounds (Halogenated)							
Soil Glass Jar - Unpreserved (EP075-EM) B17-68418/0.7	**04-Oct-2017**	**09-Oct-2017**	18-Oct-2017	✓	**09-Oct-2017**	18-Nov-2017	✓
Soil Glass Jar - Unpreserved (EP075-EM) B17-68417/0.4, B17-68417/0.9	**06-Oct-2017**	**09-Oct-2017**	20-Oct-2017	✓	**09-Oct-2017**	18-Nov-2017	✓
EP075A: Phenolic Compounds (Non-halogenated)							
Soil Glass Jar - Unpreserved (EP075-EM) B17-68418/0.7	**04-Oct-2017**	**09-Oct-2017**	18-Oct-2017	✓	**09-Oct-2017**	18-Nov-2017	✓
Soil Glass Jar - Unpreserved (EP075-EM) B17-68417/0.4, B17-68417/0.9	**06-Oct-2017**	**09-Oct-2017**	20-Oct-2017	✓	**09-Oct-2017**	18-Nov-2017	✓
EP075B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075-EM) B17-68418/0.7	**04-Oct-2017**	**09-Oct-2017**	18-Oct-2017	✓	**09-Oct-2017**	18-Nov-2017	✓
Soil Glass Jar - Unpreserved (EP075-EM) B17-68417/0.4, B17-68417/0.9	**06-Oct-2017**	**09-Oct-2017**	20-Oct-2017	✓	**09-Oct-2017**	18-Nov-2017	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075(I): Organochlorine Pesticides							
Soil Glass Jar - Unpreserved (EP075-EM) B17-68418/0.7	**04-Oct-2017**	**09-Oct-2017**	18-Oct-2017	✓	**09-Oct-2017**	18-Nov-2017	✓
Soil Glass Jar - Unpreserved (EP075-EM) B17-68417/0.4, B17-68417/0.9	**06-Oct-2017**	**09-Oct-2017**	20-Oct-2017	✓	**09-Oct-2017**	18-Nov-2017	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074-UT) B17-68418/0.7	**04-Oct-2017**	**09-Oct-2017**	11-Oct-2017	✓	**09-Oct-2017**	11-Oct-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT) B17-68417/0.4, B17-68417/0.9	**06-Oct-2017**	**09-Oct-2017**	13-Oct-2017	✓	**09-Oct-2017**	13-Oct-2017	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP074-UT) B17-68418/0.7	**04-Oct-2017**	**09-Oct-2017**	11-Oct-2017	✓	**09-Oct-2017**	11-Oct-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT) B17-68417/0.4, B17-68417/0.9	**06-Oct-2017**	**09-Oct-2017**	13-Oct-2017	✓	**09-Oct-2017**	13-Oct-2017	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020B-T) RB/041017	**04-Oct-2017**	**09-Oct-2017**	02-Apr-2018	✓	**09-Oct-2017**	02-Apr-2018	✓
Clear Plastic Bottle - Nitric Acid; Unspecified (EG020B-T) RB/061017	**06-Oct-2017**	**09-Oct-2017**	04-Apr-2018	✓	**09-Oct-2017**	04-Apr-2018	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) RB/041017	**04-Oct-2017**	**----**	----	----	**09-Oct-2017**	01-Nov-2017	✓
Clear Plastic Bottle - Nitric Acid; Unspecified (EG035T) RB/061017	**06-Oct-2017**	**----**	----	----	**09-Oct-2017**	03-Nov-2017	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP080) TB/041017	**04-Oct-2017**	**09-Oct-2017**	18-Oct-2017	✓	**09-Oct-2017**	18-Oct-2017	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber VOC Vial - Sulfuric Acid (EP080) TB/041017	**04-Oct-2017**	**09-Oct-2017**	18-Oct-2017	✓	**09-Oct-2017**	18-Oct-2017	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) TB/041017	**04-Oct-2017**	**09-Oct-2017**	18-Oct-2017	✓	**09-Oct-2017**	18-Oct-2017	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	11	**18.18**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	2	11	**18.18**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	4	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	5	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	7	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	4	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	11	**18.18**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Matrix Spikes (MS) - Continued							
Total Fluoride	EK040T	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Total Mercury by FIMS	EG035T	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	3	21	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite B	EG020B-T	2	10	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Total Mercury by FIMS	EG035T	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	21	**9.52**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite B	EG020B-T	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Total Mercury by FIMS	EG035T	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	21	**9.52**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite B	EG020B-T	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Total Mercury by FIMS	EG035T	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	21	**9.52**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH in soil using a 0.01M CaCl2 extract	EA001	SOIL	In house: Referenced to Rayment and Lyons (2011) 4B3 (mod.) or 4B4 (mod.) 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM (2013) Schedule B(3)
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	SOIL	In house: Referenced to USEPA SW846, Method 3060A. Hexavalent chromium is extracted by alkaline digestion. The digest is determined by photometrically by automatic discrete analyser, following pH adjustment. The instrument uses colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Cyanide by Segmented Flow Analyser	EK026SF	SOIL	In house: Referenced to APHA 4500-CN C / ASTM D7511. Caustic leachates of soil samples are introduced into an automated segmented flow analyser. Complex bound cyanide is decomposed in a continuously flowing stream, at a pH of 3.8, by the effect of UV light. A UV-B lamp (312 nm) and a decomposition spiral of borosilicate glass are used to filter out UV light with a wavelength of less than 290 nm thus preventing the conversion of thiocyanate into cyanide. The hydrogen cyanide present at a pH of 3.8 is separated by gas dialysis. The hydrogen cyanide is then determined photometrically, based on the reaction of cyanide with chloramine-T to form cyanogen chloride. This then reacts with 4-pyridine carboxylic acid and 1,3-dimethylbarbituric acid to give a red colour which is measured at 600 nm. This method is compliant with NEPM (2013) Schedule B(3)
Total Fluoride	EK040T	SOIL	(In-house) Total fluoride is determined by ion specific electrode (ISE) in a solution obtained after a Sodium Carbonate / Potassium Carbonate fusion dissolution.
PCB - VIC EPA 448.3 Screen	EP066-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
TRH - Semivolatile Fraction	EP071-EM	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40.
Volatile Organic Compounds - Ultra-trace	EP074-UT	SOIL	In house: Referenced to USEPA SW 846 - 8260B Extracts are analysed by Purge and Trap, Capillary GC/MS in partial SIM/Scan mode. Quantification is by comparison against an established multi-point calibration curves. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)

Analytical Methods	Method	Matrix	Method Descriptions
Volatile Organic Compounds - Ultra-trace - Summations	EP074-UT-SUM	SOIL	Summation of MAHs and VHCs
Semivolatile Organic Compounds - Waste Classification	EP075-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (2013) Schedule B(3) (Method 502)
SVOC - Waste Classification (Sums)	EP075-EM-SUM	SOIL	Summations for EP075 (EM variation)
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite B	EG020B-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
NaOH leach for CN in Soils	CN-PR	SOIL	In house: APHA 4500 CN. Samples are extracted by end-over-end tumbling with NaOH.
pH in soil using a 0.01M CaCl2 extract	EA001-PR	SOIL	In house: Referenced to Rayment and Higginson 4B1, 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Alkaline digestion for Hexavalent Chromium	EG048PR	SOIL	In house: Referenced to USEPA SW846, Method 3060A.
Total Fluoride	EK040T-PR	SOIL	In house: Samples are fused with Sodium Carbonate / Potassium Carbonate flux.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils - Ultra-trace.	ORG16-UT	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids - VIC EPA Screen	ORG17-EM	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

Preparation Methods	Method	Matrix	Method Descriptions
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EM1713792**

Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLIVIA HENDERSON	Contact	: Graeme Jablonskas
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: olivia.henderson@wsp.com	E-mail	: graeme.jablonskas@alsglobal.com
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9609
Facsimile	: +61 03 9861 1144	Facsimile	: +61-3-8549 9601
Project	: 2135645A	Page	: 1 of 2
Order number	: ----	Quote number	: EM2016PARBRIVIC0006 (ME-525-16)
C-O-C number	: 85462	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Site 26		
Sampler	:		

Dates

Date Samples Received	: 06-Oct-2017 16:30	Issue Date	: 07-Oct-2017
Client Requested Due Date	: 13-Oct-2017	Scheduled Reporting Date	: **13-Oct-2017**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 8.6°C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 6 / 6

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **Analytical work for this work order will be conducted at ALS Springvale.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA055-103 Moisture Content	SOIL - P-16 IWRG 621
EM1713792-003	04-Oct-2017 00:00	B17-68418/0.7	✓	✓
EM1713792-005	06-Oct-2017 00:00	B17-68417/0.4	✓	✓
EM1713792-006	06-Oct-2017 00:00	B17-68417/0.9	✓	✓

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - IWRG621 Metals (Total) IWRG621 Total Metals in Water (inc. total Cr)	WATER - W-18 TRH(C6 - C9)/BTEXN
EM1713792-001	04-Oct-2017 00:00	TB/041017		✓
EM1713792-002	04-Oct-2017 00:00	RB/041017	✓	
EM1713792-004	06-Oct-2017 00:00	RB/061017	✓	

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ALL INVOICES

- A4 - AU Tax Invoice (INV)	Email	apinvoices@wsp.com

OLIVIA HENDERSON

- *AU Certificate of Analysis - NATA (COA)	Email	olivia.henderson@wsp.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	olivia.henderson@wsp.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	olivia.henderson@wsp.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	olivia.henderson@wsp.com
- A4 - AU Tax Invoice (INV)	Email	olivia.henderson@wsp.com
- Chain of Custody (CoC) (COC)	Email	olivia.henderson@wsp.com
- EDI Format - ENMRG (ENMRG)	Email	olivia.henderson@wsp.com
- EDI Format - ESDAT (ESDAT)	Email	olivia.henderson@wsp.com
- EPA Waste Classification & Categorisation Guideline Report (COA_GL_EPA_WASTE)	Email	olivia.henderson@wsp.com

WSP | PARSONS BRINCKERHOFF

ABN 80 078 004 798

White Page - Laboratory Copy
Yellow Page - Project File Copy
Pink Page - Remains in Book

☐ **Adelaide** Level 1, 1 King William Street, GPO Box 398 Adelaide SA 5001 Tel: (08) 8405 4300 Fax: (08) 8405 4301

☐ **Brisbane** Level 3, Northbank Plaza 69 Ann Street, GPO Box 2907 Brisbane QLD 4001 Tel: (07) 3854 6200 Fax: (07) 3854 6500

☑ **Melbourne** Level 15, 28 Freshwater Place, Tel: (03) 9861 1111 Fax: (03) 9861 1144

☐ **Sydney** Level 27, Ernst & Young Centre 680 George Street, GPO Box 5394, Sydney NSW 2001 Tel: (02) 9272 5100 Fax: (02) 9272 5101

☐ **Perth** Level 5, 503 Murray Street, PO Box 7181 Cloisters Square WA 6850 Tel: (08) 9489 9700 Fax: (08) 9489 9777

☐ **Singleton** 188 John Street, PO Box 115 Singleton NSW 2330 Tel: (02) 6572 3377 Fax: (02) 6572 4080

☐ **Newcastle** Level 3, 51-55 Bolton Street, Suite 1 PO Box 1162 Newcastle NSW, 2300 Tel: (02) 4929 8300 Fax: (02) 4929 8382

Chain of Custody

Order No: 85462

Job Title: Mordialloc Bypass

PB Job Number: 2135645A

Job Location: Site 26

Project Manager: Olivia Henderson.

Laboratory Name: ALS SPRINGVALE

Results Expected by/on:

Address:

Fax Results to: olivia.Henderson@wsp.com

Fax Number:

Phone Number:

Contact Name:

Spreadsheet of Results Required: (Y) / N

Delivery Method:

Format:

Quote Number:

Turnaround Time Required:

Invoice to: Olivia Henderson.

Comments:

Terms of Business	PB	Other	Checked
	✓		

Date Sampled	~~Time~~ Lab ID	Sample I.D.	Container Size	Sample Location	Medium*	Preservative Type	Filtered (X)	TPH	BTEX	PAH's	OC/OP/PCB's	Metals**	BTEXN	TPHC6–C10	TW8621 Suite	TW8621 Metals	Initials	Comments/Additional Information and/or Analysis Required
4.10.17	1	TB/041017	Vial		W								✓	✓				
↓	2	RB/041017	plastic		W											✓		
	3	B17-68418/0.7	250ml Jar		S										✓	✓		
		~~TB/061017~~	~~Vial~~															
6.10.17	4	RB/061017	Vial plastic		W											✓		
	5	B17-68417/0.4	250ml Jar		S										✓			
↓	6	B17-68417/0.9	↓		S										✓			

Environmental Division
Melbourne
Work Order Reference
EM1713792

Telephone : + 61-3-8549 9600

Relinquished by:	Relinquished by:	Relinquished by:
Date & Time: 6/10/17 4.30 pm	Date & Time:	Date & Time:
Company: WSP	Company:	Company:
Signature:	Signature:	Signature:
Received in Good Order & Condition by (Name):	**Received in Good Order & Condition by (Name):**	**Received in Good Order & Condition by (Name):**
Date & Time: 6/10 16.30	Date & Time:	Date & Time:
Company: AU	Company:	Company:
Signature:	Signature:	Signature:

Medium*: S = Soil, W = Water, V = Vapour

Legend**: (circle the following to be tested)

Metals: Al As Be Cd Co Cr Cu Fe Hg Li Mg Mn Ni Pb Se Sn V Zn

Samples on Ice: ☐ Yes ☐ No

Please fax back a signed copy when samples are received at the laboratory

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1714071**	Page	: 1 of 9
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLIVIA HENDERSON	Contact	: Graeme Jablonskas
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9609
Project	: 2135645A	Date Samples Received	: 12-Oct-2017 16:45
Order number	: ----	Date Analysis Commenced	: 13-Oct-2017
C-O-C number	: 85463	Issue Date	: 17-Oct-2017 12:49
Sampler	: ----		
Site	: Site 26		
Quote number	: ME-525-16		
No. of samples received	: 9		
No. of samples analysed	: 9		

ilac-MRA NATA
Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Andrew Lu	Organic Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Andrew Lu	Organic Instrument Chemist	Melbourne Organics, Springvale, VIC
Chris Lemaitre	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	B17-68421/0.8	B17-68420/0.7	B17-68419/0.7	B17-68419/7.4	DUPA-26/0.7
			Client sampling date / time	10-Oct-2017 00:00	11-Oct-2017 00:00	12-Oct-2017 00:00	12-Oct-2017 00:00	12-Oct-2017 00:00
Compound	CAS Number	LOR	Unit	EM1714071-003	EM1714071-005	EM1714071-007	EM1714071-008	EM1714071-009
				Result	Result	Result	Result	Result
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	8.3	8.4	8.5	6.9	9.0
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	48.5	21.4	15.8	22.4	15.3
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	10	13	7	<5	6
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Copper	7440-50-8	5	mg/kg	30	6	7	<5	7
Lead	7439-92-1	5	mg/kg	62	17	9	6	8
Molybdenum	7439-98-7	2	mg/kg	<2	<2	<2	<2	<2
Nickel	7440-02-0	2	mg/kg	9	15	12	3	12
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Silver	7440-22-4	2	mg/kg	<2	<2	<2	<2	<2
Tin	7440-31-5	5	mg/kg	<5	<5	<5	<5	<5
Zinc	7440-66-6	5	mg/kg	260	30	15	<5	18
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
EK026SF: Total CN by Segmented Flow Analyser								
Total Cyanide	57-12-5	1	mg/kg	<1	<1	<1	<1	<1
EK040T: Fluoride Total								
Fluoride	16984-48-8	40	mg/kg	250	190	140	140	210
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of monocyclic aromatic hydrocarbons	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B17-68421/0.8	B17-68420/0.7	B17-68419/0.7	B17-68419/7.4	DUPA-26/0.7
				Client sampling date / time	10-Oct-2017 00:00	11-Oct-2017 00:00	12-Oct-2017 00:00	12-Oct-2017 00:00	12-Oct-2017 00:00
Compound	CAS Number	LOR	Unit		EM1714071-003	EM1714071-005	EM1714071-007	EM1714071-008	EM1714071-009
					Result	Result	Result	Result	Result
EP074H: Naphthalene									
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP074I: Volatile Halogenated Compounds									
Vinyl chloride	75-01-4	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.1-Dichloroethene	75-35-4	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Methylene chloride	75-09-2	0.4	mg/kg		<0.4	<0.4	<0.4	<0.4	<0.4
trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Chloroform	67-66-3	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.1.1-Trichloroethane	71-55-6	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Carbon Tetrachloride	56-23-5	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
1.2-Dichloroethane	107-06-2	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Trichloroethene	79-01-6	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.1.2-Trichloroethane	79-00-5	0.04	mg/kg		<0.04	<0.04	<0.04	<0.04	<0.04
Tetrachloroethene	127-18-4	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Hexachlorobutadiene	87-68-3	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Chlorobenzene	108-90-7	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.4-Dichlorobenzene	106-46-7	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.2-Dichlorobenzene	95-50-1	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
^ Sum of volatile chlorinated hydrocarbons	----	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
^ Sum of other chlorinated hydrocarbons	----	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
EP075A: Phenolic Compounds (Halogenated)									
2-Chlorophenol	95-57-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
2.4-Dichlorophenol	120-83-2	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
2.6-Dichlorophenol	87-65-0	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Pentachlorophenol	87-86-5	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Sum of Phenols (halogenated)	----	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B17-68421/0.8	B17-68420/0.7	B17-68419/0.7	B17-68419/7.4	DUPA-26/0.7
				Client sampling date / time	10-Oct-2017 00:00	11-Oct-2017 00:00	12-Oct-2017 00:00	12-Oct-2017 00:00	12-Oct-2017 00:00
Compound	CAS Number	LOR	Unit		EM1714071-003	EM1714071-005	EM1714071-007	EM1714071-008	EM1714071-009
					Result	Result	Result	Result	Result
EP075A: Phenolic Compounds (Halogenated) - Continued									
EP075A: Phenolic Compounds (Non-halogenated)									
Phenol	108-95-2	1	mg/kg		<1	<1	<1	<1	<1
2-Methylphenol	95-48-7	1	mg/kg		<1	<1	<1	<1	<1
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	1	mg/kg		<1	<1	<1	<1	<1
2.4-Dimethylphenol	105-67-9	1	mg/kg		<1	<1	<1	<1	<1
2.4-Dinitrophenol	51-28-5	5	mg/kg		<5	<5	<5	<5	<5
4-Nitrophenol	100-02-7	5	mg/kg		<5	<5	<5	<5	<5
2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg		<5	<5	<5	<5	<5
Dinoseb	88-85-7	5	mg/kg		<5	<5	<5	<5	<5
2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg		<5	<5	<5	<5	<5
^ Sum of Phenols (non-halogenated)	----	1	mg/kg		<1	<1	<1	<1	<1
EP075B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		1.8	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		1.7	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		1.4	0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		0.8	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		0.6	<0.5	<0.5	<0.5	<0.5
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg		1.3	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		0.7	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		8.8	0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		0.9	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		1.2	0.6	0.6	0.6	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		1.5	1.2	1.2	1.2	1.2
EP075I: Organochlorine Pesticides									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B17-68421/0.8	B17-68420/0.7	B17-68419/0.7	B17-68419/7.4	DUPA-26/0.7
				Client sampling date / time	10-Oct-2017 00:00	11-Oct-2017 00:00	12-Oct-2017 00:00	12-Oct-2017 00:00	12-Oct-2017 00:00
Compound	CAS Number	LOR	Unit		EM1714071-003	EM1714071-005	EM1714071-007	EM1714071-008	EM1714071-009
					Result	Result	Result	Result	Result
EP075l: Organochlorine Pesticides - Continued									
alpha-BHC	319-84-6	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
beta-BHC	319-85-7	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
gamma-BHC	58-89-9	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
delta-BHC	319-86-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Heptachlor	76-44-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Aldrin	309-00-2	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Heptachlor epoxide	1024-57-3	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
cis-Chlordane	5103-71-9	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
trans-Chlordane	5103-74-2	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Endosulfan 1	959-98-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Endrin aldehyde	7421-93-4	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Endrin	72-20-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
Endosulfan 2	33213-65-9	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
4.4`-DDT	50-29-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
^ Sum of organochlorine pesticides	----	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ Chlordane	57-74-9	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
^ Sum of other organochlorine pesticides	----	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
C15 - C28 Fraction	----	100	mg/kg		**250**	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		**320**	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		**570**	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B17-68421/0.8	B17-68420/0.7	B17-68419/0.7	B17-68419/7.4	DUPA-26/0.7
				Client sampling date / time	10-Oct-2017 00:00	11-Oct-2017 00:00	12-Oct-2017 00:00	12-Oct-2017 00:00	12-Oct-2017 00:00
Compound	CAS Number	LOR	Unit		EM1714071-003	EM1714071-005	EM1714071-007	EM1714071-008	EM1714071-009
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C16 - C34 Fraction	----	100	mg/kg		**440**	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		**160**	<100	<100	<100	<100
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		**600**	<50	<50	<50	<50
>C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	<50
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**105**	**102**	**94.3**	**90.1**	**105**
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		**72.5**	**88.9**	**81.4**	**87.2**	**86.2**
Toluene-D8	2037-26-5	0.1	%		**71.5**	**86.9**	**80.2**	**87.6**	**84.4**
4-Bromofluorobenzene	460-00-4	0.1	%		**74.4**	**94.1**	**89.4**	**86.6**	**89.8**
EP075S: Acid Extractable Surrogates									
Phenol-d6	13127-88-3	0.025	%		**129**	**115**	**113**	**108**	**115**
2-Chlorophenol-D4	93951-73-6	0.025	%		**108**	**97.1**	**92.1**	**91.2**	**101**
2.4.6-Tribromophenol	118-79-6	0.025	%		**108**	**94.4**	**83.3**	**84.1**	**95.9**
EP075T: Base/Neutral Extractable Surrogates									
Nitrobenzene-D5	4165-60-0	0.025	%		**106**	**96.8**	**91.1**	**90.3**	**97.7**
1.2-Dichlorobenzene-D4	2199-69-1	0.025	%		**108**	**97.5**	**92.2**	**93.8**	**102**
2-Fluorobiphenyl	321-60-8	0.025	%		**121**	**105**	**86.3**	**85.5**	**107**
Anthracene-d10	1719-06-8	0.025	%		**112**	**118**	**106**	**107**	**123**
4-Terphenyl-d14	1718-51-0	0.025	%		**114**	**132**	**130**	**116**	**123**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	TB/101017	RB/101017	RB/111017	RB/121017	----
				Client sampling date / time	10-Oct-2017 00:00	10-Oct-2017 00:00	11-Oct-2017 00:00	12-Oct-2017 00:00	----
Compound	CAS Number	LOR	Unit		EM1714071-001	EM1714071-002	EM1714071-004	EM1714071-006	--------
					Result	Result	Result	Result	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		----	<0.001	<0.001	<0.001	----
Cadmium	7440-43-9	0.0001	mg/L		----	<0.0001	<0.0001	<0.0001	----
Chromium	7440-47-3	0.001	mg/L		----	<0.001	<0.001	<0.001	----
Copper	7440-50-8	0.001	mg/L		----	<0.001	<0.001	<0.001	----
Lead	7439-92-1	0.001	mg/L		----	<0.001	<0.001	<0.001	----
Molybdenum	7439-98-7	0.001	mg/L		----	<0.001	<0.001	<0.001	----
Nickel	7440-02-0	0.001	mg/L		----	<0.001	<0.001	<0.001	----
Selenium	7782-49-2	0.01	mg/L		----	<0.01	<0.01	<0.01	----
Silver	7440-22-4	0.001	mg/L		----	<0.001	<0.001	<0.001	----
Tin	7440-31-5	0.001	mg/L		----	<0.001	<0.001	<0.001	----
Zinc	7440-66-6	0.005	mg/L		----	<0.005	<0.005	<0.005	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		----	<0.0001	<0.0001	<0.0001	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	----	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		<20	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	----	----	----	----
Toluene	108-88-3	2	µg/L		<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	----	----	----	----
^ Total Xylenes	1330-20-7	2	µg/L		<2	----	----	----	----
^ Sum of BTEX	----	1	µg/L		<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**100**	----	----	----	----
Toluene-D8	2037-26-5	2	%		**100**	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		**113**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	CAS Number	Recovery Limits (%) Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	41	122
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	59	119
Toluene-D8	2037-26-5	55	117
4-Bromofluorobenzene	460-00-4	59	123
EP075S: Acid Extractable Surrogates			
Phenol-d6	13127-88-3	28	134
2-Chlorophenol-D4	93951-73-6	27	123
2.4.6-Tribromophenol	118-79-6	25	149
EP075T: Base/Neutral Extractable Surrogates			
Nitrobenzene-D5	4165-60-0	29	125
1.2-Dichlorobenzene-D4	2199-69-1	31	117
2-Fluorobiphenyl	321-60-8	44	136
Anthracene-d10	1719-06-8	53	133
4-Terphenyl-d14	1718-51-0	59	141

Sub-Matrix: **WATER**

Compound	CAS Number	Recovery Limits (%) Low	High
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	129
Toluene-D8	2037-26-5	70	125
4-Bromofluorobenzene	460-00-4	71	129

Automated Guideline Comparison Report

EPA Victoria Publication IWRG 621 (2009) - Table 2: Soil Hazard Categorisation

Work Order	: **EM1714071**	Page	: 1 of 8
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLIVIA HENDERSON		
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: olivia.henderson@wsp.com	E-mail	: graeme.jablonskas@alsglobal.com
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9609
Facsimile	: +61 03 9861 1144	Facsimile	: +61-3-8549 9601
Project	: 2135645A	Date Received	: 12-Oct-2017 16:45
Order number	: ----	Date Analysed	: 13-Oct-2017
C-O-C number	: 85463	Date Issued	: 17-Oct-2017 12:49
No. of samples received	: 9		
No. of samples analysed	: 9	Quote number	: ME-525-16

General Comments

This guideline comparison report **only** provides evaluation of total concentration data against upper limit thresholds for the 'Fill Material', 'C', 'B' Categories in Table 2 of EPA Publication IWRG621.

This guideline comparison report is **NOT** a soil classification report. Classification of soils as Fill Material, Category C, Category B or Category A requires consideration of a number of other factors including preliminary site investigation, sampling density and statistical calculations, as set out in EPA Publication IWRG 702.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

This guideline comparison report only provides evaluation data where chemical parameters specifically listed within the IWRG621 (2009) guideline are analysed by ALS using the **P-16 package in full**.

Red shading is applied where the result is equal to or greater than the guideline upper limit and/or equal to or lower than the guideline lower limit. Red shading is not applied to the 'Summary of Thresholds Reached or Exceeded'.

For the 'Summary of Thresholds Reached or Exceeded' to accurately function, all samples must be analysed and included in the 'Analytical Results' section of the following report. Please verify that all required IDs are listed and analysed.

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Summary of Thresholds Reached or Exceeded

EPA Victoria Publication IWRG 621 (2009)

Table 2: Soil Hazard Categorisation Thresholds : Category C

Client Sample ID	ALS Sample ID	Compound	Method	LOR	Limits	Result
DUPA-26/0.7	**EM1714071-009**	pH (CaCl2)	EA001	0.1	*> 4 pH Unit< 9 pH Unit*	**9.0 pH Unit**

EPA Victoria Publication IWRG 621 (2009)

Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Client Sample ID	ALS Sample ID	Compound	Method	LOR	Limits	Result
B17-68421/0.8	**EM1714071-003**	Zinc	EG005T	5	*< 200 mg/kg*	**260 mg/kg**
DUPA-26/0.7	**EM1714071-009**	pH (CaCl2)	EA001	0.1	*> 4 pH Unit< 9 pH Unit*	**9.0 pH Unit**

Analytical Results

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B: Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	B17-68421/0.8	B17-68420/0.7	B17-68419/0.7	B17-68419/7.4	DUPA-26/0.7
Client sample ID										
Sampling date/time						10-Oct-2017 15:00	11-Oct-2017 15:00	12-Oct-2017 15:00	12-Oct-2017 15:00	12-Oct-2017 15:00
						EM1714071-003	EM1714071-005	EM1714071-007	EM1714071-008	EM1714071-009
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	2	12.5	**8.3**	**8.4**	**8.5**	**6.9**	**9.0**
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	2000	**10**	**13**	**7**	<5	**6**
Cadmium	EG005T	1	mg/kg	----	400	<1	<1	<1	<1	<1
Copper	EG005T	5	mg/kg	----	20000	**30**	**6**	**7**	<5	**7**
Lead	EG005T	5	mg/kg	----	6000	**62**	**17**	**9**	**6**	**8**
Molybdenum	EG005T	2	mg/kg	----	4000	<2	<2	<2	<2	<2
Nickel	EG005T	2	mg/kg	----	12000	**9**	**15**	**12**	**3**	**12**
Selenium	EG005T	5	mg/kg	----	200	<5	<5	<5	<5	<5
Silver	EG005T	2	mg/kg	----	720	<2	<2	<2	<2	<2
Zinc	EG005T	5	mg/kg	----	140000	**260**	**30**	**15**	<5	**18**
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	300	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	2000	<0.5	<0.5	<0.5	<0.5	<0.5
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	10000	<1	<1	<1	<1	<1
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	40000	**250**	**190**	**140**	**140**	**210**
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	16	<0.2	<0.2	<0.2	<0.2	<0.2
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	240	<0.2	<0.2	<0.2	<0.2	<0.2
EP074I: Volatile Halogenated Compounds										
Vinyl chloride	EP074-UT	0.02	mg/kg	----	4.8	<0.02	<0.02	<0.02	<0.02	<0.02
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	11	<0.02	<0.02	<0.02	<0.02	<0.02
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	50	<0.01	<0.01	<0.01	<0.01	<0.01
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	320	<0.03	<0.03	<0.03	<0.03	<0.03
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	2200	<1	<1	<1	<1	<1
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	20	**0.7**	<0.5	<0.5	<0.5	<0.5

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B: Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	*Client sample ID* **B17-68421/0.8**	**B17-68420/0.7**	**B17-68419/0.7**	**B17-68419/7.4**	**DUPA-26/0.7**
						Sampling date/time 10-Oct-2017 15:00	11-Oct-2017 15:00	12-Oct-2017 15:00	12-Oct-2017 15:00	12-Oct-2017 15:00
						EM1714071-003	**EM1714071-005**	**EM1714071-007**	**EM1714071-008**	**EM1714071-009**
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	400	**8.8**	**0.5**	<0.5	<0.5	<0.5
EP075I: Organochlorine Pesticides										
Heptachlor	EP075-EM	0.03	mg/kg	----	4.8	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	4.8	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50	<0.05	<0.05	<0.05	<0.05	<0.05
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	16	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	50	<0.03	<0.03	<0.03	<0.03	<0.03
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	2600	<10	<10	<10	<10	<10
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	40000	**570**	<50	<50	<50	<50

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category C: Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	B17-68421/0.8	B17-68420/0.7	B17-68419/0.7	B17-68419/7.4	DUPA-26/0.7
Client sample ID										
Sampling date/time						10-Oct-2017 15:00	11-Oct-2017 15:00	12-Oct-2017 15:00	12-Oct-2017 15:00	12-Oct-2017 15:00
						EM1714071-003	EM1714071-005	EM1714071-007	EM1714071-008	EM1714071-009
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	4	9	**8.3**	**8.4**	**8.5**	**6.9**	**9.0**
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	500	**10**	**13**	**7**	<5	**6**
Cadmium	EG005T	1	mg/kg	----	100	<1	<1	<1	<1	<1
Copper	EG005T	5	mg/kg	----	5000	**30**	**6**	**7**	<5	**7**
Lead	EG005T	5	mg/kg	----	1500	**62**	**17**	**9**	**6**	**8**
Molybdenum	EG005T	2	mg/kg	----	1000	<2	<2	<2	<2	<2
Nickel	EG005T	2	mg/kg	----	3000	**9**	**15**	**12**	**3**	**12**
Selenium	EG005T	5	mg/kg	----	50	<5	<5	<5	<5	<5
Silver	EG005T	2	mg/kg	----	180	<2	<2	<2	<2	<2
Tin	EG005T	5	mg/kg	----	500	<5	<5	<5	<5	<5
Zinc	EG005T	5	mg/kg	----	35000	**260**	**30**	**15**	<5	**18**
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	75	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	500	<0.5	<0.5	<0.5	<0.5	<0.5
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	2500	<1	<1	<1	<1	<1
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	10000	**250**	**190**	**140**	**140**	**210**
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	4	<0.2	<0.2	<0.2	<0.2	<0.2
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	70	<0.2	<0.2	<0.2	<0.2	<0.2
EP074I: Volatile Halogenated Compounds										
Vinyl chloride	EP074-UT	0.02	mg/kg	----	1.2	<0.02	<0.02	<0.02	<0.02	<0.02
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	2.8	<0.02	<0.02	<0.02	<0.02	<0.02
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	10	<0.01	<0.01	<0.01	<0.01	<0.01
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	10	<0.03	<0.03	<0.03	<0.03	<0.03
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	560	<1	<1	<1	<1	<1
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	5	**0.7**	<0.5	<0.5	<0.5	<0.5

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category C: Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	**B17-68421/0.8** 10-Oct-2017 15:00 **EM1714071-003**	**B17-68420/0.7** 11-Oct-2017 15:00 **EM1714071-005**	**B17-68419/0.7** 12-Oct-2017 15:00 **EM1714071-007**	**B17-68419/7.4** 12-Oct-2017 15:00 **EM1714071-008**	**DUPA-26/0.7** 12-Oct-2017 15:00 **EM1714071-009**
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	100	**8.8**	**0.5**	<0.5	<0.5	<0.5
EP075I: Organochlorine Pesticides										
Heptachlor	EP075-EM	0.03	mg/kg	----	1.2	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	1.2	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50	<0.05	<0.05	<0.05	<0.05	<0.05
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	4	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	10	<0.03	<0.03	<0.03	<0.03	<0.03
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	650	<10	<10	<10	<10	<10
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	10000	**570**	<50	<50	<50	<50

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material: Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

				Client sample ID	Guideline	Guideline	B17-68421/0.8	B17-68420/0.7	B17-68419/0.7	B17-68419/7.4	DUPA-26/0.7
				Sampling date/time			10-Oct-2017 15:00	11-Oct-2017 15:00	12-Oct-2017 15:00	12-Oct-2017 15:00	12-Oct-2017 15:00
Compound	*Method*	*LOR*	*Unit*		Lower Limit	Upper Limit	EM1714071-003	EM1714071-005	EM1714071-007	EM1714071-008	EM1714071-009
EA001: pH in soil using 0.01M CaCl extract											
pH (CaCl2)	EA001	0.1	pH Unit		4	9	**8.3**	**8.4**	**8.5**	**6.9**	**9.0**
EG005T: Total Metals by ICP-AES											
Arsenic	EG005T	5	mg/kg		----	20	**10**	**13**	**7**	<5	**6**
Cadmium	EG005T	1	mg/kg		----	3	<1	<1	<1	<1	<1
Copper	EG005T	5	mg/kg		----	100	**30**	**6**	**7**	<5	**7**
Lead	EG005T	5	mg/kg		----	300	**62**	**17**	**9**	**6**	**8**
Molybdenum	EG005T	2	mg/kg		----	40	<2	<2	<2	<2	<2
Nickel	EG005T	2	mg/kg		----	60	**9**	**15**	**12**	**3**	**12**
Selenium	EG005T	5	mg/kg		----	10	<5	<5	<5	<5	<5
Silver	EG005T	2	mg/kg		----	10	<2	<2	<2	<2	<2
Tin	EG005T	5	mg/kg		----	50	<5	<5	<5	<5	<5
Zinc	EG005T	5	mg/kg		----	200	**260**	**30**	**15**	<5	**18**
EG035T: Total Recoverable Mercury by FIMS											
Mercury	EG035T	0.1	mg/kg		----	1	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)											
Hexavalent Chromium	EG048G	0.5	mg/kg		----	1	<0.5	<0.5	<0.5	<0.5	<0.5
EK026SF: Total CN by Segmented Flow Analyser											
Total Cyanide	EK026SF	1	mg/kg		----	50	<1	<1	<1	<1	<1
EK040T: Fluoride Total											
Fluoride	EK040T	40	mg/kg		----	450	**250**	**190**	**140**	**140**	**210**
EP066: Polychlorinated Biphenyls (PCB)											
Total Polychlorinated biphenyls	EP066-EM	0.1	mg/kg		----	2	<0.1	<0.1	<0.1	<0.1	<0.1
EP074A: Monocyclic Aromatic Hydrocarbons											
Benzene	EP074-UT	0.2	mg/kg		----	1	<0.2	<0.2	<0.2	<0.2	<0.2
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg		----	7	<0.2	<0.2	<0.2	<0.2	<0.2
EP074I: Volatile Halogenated Compounds											
Sum of volatile chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg		----	1	<0.01	<0.01	<0.01	<0.01	<0.01
EP075A: Phenolic Compounds (Halogenated)											
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg		----	1	<0.03	<0.03	<0.03	<0.03	<0.03
EP075A: Phenolic Compounds (Non-halogenated)											
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg		----	60	<1	<1	<1	<1	<1
EP075B: Polynuclear Aromatic Hydrocarbons											
Benzo(a)pyrene	EP075-EM	0.5	mg/kg		----	1	**0.7**	<0.5	<0.5	<0.5	<0.5

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material: Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	**B17-68421/0.8** 10-Oct-2017 15:00 **EM1714071-003**	**B17-68420/0.7** 11-Oct-2017 15:00 **EM1714071-005**	**B17-68419/0.7** 12-Oct-2017 15:00 **EM1714071-007**	**B17-68419/7.4** 12-Oct-2017 15:00 **EM1714071-008**	**DUPA-26/0.7** 12-Oct-2017 15:00 **EM1714071-009**
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	20	**8.8**	**0.5**	<0.5	<0.5	<0.5
EP075I: Organochlorine Pesticides										
Sum of organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	1	<0.03	<0.03	<0.03	<0.03	<0.03
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	100	<10	<10	<10	<10	<10
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	1000	**570**	<50	<50	<50	<50

Note: Red shading is applied where the result is equal to or greater than the guideline upper limit and/or equal to or lower than the guideline lower limit.

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM1714071**	Page	: 1 of 11
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: MS OLIVIA HENDERSON	Telephone	: +61-3-8549 9609
Project	: 2135645A	Date Samples Received	: 12-Oct-2017
Site	: Site 26	Issue Date	: 17-Oct-2017
Sampler	: ----	No. of samples received	: 9
Order number	: ----	No. of samples analysed	: 9

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA001: pH in soil using 0.01M CaCl extract							
Soil Glass Jar - Unpreserved (EA001) B17-68421/0.8	**10-Oct-2017**	**16-Oct-2017**	17-Oct-2017	✓	**16-Oct-2017**	16-Oct-2017	✓
Soil Glass Jar - Unpreserved (EA001) B17-68420/0.7	**11-Oct-2017**	**16-Oct-2017**	18-Oct-2017	✓	**16-Oct-2017**	16-Oct-2017	✓
Soil Glass Jar - Unpreserved (EA001) B17-68419/0.7, B17-68419/7.4, DUPA-26/0.7	**12-Oct-2017**	**16-Oct-2017**	19-Oct-2017	✓	**16-Oct-2017**	16-Oct-2017	✓
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055) B17-68421/0.8	**10-Oct-2017**	**----**	----	----	**13-Oct-2017**	24-Oct-2017	✓
Soil Glass Jar - Unpreserved (EA055) B17-68420/0.7	**11-Oct-2017**	**----**	----	----	**13-Oct-2017**	25-Oct-2017	✓
Soil Glass Jar - Unpreserved (EA055) B17-68419/0.7, B17-68419/7.4, DUPA-26/0.7	**12-Oct-2017**	**----**	----	----	**13-Oct-2017**	26-Oct-2017	✓
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T) B17-68421/0.8	**10-Oct-2017**	**13-Oct-2017**	08-Apr-2018	✓	**13-Oct-2017**	08-Apr-2018	✓
Soil Glass Jar - Unpreserved (EG005T) B17-68420/0.7	**11-Oct-2017**	**13-Oct-2017**	09-Apr-2018	✓	**13-Oct-2017**	09-Apr-2018	✓
Soil Glass Jar - Unpreserved (EG005T) B17-68419/0.7, B17-68419/7.4, DUPA-26/0.7	**12-Oct-2017**	**13-Oct-2017**	10-Apr-2018	✓	**13-Oct-2017**	10-Apr-2018	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T) B17-68421/0.8	**10-Oct-2017**	**13-Oct-2017**	07-Nov-2017	✓	**13-Oct-2017**	07-Nov-2017	✓
Soil Glass Jar - Unpreserved (EG035T) B17-68420/0.7	**11-Oct-2017**	**13-Oct-2017**	08-Nov-2017	✓	**13-Oct-2017**	08-Nov-2017	✓
Soil Glass Jar - Unpreserved (EG035T) B17-68419/0.7, B17-68419/7.4, DUPA-26/0.7	**12-Oct-2017**	**13-Oct-2017**	09-Nov-2017	✓	**13-Oct-2017**	09-Nov-2017	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG048: Hexavalent Chromium (Alkaline Digest)							
Soil Glass Jar - Unpreserved (EG048G) B17-68421/0.8	**10-Oct-2017**	**13-Oct-2017**	07-Nov-2017	✓	**13-Oct-2017**	20-Oct-2017	✓
Soil Glass Jar - Unpreserved (EG048G) B17-68420/0.7	**11-Oct-2017**	**13-Oct-2017**	08-Nov-2017	✓	**13-Oct-2017**	20-Oct-2017	✓
Soil Glass Jar - Unpreserved (EG048G) B17-68419/0.7, B17-68419/7.4, DUPA-26/0.7	**12-Oct-2017**	**13-Oct-2017**	09-Nov-2017	✓	**13-Oct-2017**	20-Oct-2017	✓
EK026SF: Total CN by Segmented Flow Analyser							
Soil Glass Jar - Unpreserved (EK026SF) B17-68421/0.8	**10-Oct-2017**	**13-Oct-2017**	24-Oct-2017	✓	**16-Oct-2017**	27-Oct-2017	✓
Soil Glass Jar - Unpreserved (EK026SF) B17-68420/0.7	**11-Oct-2017**	**13-Oct-2017**	25-Oct-2017	✓	**16-Oct-2017**	27-Oct-2017	✓
Soil Glass Jar - Unpreserved (EK026SF) B17-68419/0.7, B17-68419/7.4, DUPA-26/0.7	**12-Oct-2017**	**13-Oct-2017**	26-Oct-2017	✓	**16-Oct-2017**	27-Oct-2017	✓
EK040T: Fluoride Total							
Soil Glass Jar - Unpreserved (EK040T) B17-68421/0.8	**10-Oct-2017**	**13-Oct-2017**	07-Nov-2017	✓	**17-Oct-2017**	07-Nov-2017	✓
Soil Glass Jar - Unpreserved (EK040T) B17-68420/0.7	**11-Oct-2017**	**13-Oct-2017**	08-Nov-2017	✓	**17-Oct-2017**	08-Nov-2017	✓
Soil Glass Jar - Unpreserved (EK040T) B17-68419/0.7, B17-68419/7.4, DUPA-26/0.7	**12-Oct-2017**	**13-Oct-2017**	09-Nov-2017	✓	**17-Oct-2017**	09-Nov-2017	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066-EM) B17-68421/0.8	**10-Oct-2017**	**13-Oct-2017**	24-Oct-2017	✓	**16-Oct-2017**	22-Nov-2017	✓
Soil Glass Jar - Unpreserved (EP066-EM) B17-68420/0.7	**11-Oct-2017**	**13-Oct-2017**	25-Oct-2017	✓	**16-Oct-2017**	22-Nov-2017	✓
Soil Glass Jar - Unpreserved (EP066-EM) B17-68419/0.7, B17-68419/7.4, DUPA-26/0.7	**12-Oct-2017**	**13-Oct-2017**	26-Oct-2017	✓	**16-Oct-2017**	22-Nov-2017	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074-UT) B17-68421/0.8	**10-Oct-2017**	**13-Oct-2017**	17-Oct-2017	✓	**13-Oct-2017**	17-Oct-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT) B17-68420/0.7	**11-Oct-2017**	**13-Oct-2017**	18-Oct-2017	✓	**13-Oct-2017**	18-Oct-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT) B17-68419/0.7, B17-68419/7.4, DUPA-26/0.7	**12-Oct-2017**	**13-Oct-2017**	19-Oct-2017	✓	**13-Oct-2017**	19-Oct-2017	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074H: Naphthalene							
Soil Glass Jar - Unpreserved (EP074-UT) B17-68421/0.8	**10-Oct-2017**	**13-Oct-2017**	17-Oct-2017	✓	**13-Oct-2017**	17-Oct-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT) B17-68420/0.7	**11-Oct-2017**	**13-Oct-2017**	18-Oct-2017	✓	**13-Oct-2017**	18-Oct-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT) B17-68419/0.7, B17-68419/7.4, DUPA-26/0.7	**12-Oct-2017**	**13-Oct-2017**	19-Oct-2017	✓	**13-Oct-2017**	19-Oct-2017	✓
EP074I: Volatile Halogenated Compounds							
Soil Glass Jar - Unpreserved (EP074-UT) B17-68421/0.8	**10-Oct-2017**	**13-Oct-2017**	17-Oct-2017	✓	**13-Oct-2017**	17-Oct-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT) B17-68420/0.7	**11-Oct-2017**	**13-Oct-2017**	18-Oct-2017	✓	**13-Oct-2017**	18-Oct-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT) B17-68419/0.7, B17-68419/7.4, DUPA-26/0.7	**12-Oct-2017**	**13-Oct-2017**	19-Oct-2017	✓	**13-Oct-2017**	19-Oct-2017	✓
EP075A: Phenolic Compounds (Halogenated)							
Soil Glass Jar - Unpreserved (EP075-EM) B17-68421/0.8	**10-Oct-2017**	**13-Oct-2017**	24-Oct-2017	✓	**16-Oct-2017**	22-Nov-2017	✓
Soil Glass Jar - Unpreserved (EP075-EM) B17-68420/0.7	**11-Oct-2017**	**13-Oct-2017**	25-Oct-2017	✓	**16-Oct-2017**	22-Nov-2017	✓
Soil Glass Jar - Unpreserved (EP075-EM) B17-68419/0.7, B17-68419/7.4, DUPA-26/0.7	**12-Oct-2017**	**13-Oct-2017**	26-Oct-2017	✓	**16-Oct-2017**	22-Nov-2017	✓
EP075A: Phenolic Compounds (Non-halogenated)							
Soil Glass Jar - Unpreserved (EP075-EM) B17-68421/0.8	**10-Oct-2017**	**13-Oct-2017**	24-Oct-2017	✓	**16-Oct-2017**	22-Nov-2017	✓
Soil Glass Jar - Unpreserved (EP075-EM) B17-68420/0.7	**11-Oct-2017**	**13-Oct-2017**	25-Oct-2017	✓	**16-Oct-2017**	22-Nov-2017	✓
Soil Glass Jar - Unpreserved (EP075-EM) B17-68419/0.7, B17-68419/7.4, DUPA-26/0.7	**12-Oct-2017**	**13-Oct-2017**	26-Oct-2017	✓	**16-Oct-2017**	22-Nov-2017	✓
EP075B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075-EM) B17-68421/0.8	**10-Oct-2017**	**13-Oct-2017**	24-Oct-2017	✓	**16-Oct-2017**	22-Nov-2017	✓
Soil Glass Jar - Unpreserved (EP075-EM) B17-68420/0.7	**11-Oct-2017**	**13-Oct-2017**	25-Oct-2017	✓	**16-Oct-2017**	22-Nov-2017	✓
Soil Glass Jar - Unpreserved (EP075-EM) B17-68419/0.7, B17-68419/7.4, DUPA-26/0.7	**12-Oct-2017**	**13-Oct-2017**	26-Oct-2017	✓	**16-Oct-2017**	22-Nov-2017	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075(I): Organochlorine Pesticides							
Soil Glass Jar - Unpreserved (EP075-EM) B17-68421/0.8	**10-Oct-2017**	**13-Oct-2017**	24-Oct-2017	✓	**16-Oct-2017**	22-Nov-2017	✓
Soil Glass Jar - Unpreserved (EP075-EM) B17-68420/0.7	**11-Oct-2017**	**13-Oct-2017**	25-Oct-2017	✓	**16-Oct-2017**	22-Nov-2017	✓
Soil Glass Jar - Unpreserved (EP075-EM) B17-68419/0.7, B17-68419/7.4, DUPA-26/0.7	**12-Oct-2017**	**13-Oct-2017**	26-Oct-2017	✓	**16-Oct-2017**	22-Nov-2017	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074-UT) B17-68421/0.8	**10-Oct-2017**	**13-Oct-2017**	17-Oct-2017	✓	**13-Oct-2017**	17-Oct-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT) B17-68420/0.7	**11-Oct-2017**	**13-Oct-2017**	18-Oct-2017	✓	**13-Oct-2017**	18-Oct-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT) B17-68419/0.7, B17-68419/7.4, DUPA-26/0.7	**12-Oct-2017**	**13-Oct-2017**	19-Oct-2017	✓	**13-Oct-2017**	19-Oct-2017	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP074-UT) B17-68421/0.8	**10-Oct-2017**	**13-Oct-2017**	17-Oct-2017	✓	**13-Oct-2017**	17-Oct-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT) B17-68420/0.7	**11-Oct-2017**	**13-Oct-2017**	18-Oct-2017	✓	**13-Oct-2017**	18-Oct-2017	✓
Soil Glass Jar - Unpreserved (EP074-UT) B17-68419/0.7, B17-68419/7.4, DUPA-26/0.7	**12-Oct-2017**	**13-Oct-2017**	19-Oct-2017	✓	**13-Oct-2017**	19-Oct-2017	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unspecified (EG020B-T) RB/101017	**10-Oct-2017**	**13-Oct-2017**	08-Apr-2018	✓	**16-Oct-2017**	08-Apr-2018	✓
Clear Plastic Bottle - Nitric Acid; Unspecified (EG020B-T) RB/111017	**11-Oct-2017**	**13-Oct-2017**	09-Apr-2018	✓	**16-Oct-2017**	09-Apr-2018	✓
Clear Plastic Bottle - Nitric Acid; Unspecified (EG020B-T) RB/121017	**12-Oct-2017**	**13-Oct-2017**	10-Apr-2018	✓	**16-Oct-2017**	10-Apr-2018	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unspecified (EG035T) RB/101017	**10-Oct-2017**	**----**	----	----	**13-Oct-2017**	07-Nov-2017	✓
Clear Plastic Bottle - Nitric Acid; Unspecified (EG035T) RB/111017	**11-Oct-2017**	**----**	----	----	**13-Oct-2017**	08-Nov-2017	✓
Clear Plastic Bottle - Nitric Acid; Unspecified (EG035T) RB/121017	**12-Oct-2017**	**----**	----	----	**13-Oct-2017**	09-Nov-2017	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / *Container* / *Client Sample ID(s)*	*Sample Date*	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	*Date analysed*	*Due for analysis*	*Evaluation*
EP080/071: Total Petroleum Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP080) TB/101017	**10-Oct-2017**	**13-Oct-2017**	24-Oct-2017	✓	**13-Oct-2017**	24-Oct-2017	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber VOC Vial - Sulfuric Acid (EP080) TB/101017	**10-Oct-2017**	**13-Oct-2017**	24-Oct-2017	✓	**13-Oct-2017**	24-Oct-2017	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) TB/101017	**10-Oct-2017**	**13-Oct-2017**	24-Oct-2017	✓	**13-Oct-2017**	24-Oct-2017	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	5	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	5	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	5	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	5	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	5	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	9	**22.22**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Matrix Spikes (MS) - Continued							
Total Fluoride	EK040T	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Total Mercury by FIMS	EG035T	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite B	EG020B-T	1	3	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Total Mercury by FIMS	EG035T	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite B	EG020B-T	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Total Mercury by FIMS	EG035T	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite B	EG020B-T	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Total Mercury by FIMS	EG035T	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH in soil using a 0.01M CaCl2 extract	EA001	SOIL	In house: Referenced to Rayment and Lyons (2011) 4B3 (mod.) or 4B4 (mod.) 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM (2013) Schedule B(3)
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	SOIL	In house: Referenced to USEPA SW846, Method 3060A. Hexavalent chromium is extracted by alkaline digestion. The digest is determined by photometrically by automatic discrete analyser, following pH adjustment. The instrument uses colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Cyanide by Segmented Flow Analyser	EK026SF	SOIL	In house: Referenced to APHA 4500-CN C / ASTM D7511. Caustic leachates of soil samples are introduced into an automated segmented flow analyser. Complex bound cyanide is decomposed in a continuously flowing stream, at a pH of 3.8, by the effect of UV light. A UV-B lamp (312 nm) and a decomposition spiral of borosilicate glass are used to filter out UV light with a wavelength of less than 290 nm thus preventing the conversion of thiocyanate into cyanide. The hydrogen cyanide present at a pH of 3.8 is separated by gas dialysis. The hydrogen cyanide is then determined photometrically, based on the reaction of cyanide with chloramine-T to form cyanogen chloride. This then reacts with 4-pyridine carboxylic acid and 1,3-dimethylbarbituric acid to give a red colour which is measured at 600 nm. This method is compliant with NEPM (2013) Schedule B(3)
Total Fluoride	EK040T	SOIL	(In-house) Total fluoride is determined by ion specific electrode (ISE) in a solution obtained after a Sodium Carbonate / Potassium Carbonate fusion dissolution.
PCB - VIC EPA 448.3 Screen	EP066-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
TRH - Semivolatile Fraction	EP071-EM	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40.
Volatile Organic Compounds - Ultra-trace	EP074-UT	SOIL	In house: Referenced to USEPA SW 846 - 8260B Extracts are analysed by Purge and Trap, Capillary GC/MS in partial SIM/Scan mode. Quantification is by comparison against an established multi-point calibration curves. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)

Analytical Methods	Method	Matrix	Method Descriptions
Volatile Organic Compounds - Ultra-trace - Summations	EP074-UT-SUM	SOIL	Summation of MAHs and VHCs
Semivolatile Organic Compounds - Waste Classification	EP075-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (2013) Schedule B(3) (Method 502)
SVOC - Waste Classification (Sums)	EP075-EM-SUM	SOIL	Summations for EP075 (EM variation)
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite B	EG020B-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
NaOH leach for CN in Soils	CN-PR	SOIL	In house: APHA 4500 CN. Samples are extracted by end-over-end tumbling with NaOH.
pH in soil using a 0.01M CaCl2 extract	EA001-PR	SOIL	In house: Referenced to Rayment and Higginson 4B1, 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Alkaline digestion for Hexavalent Chromium	EG048PR	SOIL	In house: Referenced to USEPA SW846, Method 3060A.
Total Fluoride	EK040T-PR	SOIL	In house: Samples are fused with Sodium Carbonate / Potassium Carbonate flux.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils - Ultra-trace.	ORG16-UT	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids - VIC EPA Screen	ORG17-EM	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

Preparation Methods	Method	Matrix	Method Descriptions
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

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☐ **Newcastle** Level 3, 51-55 Bolton Street, Suite 1 PO Box 1162 Newcastle NSW, 2300 Tel: (02) 4929 8300 Fax: (02) 4929 8382

Chain of Custody

Order No: 85463

Job Title: Mordialloc Bypass

PB Job Number: 2135645A

Job Location: Site 26

Project Manager: Olivia Henderson

Laboratory Name: ALS SPRINGVALE

Results Expected by/on:

Address:

Fax Results to: olivia.henderson@wsp.com

Fax Number:

Phone Number:

Contact Name:

Delivery Method:

Quote Number:

Terms of Business	PB	Other	Checked
	✓		

Spreadsheet of Results Required: (Y) / N

Format:

Turnaround Time Required:

Invoice to: Olivia Henderson

Comments:

Date Sampled	Time (Lab ID)	Sample I.D.	Container Size	Sample Location	Medium*	Preservative Type	Filtered (X)	TPH	BTEX	PAH's	OC/OP/PCB's	Metals**	1x250 G2I Suite	1x250 G2I Metals	BTEXN	TPH C6 - C10	Initials	Comments/Additional Information and/or Analysis Required
10.10.17	1	TB/101017	Vial		W										1	1		
↓	2	RB/101017	Vial plastic		W									1				
↓	3	B17-68421	250ml Jar	0.8	S								1					
11.10.17	4	RB/111017	Vial plastic		W									1				
↓	5	B17-68420	250ml Jar	0.7	S								1					
12.10.17	6	RB/121017	Vial plastic		W									1				
↓	7	B17-68419	250ml Jar	0.7	S								1					
↓	8	B17-68419	↓	7.4	S								1					
↓	9	DUPA-26/0.7			S								1					
↓	→	DUPB-26/0.7	↓		S								1				Sky	Forward to Eurofin

Environmental Division
Melbourne
Work Order Reference
EM1714071

Telephone : +61-3-8549 9600

Relinquished by:	Relinquished by:	Relinquished by:
Date & Time: 12/10 1645	Date & Time:	Date & Time: 13-10
Company: WSP	Company:	Company:
Signature:	Signature:	Signature:
Received in Good Order & Condition by (Name): Ravn	Received in Good Order & Condition by (Name):	Received in Good Order & Condition by (Name):
Date & Time: 12/10, 1645	Date & Time:	Date & Time:
Company: ALS	Company:	Company:
Signature:	Signature:	Signature:

Medium*: S = Soil, W = Water, V = Vapour

Legend**: (circle the following to be tested)

Metals: Al As Be Cd Co Cr Cu Fe Hg Li Mg Mn Ni Pb Se Sn V Zn

Samples on Ice: ☐ Yes ☐ No

Please fax back a signed copy when samples are received at the laboratory

PARSONS BRINCKERHOFF

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ABN 80 078 004 798

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❑ **Melbourne** Level 15, 28 Freshwater Place, PO Box 19016 Southbank VIC 3006 Tel: (03) 9861 1111 Fax: (03) 9861 1144
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❑ **Perth** Level 5, 503 Murray Street, PO Box 7181 Cloisters Square WA 6850 Tel: (08) 9489 9700 Fax: (08) 9489 9777
❑ **Singleton** 188 John Street, PO Box 115 Singleton NSW 2330 Tel: (02) 6572 3377 Fax: (02) 6572 4080
❑ **Newcastle** Level 3, 51-55 Bolton Street, PO Box 1162 Newcastle NSW, 2300 Tel: (02) 4929 8300 Fax: (02) 4929 8382

Chain of Custody

Order No: 72866

Job Title: OSAR

PB Job Number: 213564 5A

Job Location: Site 26

Project Manager: Olfa Nazario

Laboratory Name: ALS

Results Expected by/on: ONazario@pb.com.au

Address: ALS Springvale

Terms of Business	PB	Other	Checked
✓			

Fax Results to:

Fax Number:

Phone Number: 8549-9600

Phone Number:

Contact Name: Graeme Jablonkas

Spreadsheet of Results Required: (Y) / N

Delivery Method: Courier

Format:

Quote Number: MF525-16

Turnaround Time Required:

Invoice to: Olfa Nazario

Comments:

Date Sampled	Time / Id's	Sample I.D.	Container Size	Sample Location	Medium*	Preservative Type	Filtered (X)	TPH	BTEX	PAH's	OC/OP/PCB's	Metals**	IWRG621//Site// *	IWRG metals	Initials	Comments/Additional Information and/or Analysis Required
22/05/17	1	TP17-26-14/0.8	250ml	Site 26	S								X			* analysis as per client's request - BN 26/5
"	2	TP17-26-16/0.7											X			
"	3	TP17-26-29/0.4											X			
23/05/17	4	TP17-26-31/1.0											X			
"	5	TP17-26-27/0.8											X			
	6	TP17-26-25/0.7											X			
	7	TP17-26-24/0.8											X			
24/5/17	8	TP17-26-33/0.5-0.6											X			
"	9	TP17-26-35/0.5-0.6											X			
	10	TP17-26-64/0.5											X			
	11	DUP A TP17-26-64/0.5											X			
	12	DUP B "														Fwd to Eurofins BN 26/5
	13	TP17-26-37/0.4											X			

Environmental Division
Melbourne
Work Order Reference
EM1706717

Telephone : + 61-3-8549 9600

#15

Relinquished by:	Relinquished by:	Relinquished by:
Rory MacKay	Ben Cary	
Date & Time: 25/05/17	Date & Time: 24/5/17 1:00pm	Date & Time:
Company: WSP	Company:	Company:
Signature:	Signature:	Signature:
Received in Good Order & Condition by (Name): Marcia	Received in Good Order & Condition by (Name):	Received in Good Order & Condition by (Name): SG
Date & Time: 25/5 16:00	Date & Time:	Date & Time: 26/5 2:36pm
Company: ALS	Company:	Company:
Signature:	Signature:	Signature:

Medium*: S = Soil, W = Water, V = Vapour

Legend**: (circle the following to be tested)

Metals: Al As Be Cd Co Cr Cu Fe Hg Li Mg Mn Ni Pb Se Sn V Zn

Samples on Ice: ☐ Yes ☐ No

547924

Please fax back a signed copy when samples are received at the laboratory BP 26/5

wsp

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ABN 80 078 004 798

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Singleton 188 John Street, PO Box 115, Singleton NSW 2330 Tel: (02) 6572 3377 Fax: (02) 6572 4080

Newcastle Level 3, 51-55 Bolton Street, Suite 1 PO Box 1162, Newcastle NSW 2300 Tel: (02) 4929 8300 Fax: (02) 4929 8382

Chain of Custody

Order No: 94258

Job Title: Mordialloc Bypass

WSP Job Number: 21356458

Job Location: Thames Promenade

Laboratory Name: ALS

Address: 24 Westall Rd Springvale VIC

Fax Number:

Phone Number:

Contact Name: Graeme J.

Delivery Method: Courier

Quote Number:

Terms of Business	WSP	Other	Checked

Project Manager: ~~James Goss~~ OLFA NAZARIO

Results Expected by/on: STANDARD

Fax Results to: ~~email~~ O.NAZARIO

Fax Number:

Phone Number:

Spreadsheet of Results Required: (Y) / N

Format: ESDAT, PDF

Turnaround Time Required: STANDARD

Invoice to: O.NAZARIO

Comments: PAGE 1 OF

Date Sampled	Time	Sample I.D.	Container Size	Sample Location	Medium*	Preservative Type	Filtered (X)	TPH	BTEX	PAH's	OC/OP/PCB's	Metals**	IWRG SUITE	IWRG METALS	Initials	Comments/Additional Information and/or Analysis Required
4/5/2018	3:30pm	T1-26A			S	ICE							X			
4/5/2018	4:00pm	T2-26A			S	ICE							X			
4/5/2018	9:30AM	TP18-26A-02		0.90m	S	ICE							X			
4/5/2018	12:45PM	TP18-26A-09		0.80m	S	ICE							X			
4/5/2018	10:30AM	TP18-26A-01			S	ICE							X			
4/5/2018	9:00Am	PP18-26A-04		0.90m	S	ICE							X			
3/5/2018	1:45pm	PP18-26A-10			S	ICE							X			
4/5/2018	9:00AM	RINSATE			W	ICE								X		
3/5/2018	9:00Am	RINSATE			W	ICE								X		
		TRIPBLANK						X	X							
		QC01			S	ICE							X			
→		QC02			S	ICE							X			

Environmental Division
Melbourne
Work Order Reference
EM1807431

Telephone : +61-3-8549 9600

Forwarded to Secondary Lab

Initials YR Date 7/5

→ FORWARD TO EUROFINS

Relinquished by:	Relinquished by:	Relinquished by:
Date & Time:	Date & Time:	Date & Time:
Company:	Company:	Company:
Signature:	Signature:	Signature:
Received in Good Order & Condition by (Name): [illegible]	Received in Good Order & Condition by (Name):	Received in Good Order & Condition by (Name):
Date & Time: 7/5, 12-00	Date & Time:	Date & Time:
Company: AU	Company:	Company:
Signature:	Signature:	Signature:

Medium* S = Soil, W = Water, V = Vapour

Legend**: (circle the following to be tested)

Metals Al As Be Cd Co Cr Cu Fe Hg Li Mg Mn Ni Pb Se Sn V Zn

Samples on Ice: ☐ Yes ☐ No

Please fax back a signed copy when samples are received at the laboratory

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1807431**	Page	: 1 of 14
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: OLFA NAZARIO	Contact	: Graeme Jablonskas
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9609
Project	: 2135645A	Date Samples Received	: 07-May-2018 12:00
Order number	:	Date Analysis Commenced	: 07-May-2018
C-O-C number	: 94258	Issue Date	: 10-May-2018 17:36
Sampler	: ----		
Site	: Thames Promenade		
Quote number	: ME-525-16		
No. of samples received	: 11		
No. of samples analysed	: 11		

ilac-MRA NATA
Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- The soil jar for sample 'TP18-26A-01' was received cracked/broken. None of the contents has been lost.
- pH analysis is done under non-stirring condition.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	T1-26A	T2-26A	TP18-26A-02	TP18-26A-09	TP18-26A-01
			Client sampling date / time	04-May-2018 00:00	04-May-2018 00:00	04-May-2018 00:00	04-May-2018 00:00	04-May-2018 00:00
Compound	CAS Number	LOR	Unit	EM1807431-001	EM1807431-002	EM1807431-003	EM1807431-004	EM1807431-005
				Result	Result	Result	Result	Result
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	4.7	4.6	5.0	4.7	4.7
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	10.6	12.5	15.4	11.4	24.7
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Copper	7440-50-8	5	mg/kg	<5	6	<5	<5	<5
Lead	7439-92-1	5	mg/kg	7	10	7	7	8
Molybdenum	7439-98-7	2	mg/kg	<2	<2	<2	<2	<2
Nickel	7440-02-0	2	mg/kg	4	5	6	4	5
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Silver	7440-22-4	2	mg/kg	<2	<2	<2	<2	<2
Tin	7440-31-5	5	mg/kg	<5	<5	<5	<5	<5
Zinc	7440-66-6	5	mg/kg	<5	<5	<5	<5	<5
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
EK026SF: Total CN by Segmented Flow Analyser								
Total Cyanide	57-12-5	1	mg/kg	<1	1	<1	<1	<1
EK040T: Fluoride Total								
Fluoride	16984-48-8	40	mg/kg	150	140	140	120	130
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of monocyclic aromatic hydrocarbons	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	T1-26A	T2-26A	TP18-26A-02	TP18-26A-09	TP18-26A-01
				Client sampling date / time	04-May-2018 00:00	04-May-2018 00:00	04-May-2018 00:00	04-May-2018 00:00	04-May-2018 00:00
Compound	CAS Number	LOR	Unit		EM1807431-001	EM1807431-002	EM1807431-003	EM1807431-004	EM1807431-005
					Result	Result	Result	Result	Result
EP074H: Naphthalene									
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP074I: Volatile Halogenated Compounds									
Vinyl chloride	75-01-4	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.1-Dichloroethene	75-35-4	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Methylene chloride	75-09-2	0.4	mg/kg		<0.4	<0.4	<0.4	<0.4	<0.4
trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Chloroform	67-66-3	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.1.1-Trichloroethane	71-55-6	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
Carbon Tetrachloride	56-23-5	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
1.2-Dichloroethane	107-06-2	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Trichloroethene	79-01-6	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.1.2-Trichloroethane	79-00-5	0.04	mg/kg		<0.04	<0.04	<0.04	<0.04	<0.04
Tetrachloroethene	127-18-4	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Hexachlorobutadiene	87-68-3	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Chlorobenzene	108-90-7	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.4-Dichlorobenzene	106-46-7	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.2-Dichlorobenzene	95-50-1	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
^ Sum of volatile chlorinated hydrocarbons	----	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
^ Sum of other chlorinated hydrocarbons	----	0.01	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01
EP075A: Phenolic Compounds (Halogenated)									
2-Chlorophenol	95-57-8	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
2.4-Dichlorophenol	120-83-2	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
2.6-Dichlorophenol	87-65-0	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03
2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Pentachlorophenol	87-86-5	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Sum of Phenols (halogenated)	----	0.03	mg/kg		<0.03	<0.03	<0.03	<0.03	<0.03

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	T1-26A	T2-26A	TP18-26A-02	TP18-26A-09	TP18-26A-01
			Client sampling date / time	04-May-2018 00:00	04-May-2018 00:00	04-May-2018 00:00	04-May-2018 00:00	04-May-2018 00:00
Compound	CAS Number	LOR	Unit	EM1807431-001	EM1807431-002	EM1807431-003	EM1807431-004	EM1807431-005
				Result	Result	Result	Result	Result
EP075A: Phenolic Compounds (Halogenated) - Continued								
EP075A: Phenolic Compounds (Non-halogenated)								
Phenol	108-95-2	1	mg/kg	<1	<1	<1	<1	<1
2-Methylphenol	95-48-7	1	mg/kg	<1	<1	<1	<1	<1
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	<1	<1	<1
2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	<1	<1	<1
2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	<5	<5	<5	<5
4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	<5	<5	<5
2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	<5	<5	<5
Dinoseb	88-85-7	5	mg/kg	<5	<5	<5	<5	<5
2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	<5	<5	<5
^ Sum of Phenols (non-halogenated)	----	1	mg/kg	<1	<1	<1	<1	<1
EP075B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP075I: Organochlorine Pesticides								

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	T1-26A	T2-26A	TP18-26A-02	TP18-26A-09	TP18-26A-01
			Client sampling date / time	04-May-2018 00:00	04-May-2018 00:00	04-May-2018 00:00	04-May-2018 00:00	04-May-2018 00:00
Compound	CAS Number	LOR	Unit	EM1807431-001	EM1807431-002	EM1807431-003	EM1807431-004	EM1807431-005
				Result	Result	Result	Result	Result
EP075l: Organochlorine Pesticides - Continued								
alpha-BHC	319-84-6	0.03	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03
Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03
beta-BHC	319-85-7	0.03	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03
gamma-BHC	58-89-9	0.03	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03
delta-BHC	319-86-8	0.03	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03
Heptachlor	76-44-8	0.03	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03
Aldrin	309-00-2	0.03	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03
Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03
cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03
trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03
Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.03	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03
Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03
Endrin	72-20-8	0.03	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03
Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03
4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03
4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.03	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03
^ Sum of organochlorine pesticides	----	0.03	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.03	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Chlordane	57-74-9	0.03	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03
^ Sum of other organochlorine pesticides	----	0.03	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	T1-26A	T2-26A	TP18-26A-02	TP18-26A-09	TP18-26A-01
				Client sampling date / time	04-May-2018 00:00	04-May-2018 00:00	04-May-2018 00:00	04-May-2018 00:00	04-May-2018 00:00
Compound	CAS Number	LOR	Unit		EM1807431-001	EM1807431-002	EM1807431-003	EM1807431-004	EM1807431-005
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		<50	<50	<50	<50	<50
>C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	<50
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**91.2**	**94.8**	**102**	**87.5**	**90.8**
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		**84.2**	**82.5**	**80.3**	**84.5**	**81.6**
Toluene-D8	2037-26-5	0.1	%		**84.8**	**78.9**	**77.3**	**82.1**	**79.0**
4-Bromofluorobenzene	460-00-4	0.1	%		**86.7**	**84.1**	**83.1**	**86.0**	**83.3**
EP075S: Acid Extractable Surrogates									
Phenol-d6	13127-88-3	0.025	%		**80.0**	**82.1**	**90.2**	**80.7**	**90.4**
2-Chlorophenol-D4	93951-73-6	0.025	%		**69.6**	**70.2**	**77.3**	**67.9**	**76.1**
2.4.6-Tribromophenol	118-79-6	0.025	%		**89.4**	**96.4**	**99.9**	**83.9**	**96.3**
EP075T: Base/Neutral Extractable Surrogates									
Nitrobenzene-D5	4165-60-0	0.025	%		**70.6**	**71.2**	**79.0**	**69.2**	**77.6**
1.2-Dichlorobenzene-D4	2199-69-1	0.025	%		**75.5**	**75.9**	**84.5**	**72.8**	**80.5**
2-Fluorobiphenyl	321-60-8	0.025	%		**85.9**	**89.4**	**97.6**	**85.3**	**95.1**
Anthracene-d10	1719-06-8	0.025	%		**93.2**	**95.4**	**103**	**90.1**	**102**
4-Terphenyl-d14	1718-51-0	0.025	%		**98.3**	**103**	**111**	**98.8**	**112**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TP18-26A-04	TP18-26A-10	QC01	----	----
			Client sampling date / time	04-May-2018 00:00	03-May-2018 00:00	[04-May-2018]	----	----
Compound	CAS Number	LOR	Unit	EM1807431-006	EM1807431-007	EM1807431-011	--------	--------
				Result	Result	Result	----	----
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	**5.7**	**6.6**	**4.9**	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**16.9**	**15.1**	**13.9**	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	----	----
Copper	7440-50-8	5	mg/kg	<5	<5	<5	----	----
Lead	7439-92-1	5	mg/kg	**5**	<5	**6**	----	----
Molybdenum	7439-98-7	2	mg/kg	<2	<2	<2	----	----
Nickel	7440-02-0	2	mg/kg	**6**	**3**	**5**	----	----
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	----	----
Silver	7440-22-4	2	mg/kg	<2	<2	<2	----	----
Tin	7440-31-5	5	mg/kg	<5	<5	<5	----	----
Zinc	7440-66-6	5	mg/kg	**6**	<5	<5	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	----	----
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
EK026SF: Total CN by Segmented Flow Analyser								
Total Cyanide	57-12-5	1	mg/kg	<1	<1	<1	----	----
EK040T: Fluoride Total								
Fluoride	16984-48-8	40	mg/kg	**120**	<40	**130**	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	<0.1	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Sum of monocyclic aromatic hydrocarbons	----	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
^ Total Xylenes	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP18-26A-04	TP18-26A-10	QC01	----	----
				Client sampling date / time	04-May-2018 00:00	03-May-2018 00:00	[04-May-2018]	----	----
Compound	CAS Number	LOR	Unit		EM1807431-006	EM1807431-007	EM1807431-011	--------	--------
					Result	Result	Result	----	----
EP074H: Naphthalene									
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	----	----
EP074I: Volatile Halogenated Compounds									
Vinyl chloride	75-01-4	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
1.1-Dichloroethene	75-35-4	0.01	mg/kg		<0.01	<0.01	<0.01	----	----
Methylene chloride	75-09-2	0.4	mg/kg		<0.4	<0.4	<0.4	----	----
trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg		<0.01	<0.01	<0.01	----	----
Chloroform	67-66-3	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
1.1.1-Trichloroethane	71-55-6	0.01	mg/kg		<0.01	<0.01	<0.01	----	----
Carbon Tetrachloride	56-23-5	0.01	mg/kg		<0.01	<0.01	<0.01	----	----
1.2-Dichloroethane	107-06-2	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
Trichloroethene	79-01-6	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
1.1.2-Trichloroethane	79-00-5	0.04	mg/kg		<0.04	<0.04	<0.04	----	----
Tetrachloroethene	127-18-4	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg		<0.01	<0.01	<0.01	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
Hexachlorobutadiene	87-68-3	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
Chlorobenzene	108-90-7	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
1.4-Dichlorobenzene	106-46-7	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
1.2-Dichlorobenzene	95-50-1	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg		<0.01	<0.01	<0.01	----	----
^ Sum of volatile chlorinated hydrocarbons	----	0.01	mg/kg		<0.01	<0.01	<0.01	----	----
^ Sum of other chlorinated hydrocarbons	----	0.01	mg/kg		<0.01	<0.01	<0.01	----	----
EP075A: Phenolic Compounds (Halogenated)									
2-Chlorophenol	95-57-8	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
2.4-Dichlorophenol	120-83-2	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
2.6-Dichlorophenol	87-65-0	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Pentachlorophenol	87-86-5	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
^ Sum of Phenols (halogenated)	----	0.03	mg/kg		<0.03	<0.03	<0.03	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP18-26A-04	TP18-26A-10	QC01	----	----
				Client sampling date / time	04-May-2018 00:00	03-May-2018 00:00	[04-May-2018]	----	----
Compound	CAS Number	LOR	Unit		EM1807431-006	EM1807431-007	EM1807431-011	--------	--------
					Result	Result	Result	----	----
EP075A: Phenolic Compounds (Halogenated) - Continued									
EP075A: Phenolic Compounds (Non-halogenated)									
Phenol	108-95-2	1	mg/kg		<1	<1	<1	----	----
2-Methylphenol	95-48-7	1	mg/kg		<1	<1	<1	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	<1	----	----
2-Nitrophenol	88-75-5	1	mg/kg		<1	<1	<1	----	----
2.4-Dimethylphenol	105-67-9	1	mg/kg		<1	<1	<1	----	----
2.4-Dinitrophenol	51-28-5	5	mg/kg		<5	<5	<5	----	----
4-Nitrophenol	100-02-7	5	mg/kg		<5	<5	<5	----	----
2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg		<5	<5	<5	----	----
Dinoseb	88-85-7	5	mg/kg		<5	<5	<5	----	----
2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg		<5	<5	<5	----	----
^ Sum of Phenols (non-halogenated)	----	1	mg/kg		<1	<1	<1	----	----
EP075B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	----	----
EP075I: Organochlorine Pesticides									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP18-26A-04	TP18-26A-10	QC01	----	----
				Client sampling date / time	04-May-2018 00:00	03-May-2018 00:00	[04-May-2018]	----	----
Compound	CAS Number	LOR	Unit		EM1807431-006	EM1807431-007	EM1807431-011	--------	--------
					Result	Result	Result	----	----
EP075l: Organochlorine Pesticides - Continued									
alpha-BHC	319-84-6	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
beta-BHC	319-85-7	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
gamma-BHC	58-89-9	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
delta-BHC	319-86-8	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Heptachlor	76-44-8	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Aldrin	309-00-2	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Heptachlor epoxide	1024-57-3	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
cis-Chlordane	5103-71-9	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
trans-Chlordane	5103-74-2	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Endosulfan 1	959-98-8	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Dieldrin	60-57-1	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Endrin aldehyde	7421-93-4	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Endrin	72-20-8	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
Endosulfan 2	33213-65-9	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Endosulfan sulfate	1031-07-8	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
4.4`-DDT	50-29-3	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Methoxychlor	72-43-5	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
^ Sum of organochlorine pesticides	----	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
^ Chlordane	57-74-9	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
^ Sum of other organochlorine pesticides	----	0.03	mg/kg		<0.03	<0.03	<0.03	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	----	----
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP18-26A-04	TP18-26A-10	QC01	----	----
				Client sampling date / time	04-May-2018 00:00	03-May-2018 00:00	[04-May-2018]	----	----
Compound	CAS Number	LOR	Unit		EM1807431-006	EM1807431-007	EM1807431-011	--------	--------
					Result	Result	Result	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	----	----
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		<50	<50	<50	----	----
>C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	----	----
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**84.7**	**96.7**	**98.1**	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		**83.9**	**79.2**	**80.6**	----	----
Toluene-D8	2037-26-5	0.1	%		**83.2**	**76.2**	**78.0**	----	----
4-Bromofluorobenzene	460-00-4	0.1	%		**81.0**	**81.7**	**80.8**	----	----
EP075S: Acid Extractable Surrogates									
Phenol-d6	13127-88-3	0.025	%		**84.2**	**90.1**	**87.7**	----	----
2-Chlorophenol-D4	93951-73-6	0.025	%		**70.1**	**73.8**	**72.7**	----	----
2.4.6-Tribromophenol	118-79-6	0.025	%		**83.2**	**85.9**	**87.6**	----	----
EP075T: Base/Neutral Extractable Surrogates									
Nitrobenzene-D5	4165-60-0	0.025	%		**69.9**	**72.8**	**71.6**	----	----
1.2-Dichlorobenzene-D4	2199-69-1	0.025	%		**74.0**	**77.2**	**78.0**	----	----
2-Fluorobiphenyl	321-60-8	0.025	%		**85.6**	**90.7**	**89.0**	----	----
Anthracene-d10	1719-06-8	0.025	%		**93.0**	**99.7**	**95.2**	----	----
4-Terphenyl-d14	1718-51-0	0.025	%		**103**	**111**	**105**	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	RINSATE	RINSATE	TRIPBLANK	----	----
				Client sampling date / time	04-May-2018 00:00	03-May-2018 00:00	[04-May-2018]	----	----
Compound	CAS Number	LOR	Unit		EM1807431-008	EM1807431-009	EM1807431-010	--------	--------
					Result	Result	Result	----	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	<0.001	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	<0.0001	----	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	<0.001	----	----	----
Copper	7440-50-8	0.001	mg/L		<0.001	<0.001	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	<0.001	----	----	----
Molybdenum	7439-98-7	0.001	mg/L		<0.001	<0.001	----	----	----
Nickel	7440-02-0	0.001	mg/L		<0.001	<0.001	----	----	----
Selenium	7782-49-2	0.01	mg/L		<0.01	<0.01	----	----	----
Silver	7440-22-4	0.001	mg/L		<0.001	<0.001	----	----	----
Tin	7440-31-5	0.001	mg/L		<0.001	<0.001	----	----	----
Zinc	7440-66-6	0.005	mg/L		<0.005	<0.005	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		----	----	<20	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		----	----	<20	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		----	----	<20	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		----	----	<1	----	----
Toluene	108-88-3	2	µg/L		----	----	<2	----	----
Ethylbenzene	100-41-4	2	µg/L		----	----	<2	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		----	----	<2	----	----
ortho-Xylene	95-47-6	2	µg/L		----	----	<2	----	----
^ Total Xylenes	----	2	µg/L		----	----	<2	----	----
^ Sum of BTEX	----	1	µg/L		----	----	<1	----	----
Naphthalene	91-20-3	5	µg/L		----	----	<5	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		----	----	**93.7**	----	----
Toluene-D8	2037-26-5	2	%		----	----	**87.9**	----	----
4-Bromofluorobenzene	460-00-4	2	%		----	----	**91.0**	----	----

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	41	122
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	59	119
Toluene-D8	2037-26-5	55	117
4-Bromofluorobenzene	460-00-4	59	123
EP075S: Acid Extractable Surrogates			
Phenol-d6	13127-88-3	28	134
2-Chlorophenol-D4	93951-73-6	27	123
2.4.6-Tribromophenol	118-79-6	25	149
EP075T: Base/Neutral Extractable Surrogates			
Nitrobenzene-D5	4165-60-0	29	125
1.2-Dichlorobenzene-D4	2199-69-1	31	117
2-Fluorobiphenyl	321-60-8	44	136
Anthracene-d10	1719-06-8	53	133
4-Terphenyl-d14	1718-51-0	59	141

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	129
Toluene-D8	2037-26-5	70	125
4-Bromofluorobenzene	460-00-4	71	129

Automated Guideline Comparison Report

EPA Victoria Publication IWRG 621 (2009) - Table 2: Soil Hazard Categorisation

Work Order	: **EM1807431**	Page	: 1 of 14
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: OLFA NAZARIO		
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: olfa.nazario@wsp.com	E-mail	: graeme.jablonskas@alsglobal.com
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9609
Facsimile	: +61 03 9861 1144	Facsimile	: +61-3-8549 9626
Project	: 2135645A	Date Received	: 07-May-2018 12:00
Order number	:	Date Analysed	: 07-May-2018
C-O-C number	: 94258	Date Issued	: 10-May-2018 17:38
No. of samples received	: 11		
No. of samples analysed	: 11	Quote number	: ME-525-16

General Comments

This guideline comparison report **only** provides evaluation of total concentration data against upper limit thresholds for the 'Fill Material', 'C', 'B' Categories in Table 2 of EPA Publication IWRG621.

This guideline comparison report is **NOT** a soil classification report. Classification of soils as Fill Material, Category C, Category B or Category A requires consideration of a number of other factors including preliminary site investigation, sampling density and statistical calculations, as set out in EPA Publication IWRG 702.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

This guideline comparison report only provides evaluation data where chemical parameters specifically listed within the IWRG621 (2009) guideline are analysed by ALS using the **P-16 package in full**.

Red shading is applied where the result is equal to or greater than the guideline upper limit and/or equal to or lower than the guideline lower limit. Red shading is not applied to the 'Summary of Thresholds Reached or Exceeded'.

For the 'Summary of Thresholds Reached or Exceeded' to accurately function, all samples must be analysed and included in the 'Analytical Results' section of the following report. Please verify that all required IDs are listed and analysed.

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Summary of Thresholds Reached or Exceeded

Results for all samples detailed in this report are below the upper threshold limits for Fill Material.

Analytical Results

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B: Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	T1-26A	T2-26A	TP18-26A-02	TP18-26A-09	TP18-26A-01
Client sample ID										
Sampling date/time						04-May-2018 15:00	04-May-2018 15:00	04-May-2018 15:00	04-May-2018 15:00	04-May-2018 15:00
						EM1807431-001	EM1807431-002	EM1807431-003	EM1807431-004	EM1807431-005
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	2	12.5	**4.7**	**4.6**	**5.0**	**4.7**	**4.7**
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	2000	<5	<5	<5	<5	<5
Cadmium	EG005T	1	mg/kg	----	400	<1	<1	<1	<1	<1
Copper	EG005T	5	mg/kg	----	20000	<5	**6**	<5	<5	<5
Lead	EG005T	5	mg/kg	----	6000	**7**	**10**	**7**	**7**	**8**
Molybdenum	EG005T	2	mg/kg	----	4000	<2	<2	<2	<2	<2
Nickel	EG005T	2	mg/kg	----	12000	**4**	**5**	**6**	**4**	**5**
Selenium	EG005T	5	mg/kg	----	200	<5	<5	<5	<5	<5
Silver	EG005T	2	mg/kg	----	720	<2	<2	<2	<2	<2
Zinc	EG005T	5	mg/kg	----	140000	<5	<5	<5	<5	<5
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	300	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	2000	<0.5	<0.5	<0.5	<0.5	<0.5
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	10000	<1	**1**	<1	<1	<1
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	40000	**150**	**140**	**140**	**120**	**130**
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	16	<0.2	<0.2	<0.2	<0.2	<0.2
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	240	<0.2	<0.2	<0.2	<0.2	<0.2
EP074I: Volatile Halogenated Compounds										
Vinyl chloride	EP074-UT	0.02	mg/kg	----	4.8	<0.02	<0.02	<0.02	<0.02	<0.02
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	11	<0.02	<0.02	<0.02	<0.02	<0.02
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	50	<0.01	<0.01	<0.01	<0.01	<0.01
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	320	<0.03	<0.03	<0.03	<0.03	<0.03
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	2200	<1	<1	<1	<1	<1
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	20	<0.5	<0.5	<0.5	<0.5	<0.5

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B: Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	**T1-26A** 04-May-2018 15:00 **EM1807431-001**	**T2-26A** 04-May-2018 15:00 **EM1807431-002**	**TP18-26A-02** 04-May-2018 15:00 **EM1807431-003**	**TP18-26A-09** 04-May-2018 15:00 **EM1807431-004**	**TP18-26A-01** 04-May-2018 15:00 **EM1807431-005**
Client sample ID / *Sampling date/time*										
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	400	<0.5	<0.5	<0.5	<0.5	<0.5
EP075I: Organochlorine Pesticides										
Heptachlor	EP075-EM	0.03	mg/kg	----	4.8	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	4.8	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50	<0.05	<0.05	<0.05	<0.05	<0.05
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	16	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	50	<0.03	<0.03	<0.03	<0.03	<0.03
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	2600	<10	<10	<10	<10	<10
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	40000	<50	<50	<50	<50	<50

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category C: Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	T1-26A	T2-26A	TP18-26A-02	TP18-26A-09	TP18-26A-01
Client sample ID										
Sampling date/time						04-May-2018 15:00	04-May-2018 15:00	04-May-2018 15:00	04-May-2018 15:00	04-May-2018 15:00
						EM1807431-001	EM1807431-002	EM1807431-003	EM1807431-004	EM1807431-005
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	4	9	**4.7**	**4.6**	**5.0**	**4.7**	**4.7**
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	500	<5	<5	<5	<5	<5
Cadmium	EG005T	1	mg/kg	----	100	<1	<1	<1	<1	<1
Copper	EG005T	5	mg/kg	----	5000	<5	**6**	<5	<5	<5
Lead	EG005T	5	mg/kg	----	1500	**7**	**10**	**7**	**7**	**8**
Molybdenum	EG005T	2	mg/kg	----	1000	<2	<2	<2	<2	<2
Nickel	EG005T	2	mg/kg	----	3000	**4**	**5**	**6**	**4**	**5**
Selenium	EG005T	5	mg/kg	----	50	<5	<5	<5	<5	<5
Silver	EG005T	2	mg/kg	----	180	<2	<2	<2	<2	<2
Tin	EG005T	5	mg/kg	----	500	<5	<5	<5	<5	<5
Zinc	EG005T	5	mg/kg	----	35000	<5	<5	<5	<5	<5
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	75	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	500	<0.5	<0.5	<0.5	<0.5	<0.5
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	2500	<1	**1**	<1	<1	<1
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	10000	**150**	**140**	**140**	**120**	**130**
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	4	<0.2	<0.2	<0.2	<0.2	<0.2
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	70	<0.2	<0.2	<0.2	<0.2	<0.2
EP074I: Volatile Halogenated Compounds										
Vinyl chloride	EP074-UT	0.02	mg/kg	----	1.2	<0.02	<0.02	<0.02	<0.02	<0.02
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	2.8	<0.02	<0.02	<0.02	<0.02	<0.02
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	10	<0.01	<0.01	<0.01	<0.01	<0.01
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	10	<0.03	<0.03	<0.03	<0.03	<0.03
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	560	<1	<1	<1	<1	<1
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	5	<0.5	<0.5	<0.5	<0.5	<0.5

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category C: Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	**T1-26A** 04-May-2018 15:00 **EM1807431-001**	**T2-26A** 04-May-2018 15:00 **EM1807431-002**	**TP18-26A-02** 04-May-2018 15:00 **EM1807431-003**	**TP18-26A-09** 04-May-2018 15:00 **EM1807431-004**	**TP18-26A-01** 04-May-2018 15:00 **EM1807431-005**
Client sample ID / *Sampling date/time*										
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	100	<0.5	<0.5	<0.5	<0.5	<0.5
EP075I: Organochlorine Pesticides										
Heptachlor	EP075-EM	0.03	mg/kg	----	1.2	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	1.2	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50	<0.05	<0.05	<0.05	<0.05	<0.05
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	4	<0.03	<0.03	<0.03	<0.03	<0.03
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	10	<0.03	<0.03	<0.03	<0.03	<0.03
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	650	<10	<10	<10	<10	<10
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	10000	<50	<50	<50	<50	<50

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material: Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	*Client sample ID* / *Sampling date/time*	T1-26A 04-May-2018 15:00	T2-26A 04-May-2018 15:00	TP18-26A-02 04-May-2018 15:00	TP18-26A-09 04-May-2018 15:00	TP18-26A-01 04-May-2018 15:00
							EM1807431-001	EM1807431-002	EM1807431-003	EM1807431-004	EM1807431-005
EA001: pH in soil using 0.01M CaCl extract											
pH (CaCl2)	EA001	0.1	pH Unit	4	9		**4.7**	**4.6**	**5.0**	**4.7**	**4.7**
EG005T: Total Metals by ICP-AES											
Arsenic	EG005T	5	mg/kg	----	20		<5	<5	<5	<5	<5
Cadmium	EG005T	1	mg/kg	----	3		<1	<1	<1	<1	<1
Copper	EG005T	5	mg/kg	----	100		<5	**6**	<5	<5	<5
Lead	EG005T	5	mg/kg	----	300		**7**	**10**	**7**	**7**	**8**
Molybdenum	EG005T	2	mg/kg	----	40		<2	<2	<2	<2	<2
Nickel	EG005T	2	mg/kg	----	60		**4**	**5**	**6**	**4**	**5**
Selenium	EG005T	5	mg/kg	----	10		<5	<5	<5	<5	<5
Silver	EG005T	2	mg/kg	----	10		<2	<2	<2	<2	<2
Tin	EG005T	5	mg/kg	----	50		<5	<5	<5	<5	<5
Zinc	EG005T	5	mg/kg	----	200		<5	<5	<5	<5	<5
EG035T: Total Recoverable Mercury by FIMS											
Mercury	EG035T	0.1	mg/kg	----	1		<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)											
Hexavalent Chromium	EG048G	0.5	mg/kg	----	1		<0.5	<0.5	<0.5	<0.5	<0.5
EK026SF: Total CN by Segmented Flow Analyser											
Total Cyanide	EK026SF	1	mg/kg	----	50		<1	**1**	<1	<1	<1
EK040T: Fluoride Total											
Fluoride	EK040T	40	mg/kg	----	450		**150**	**140**	**140**	**120**	**130**
EP066: Polychlorinated Biphenyls (PCB)											
Total Polychlorinated biphenyls	EP066-EM	0.1	mg/kg	----	2		<0.1	<0.1	<0.1	<0.1	<0.1
EP074A: Monocyclic Aromatic Hydrocarbons											
Benzene	EP074-UT	0.2	mg/kg	----	1		<0.2	<0.2	<0.2	<0.2	<0.2
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	7		<0.2	<0.2	<0.2	<0.2	<0.2
EP074I: Volatile Halogenated Compounds											
Sum of volatile chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	1		<0.01	<0.01	<0.01	<0.01	<0.01
EP075A: Phenolic Compounds (Halogenated)											
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	1		<0.03	<0.03	<0.03	<0.03	<0.03
EP075A: Phenolic Compounds (Non-halogenated)											
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	60		<1	<1	<1	<1	<1
EP075B: Polynuclear Aromatic Hydrocarbons											
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	1		<0.5	<0.5	<0.5	<0.5	<0.5

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material: Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	**T1-26A** 04-May-2018 15:00 **EM1807431-001**	**T2-26A** 04-May-2018 15:00 **EM1807431-002**	**TP18-26A-02** 04-May-2018 15:00 **EM1807431-003**	**TP18-26A-09** 04-May-2018 15:00 **EM1807431-004**	**TP18-26A-01** 04-May-2018 15:00 **EM1807431-005**
Client sample ID / *Sampling date/time*										
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	20	<0.5	<0.5	<0.5	<0.5	<0.5
EP075I: Organochlorine Pesticides										
Sum of organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	1	<0.03	<0.03	<0.03	<0.03	<0.03
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	100	<10	<10	<10	<10	<10
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	1000	<50	<50	<50	<50	<50

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B: Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	*Client sample ID* **TP18-26A-04**	**TP18-26A-10**	**QC01**	**----**	**----**
						Sampling date/time 04-May-2018 15:00	03-May-2018 15:00	04-May-2018	----	----
						EM1807431-006	**EM1807431-007**	**EM1807431-011**	--------	--------
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	2	12.5	**5.7**	**6.6**	**4.9**	----	----
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	2000	<5	<5	<5	----	----
Cadmium	EG005T	1	mg/kg	----	400	<1	<1	<1	----	----
Copper	EG005T	5	mg/kg	----	20000	<5	<5	<5	----	----
Lead	EG005T	5	mg/kg	----	6000	**5**	<5	**6**	----	----
Molybdenum	EG005T	2	mg/kg	----	4000	<2	<2	<2	----	----
Nickel	EG005T	2	mg/kg	----	12000	**6**	**3**	**5**	----	----
Selenium	EG005T	5	mg/kg	----	200	<5	<5	<5	----	----
Silver	EG005T	2	mg/kg	----	720	<2	<2	<2	----	----
Zinc	EG005T	5	mg/kg	----	140000	**6**	<5	<5	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	300	<0.1	<0.1	<0.1	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	2000	<0.5	<0.5	<0.5	----	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	10000	<1	<1	<1	----	----
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	40000	**120**	<40	**130**	----	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	16	<0.2	<0.2	<0.2	----	----
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	240	<0.2	<0.2	<0.2	----	----
EP074I: Volatile Halogenated Compounds										
Vinyl chloride	EP074-UT	0.02	mg/kg	----	4.8	<0.02	<0.02	<0.02	----	----
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	11	<0.02	<0.02	<0.02	----	----
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	50	<0.01	<0.01	<0.01	----	----
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	320	<0.03	<0.03	<0.03	----	----
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	2200	<1	<1	<1	----	----
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	20	<0.5	<0.5	<0.5	----	----
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	400	<0.5	<0.5	<0.5	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B: Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	**TP18-26A-04** 04-May-2018 15:00 **EM1807431-006**	**TP18-26A-10** 03-May-2018 15:00 **EM1807431-007**	**QC01** 04-May-2018 **EM1807431-011**	**----** ---- --------	**----** ---- --------
EP075I: Organochlorine Pesticides										
Heptachlor	EP075-EM	0.03	mg/kg	----	4.8	<0.03	<0.03	<0.03	**----**	**----**
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	4.8	<0.03	<0.03	<0.03	**----**	**----**
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50	<0.05	<0.05	<0.05	**----**	**----**
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	16	<0.03	<0.03	<0.03	**----**	**----**
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	50	<0.03	<0.03	<0.03	**----**	**----**
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	2600	<10	<10	<10	**----**	**----**
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	40000	<50	<50	<50	**----**	**----**

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category C: Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	*Client sample ID* **TP18-26A-04**	**TP18-26A-10**	**QC01**	**----**	**----**
						Sampling date/time 04-May-2018 15:00	03-May-2018 15:00	04-May-2018	----	----
						EM1807431-006	**EM1807431-007**	**EM1807431-011**	--------	--------
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001	0.1	pH Unit	4	9	**5.7**	**6.6**	**4.9**	----	----
EG005T: Total Metals by ICP-AES										
Arsenic	EG005T	5	mg/kg	----	500	<5	<5	<5	----	----
Cadmium	EG005T	1	mg/kg	----	100	<1	<1	<1	----	----
Copper	EG005T	5	mg/kg	----	5000	<5	<5	<5	----	----
Lead	EG005T	5	mg/kg	----	1500	**5**	<5	**6**	----	----
Molybdenum	EG005T	2	mg/kg	----	1000	<2	<2	<2	----	----
Nickel	EG005T	2	mg/kg	----	3000	**6**	**3**	**5**	----	----
Selenium	EG005T	5	mg/kg	----	50	<5	<5	<5	----	----
Silver	EG005T	2	mg/kg	----	180	<2	<2	<2	----	----
Tin	EG005T	5	mg/kg	----	500	<5	<5	<5	----	----
Zinc	EG005T	5	mg/kg	----	35000	**6**	<5	<5	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EG035T	0.1	mg/kg	----	75	<0.1	<0.1	<0.1	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048G	0.5	mg/kg	----	500	<0.5	<0.5	<0.5	----	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	EK026SF	1	mg/kg	----	2500	<1	<1	<1	----	----
EK040T: Fluoride Total										
Fluoride	EK040T	40	mg/kg	----	10000	**120**	<40	**130**	----	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	EP074-UT	0.2	mg/kg	----	4	<0.2	<0.2	<0.2	----	----
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	70	<0.2	<0.2	<0.2	----	----
EP074I: Volatile Halogenated Compounds										
Vinyl chloride	EP074-UT	0.02	mg/kg	----	1.2	<0.02	<0.02	<0.02	----	----
Hexachlorobutadiene	EP074-UT	0.02	mg/kg	----	2.8	<0.02	<0.02	<0.02	----	----
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	10	<0.01	<0.01	<0.01	----	----
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	10	<0.03	<0.03	<0.03	----	----
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	560	<1	<1	<1	----	----
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	EP075-EM	0.5	mg/kg	----	5	<0.5	<0.5	<0.5	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category C: Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	*Client sample ID* **TP18-26A-04**	**TP18-26A-10**	**QC01**	**----**	**----**
						Sampling date/time 04-May-2018 15:00	03-May-2018 15:00	04-May-2018	----	----
						EM1807431-006	**EM1807431-007**	**EM1807431-011**	--------	--------
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	100	<0.5	<0.5	<0.5	**----**	**----**
EP075I: Organochlorine Pesticides										
Heptachlor	EP075-EM	0.03	mg/kg	----	1.2	<0.03	<0.03	<0.03	**----**	**----**
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	1.2	<0.03	<0.03	<0.03	**----**	**----**
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50	<0.05	<0.05	<0.05	**----**	**----**
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	4	<0.03	<0.03	<0.03	**----**	**----**
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	10	<0.03	<0.03	<0.03	**----**	**----**
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	650	<10	<10	<10	**----**	**----**
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	10000	<50	<50	<50	**----**	**----**

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material: Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

				Client sample ID	Guideline	Guideline	**TP18-26A-04**	**TP18-26A-10**	**QC01**	**----**	**----**
				Sampling date/time			04-May-2018 15:00	03-May-2018 15:00	04-May-2018	----	----
Compound	*Method*	*LOR*	*Unit*		Lower Limit	Upper Limit	**EM1807431-006**	**EM1807431-007**	**EM1807431-011**	--------	--------
EA001: pH in soil using 0.01M CaCl extract											
pH (CaCl2)	EA001	0.1	pH Unit		4	9	**5.7**	**6.6**	**4.9**	**----**	**----**
EG005T: Total Metals by ICP-AES											
Arsenic	EG005T	5	mg/kg		----	20	<5	<5	<5	**----**	**----**
Cadmium	EG005T	1	mg/kg		----	3	<1	<1	<1	**----**	**----**
Copper	EG005T	5	mg/kg		----	100	<5	<5	<5	**----**	**----**
Lead	EG005T	5	mg/kg		----	300	**5**	<5	**6**	**----**	**----**
Molybdenum	EG005T	2	mg/kg		----	40	<2	<2	<2	**----**	**----**
Nickel	EG005T	2	mg/kg		----	60	**6**	**3**	**5**	**----**	**----**
Selenium	EG005T	5	mg/kg		----	10	<5	<5	<5	**----**	**----**
Silver	EG005T	2	mg/kg		----	10	<2	<2	<2	**----**	**----**
Tin	EG005T	5	mg/kg		----	50	<5	<5	<5	**----**	**----**
Zinc	EG005T	5	mg/kg		----	200	**6**	<5	<5	**----**	**----**
EG035T: Total Recoverable Mercury by FIMS											
Mercury	EG035T	0.1	mg/kg		----	1	<0.1	<0.1	<0.1	**----**	**----**
EG048: Hexavalent Chromium (Alkaline Digest)											
Hexavalent Chromium	EG048G	0.5	mg/kg		----	1	<0.5	<0.5	<0.5	**----**	**----**
EK026SF: Total CN by Segmented Flow Analyser											
Total Cyanide	EK026SF	1	mg/kg		----	50	<1	<1	<1	**----**	**----**
EK040T: Fluoride Total											
Fluoride	EK040T	40	mg/kg		----	450	**120**	<40	**130**	**----**	**----**
EP066: Polychlorinated Biphenyls (PCB)											
Total Polychlorinated biphenyls	EP066-EM	0.1	mg/kg		----	2	<0.1	<0.1	<0.1	**----**	**----**
EP074A: Monocyclic Aromatic Hydrocarbons											
Benzene	EP074-UT	0.2	mg/kg		----	1	<0.2	<0.2	<0.2	**----**	**----**
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg		----	7	<0.2	<0.2	<0.2	**----**	**----**
EP074I: Volatile Halogenated Compounds											
Sum of volatile chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg		----	1	<0.01	<0.01	<0.01	**----**	**----**
EP075A: Phenolic Compounds (Halogenated)											
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg		----	1	<0.03	<0.03	<0.03	**----**	**----**
EP075A: Phenolic Compounds (Non-halogenated)											
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg		----	60	<1	<1	<1	**----**	**----**
EP075B: Polynuclear Aromatic Hydrocarbons											
Benzo(a)pyrene	EP075-EM	0.5	mg/kg		----	1	<0.5	<0.5	<0.5	**----**	**----**

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material: Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	**TP18-26A-04** 04-May-2018 15:00 **EM1807431-006**	**TP18-26A-10** 03-May-2018 15:00 **EM1807431-007**	**QC01** 04-May-2018 **EM1807431-011**	**----** ---- --------	**----** ---- --------
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	20	<0.5	<0.5	<0.5	**----**	**----**
EP075I: Organochlorine Pesticides										
Sum of organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	1	<0.03	<0.03	<0.03	**----**	**----**
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	100	<10	<10	<10	**----**	**----**
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	1000	<50	<50	<50	**----**	**----**

Note: Red shading is applied where the result is equal to or greater than the guideline upper limit and/or equal to or lower than the guideline lower limit.

QUALITY CONTROL REPORT

Work Order	: **EM1807431**	Page	: 1 of 15
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: OLFA NAZARIO	Contact	: Graeme Jablonskas
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9609
Project	: 2135645A	Date Samples Received	: 07-May-2018
Order number	:	Date Analysis Commenced	: 07-May-2018
C-O-C number	: 94258	Issue Date	: 10-May-2018
Sampler	: ----		
Site	: Thames Promenade		
Quote number	: ME-525-16		
No. of samples received	: 11		
No. of samples analysed	: 11		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA001: pH in soil using 0.01M CaCl extract (QC Lot: 1623675)									
EM1807390-001	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	8.3	8.4	1.20	0% - 20%
EM1807431-004	TP18-26A-09	EA001: pH (CaCl2)	----	0.1	pH Unit	4.7	4.7	0.00	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1622938)									
EM1807424-001	Anonymous	EA055: Moisture Content	----	0.1	%	19.9	19.8	0.00	0% - 50%
EM1807431-006	TP18-26A-04	EA055: Moisture Content	----	0.1	%	16.9	16.6	2.31	0% - 50%
EG005T: Total Metals by ICP-AES (QC Lot: 1623566)									
EM1807390-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	126	150	16.8	0% - 20%
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	28	32	14.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Tin	7440-31-5	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	43	48	10.7	No Limit
EM1807422-002	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	6	6	0.00	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG005T: Total Metals by ICP-AES (QC Lot: 1623566) - continued									
EM1807422-002	Anonymous	EG005T: Tin	7440-31-5	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1623565)									
EM1807390-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EM1807422-002	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EG048: Hexavalent Chromium (Alkaline Digest) (QC Lot: 1623694)									
EM1807431-001	T1-26A	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EK026SF: Total CN by Segmented Flow Analyser (QC Lot: 1624489)									
EM1807382-001	Anonymous	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.00	No Limit
EM1807394-016	Anonymous	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	1	0.00	No Limit
EK026SF: Total CN by Segmented Flow Analyser (QC Lot: 1624491)									
EM1807431-006	TP18-26A-04	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.00	No Limit
EK040T: Fluoride Total (QC Lot: 1622764)									
EM1807407-005	Anonymous	EK040T: Fluoride	16984-48-8	40	mg/kg	240	240	0.00	No Limit
EM1807431-006	TP18-26A-04	EK040T: Fluoride	16984-48-8	40	mg/kg	120	130	0.00	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 1623544)									
EM1807394-014	Anonymous	EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EM1807431-003	TP18-26A-02	EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 1622735)									
EM1807431-001	T1-26A	EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074H: Naphthalene (QC Lot: 1622735)									
EM1807431-001	T1-26A	EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EP074I: Volatile Halogenated Compounds (QC Lot: 1622735)									
EM1807431-001	T1-26A	EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074I: Volatile Halogenated Compounds (QC Lot: 1622735) - continued									
EM1807431-001	T1-26A	EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	<0.04	0.00	No Limit
		EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	<0.4	0.00	No Limit
EP075A: Phenolic Compounds (Halogenated) (QC Lot: 1623542)									
EM1807394-014	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg	<0.14	<0.14	0.00	No Limit
		EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EM1807431-003	TP18-26A-02	EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP075A: Phenolic Compounds (Non-halogenated) (QC Lot: 1623542)									
EM1807394-014	Anonymous	EP075-EM: Phenol	108-95-2	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<6	<6	0.00	No Limit
		EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075A: Phenolic Compounds (Non-halogenated) (QC Lot: 1623542) - continued									
EM1807394-014	Anonymous	EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	0.00	No Limit
EM1807431-003	TP18-26A-02	EP075-EM: Phenol	108-95-2	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	0.00	No Limit
EP075B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1623542)									
EM1807394-014	Anonymous	EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	1.4	1.3	8.19	No Limit
		EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	6.8	6.9	1.57	0% - 50%
		EP075-EM: Anthracene	120-12-7	0.5	mg/kg	3.2	2.8	14.2	No Limit
		EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	14.0	13.0	7.24	0% - 20%
		EP075-EM: Pyrene	129-00-0	0.5	mg/kg	15.2	13.0	15.9	0% - 20%
		EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	7.6	6.2	20.5	0% - 50%
		EP075-EM: Chrysene	218-01-9	0.5	mg/kg	6.6	4.9	29.0	0% - 50%
		EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	11.3	9.4	18.0	0% - 20%
		EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	7.4	5.8	25.4	0% - 50%
		EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	3.6	2.7	26.1	No Limit
		EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	1.1	0.8	26.3	No Limit
		EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	4.5	3.4	29.1	No Limit
EM1807431-003	TP18-26A-02	EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1623542) - continued									
EM1807431-003	TP18-26A-02	EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP075I: Organochlorine Pesticides (QC Lot: 1623542)									
EM1807394-014	Anonymous	EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.07	<0.07	0.00	No Limit
EM1807431-003	TP18-26A-02	EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	<0.03	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075I: Organochlorine Pesticides (QC Lot: 1623542) - continued									
EM1807431-003	TP18-26A-02	EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	<0.03	0.00	No Limit
		EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1622735)									
EM1807431-001	T1-26A	EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1623543)									
EM1807394-014	Anonymous	EP071-EM: C15 - C28 Fraction	----	100	mg/kg	350	210	50.8	No Limit
		EP071-EM: C29 - C36 Fraction	----	100	mg/kg	220	140	45.3	No Limit
		EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EM1807431-003	TP18-26A-02	EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1622735)									
EM1807431-001	T1-26A	EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
		EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1623543)									
EM1807394-014	Anonymous	EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	510	310	49.2	No Limit
		EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	130	<100	26.6	No Limit
		EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EM1807431-003	TP18-26A-02	EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG020T: Total Metals by ICP-MS (QC Lot: 1623475)									
EM1807321-001	Anonymous	EG020B-T: Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	0.00	No Limit
EG020T: Total Metals by ICP-MS (QC Lot: 1623477)									
EM1807355-002	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.017	0.018	0.00	0% - 50%
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.002	0.002	0.00	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	0.002	0.002	0.00	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.003	0.003	0.00	No Limit
		EG020A-T: Tin	7440-31-5	0.001	mg/L	<0.001	0.001	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG020T: Total Metals by ICP-MS (QC Lot: 1623477) - continued									
EM1807355-002	Anonymous	EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.042	0.039	6.38	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EM1807396-032	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.004	0.004	0.00	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Tin	7440-31-5	0.001	mg/L	0.002	0.002	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.00	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1626832)									
EM1807356-007	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	0.0009	<0.0001	162	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1623289)									
EM1804804-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EM1807448-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1623289)									
EM1804804-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EM1807448-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 1623289)									
EM1804804-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
EM1807448-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 1623566)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	85.0	79	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	102	85	109
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	84.7	78	108
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	82.5	78	106
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	7.9 mg/kg	103	86	112
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	84.9	82	111
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	99.7	93	109
EG005T: Silver	7440-22-4	2	mg/kg	<2	2.1 mg/kg	91.2	80	108
EG005T: Tin	7440-31-5	5	mg/kg	<5	5.2 mg/kg	104	88	116
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	88.4	82	111
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1623565)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	77.7	77	104
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 1623694)								
EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	40 mg/kg	82.8	75	112
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 1624489)								
EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	20 mg/kg	96.0	80	110
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 1624491)								
EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	20 mg/kg	95.6	80	110
EK040T: Fluoride Total (QCLot: 1622764)								
EK040T: Fluoride	16984-48-8	40	mg/kg	<40	400 mg/kg	91.2	77	106
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 1623544)								
EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	81.8	63	118
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 1622735)								
EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	2.1 mg/kg	88.7	74	118
EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	2.1 mg/kg	86.7	70	124
EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2.1 mg/kg	87.4	71	122
EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4.2 mg/kg	84.8	70	118
EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	2.1 mg/kg	88.0	76	116
EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2.1 mg/kg	85.2	74	114
EP074H: Naphthalene (QCLot: 1622735)								
EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	0.6 mg/kg	91.3	77	111
EP074I: Volatile Halogenated Compounds (QCLot: 1622735)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP074I: Volatile Halogenated Compounds (QCLot: 1622735) - continued								
EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	0.1 mg/kg	91.7	49	133
EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	0.1 mg/kg	84.7	62	127
EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	2.1 mg/kg	102	68	107
EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	0.1 mg/kg	88.8	68	124
EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	0.1 mg/kg	85.4	74	118
EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	0.1 mg/kg	87.0	72	118
EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	0.1 mg/kg	87.7	67	119
EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	0.1 mg/kg	86.4	65	119
EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	0.1 mg/kg	93.7	73	120
EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	0.1 mg/kg	85.9	72	124
EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	0.1 mg/kg	90.3	74	122
EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	0.1 mg/kg	85.3	64	124
EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	0.1 mg/kg	86.3	70	119
EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	0.1 mg/kg	91.1	71	125
EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	0.1 mg/kg	80.6	61	125
EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	0.1 mg/kg	86.5	73	117
EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	0.1 mg/kg	85.9	69	118
EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	0.1 mg/kg	87.9	75	114
EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	0.1 mg/kg	83.3	59	124
EP075A: Phenolic Compounds (Halogenated) (QCLot: 1623542)								
EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	2 mg/kg	87.3	54	122
EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	2 mg/kg	75.8	58	131
EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	2 mg/kg	91.4	55	118
EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	2 mg/kg	81.5	62	129
EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	2 mg/kg	90.1	53	121
EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	2 mg/kg	79.2	60	126
EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	2 mg/kg	87.1	56	118
EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/5 8-90-2	0.05	mg/kg	<0.05	4 mg/kg	92.7	54	125
EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	4 mg/kg	75.9	52	124
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 1623542)								
EP075-EM: Phenol	108-95-2	1	mg/kg	<1	2 mg/kg	79.4	56	120
EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	2 mg/kg	88.2	52	131
EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	4 mg/kg	80.5	59	132
EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	2 mg/kg	75.0	53	130
EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	2 mg/kg	87.9	43	120
EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	12 mg/kg	99.9	23	125
EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	12 mg/kg	96.8	59	133
EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	12 mg/kg	81.6	47	125

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 1623542) - continued								
EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	12 mg/kg	90.4	51	123
EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	10 mg/kg	73.3	12	132
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 1623542)								
EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	2 mg/kg	93.2	58	121
EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	2 mg/kg	95.4	55	126
EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	2 mg/kg	94.2	59	120
EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	2 mg/kg	93.9	64	122
EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	2 mg/kg	95.5	70	128
EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	2 mg/kg	64.2	55	127
EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	2 mg/kg	96.2	68	134
EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	2 mg/kg	95.5	69	131
EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	2 mg/kg	94.2	65	133
EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	2 mg/kg	99.7	68	134
EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	4 mg/kg	99.5	64	134
EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	2 mg/kg	92.9	62	132
EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	2 mg/kg	99.9	55	137
EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	2 mg/kg	100	54	136
EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	2 mg/kg	98.9	55	137
EP075I: Organochlorine Pesticides (QCLot: 1623542)								
EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	2 mg/kg	92.5	68	122
EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	2 mg/kg	91.5	65	122
EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	2 mg/kg	93.8	62	133
EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	2 mg/kg	92.6	68	126
EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	2 mg/kg	96.3	68	133
EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	2 mg/kg	93.3	62	128
EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	2 mg/kg	93.7	66	128
EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	2 mg/kg	95.1	62	133
EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	2 mg/kg	97.8	62	132
EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	2 mg/kg	97.9	61	133
EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	2 mg/kg	98.2	63	136
EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	2 mg/kg	94.4	57	131
EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	2 mg/kg	97.2	65	137
EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	2 mg/kg	90.0	24	174
EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	2 mg/kg	87.5	55	148
EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	2 mg/kg	98.5	66	135
EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	2 mg/kg	97.2	66	134
EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	2 mg/kg	98.7	63	139
EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	2 mg/kg	95.7	59	134

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP075I: Organochlorine Pesticides (QCLot: 1623542) - continued								
EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	2 mg/kg	96.0	61	136
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1622735)								
EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	39.6 mg/kg	93.8	69	114
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1623543)								
EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	806 mg/kg	83.6	73	134
EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	3006 mg/kg	94.0	81	112
EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	1584 mg/kg	90.2	77	116
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1622735)								
EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	48.9 mg/kg	94.6	69	112
EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1623543)								
EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	1160 mg/kg	86.1	77	127
EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	3978 mg/kg	95.1	79	113
EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	313 mg/kg	79.2	68	124

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 1623475)								
EG020B-T: Silver	7440-22-4	0.001	mg/L	<0.001	0.02 mg/L	104	78	129
EG020T: Total Metals by ICP-MS (QCLot: 1623477)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	102	90	110
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	94.6	86	111
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	93.5	87	109
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	96.1	87	108
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	97.6	88	109
EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	104	88	114
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	100	87	111
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	96.1	85	113
EG020A-T: Tin	7440-31-5	0.001	mg/L	<0.001	0.1 mg/L	102	88	113
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	103	87	113
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1626832)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	100	81	114
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1623289)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	360 µg/L	92.5	68	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1623289)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	90.2	66	123

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080: BTEXN (QCLot: 1623289)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	93.7	74	123
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	96.6	77	128
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	95.3	73	126
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	97.3	72	131
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	96.3	74	131
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	105	74	124

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG005T: Total Metals by ICP-AES (QCLot: 1623566)							
EM1807390-002	Anonymous	EG005T: Nickel	7440-02-0	50 mg/kg	118	78	120
EM1807390-002	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	96.8	78	124
		EG005T: Cadmium	7440-43-9	50 mg/kg	97.3	84	116
		EG005T: Copper	7440-50-8	50 mg/kg	115	82	124
		EG005T: Lead	7439-92-1	50 mg/kg	98.9	76	124
		EG005T: Molybdenum	7439-98-7	50 mg/kg	97.2	79	117
		EG005T: Selenium	7782-49-2	50 mg/kg	85.6	71	125
		EG005T: Zinc	7440-66-6	50 mg/kg	105	74	128
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1623565)							
EM1807390-002	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	90.4	76	116
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 1623694)							
EM1807431-002	T2-26A	EG048G: Hexavalent Chromium	18540-29-9	40 mg/kg	71.6	58	114
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 1624489)							
EM1807390-001	Anonymous	EK026SF: Total Cyanide	57-12-5	20 mg/kg	96.0	77	113
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 1624491)							
EM1807431-007	TP18-26A-10	EK026SF: Total Cyanide	57-12-5	20 mg/kg	94.4	77	113
EK040T: Fluoride Total (QCLot: 1622764)							
EM1807407-008	Anonymous	EK040T: Fluoride	16984-48-8	400 mg/kg	103	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 1623544)							
EM1807394-016	Anonymous	EP066-EM: Total Polychlorinated biphenyls	---	1 mg/kg	64.5	36	152

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 1622735)							
EM1807431-002	T2-26A	EP074-UT: Benzene	71-43-2	2 mg/kg	83.2	50	138
		EP074-UT: Toluene	108-88-3	2 mg/kg	81.3	56	134
EP074I: Volatile Halogenated Compounds (QCLot: 1622735)							
EM1807431-002	T2-26A	EP074-UT: 1.1-Dichloroethene	75-35-4	2 mg/kg	87.1	26	141
		EP074-UT: Trichloroethene	79-01-6	2 mg/kg	78.0	50	134
		EP074-UT: Chlorobenzene	108-90-7	2 mg/kg	81.0	28	134
EP075A: Phenolic Compounds (Halogenated) (QCLot: 1623542)							
EM1807394-015	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	1 mg/kg	79.7	34	118
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	1 mg/kg	81.8	41	139
		EP075-EM: Pentachlorophenol	87-86-5	1 mg/kg	29.2	10	144
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 1623542)							
EM1807394-015	Anonymous	EP075-EM: Phenol	108-95-2	1 mg/kg	73.5	32	134
		EP075-EM: 2-Nitrophenol	88-75-5	1 mg/kg	79.4	13	129
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 1623542)							
EM1807394-015	Anonymous	EP075-EM: Acenaphthene	83-32-9	1 mg/kg	95.0	46	138
		EP075-EM: Pyrene	129-00-0	1 mg/kg	# Not Determined	27	169
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1622735)							
EM1807431-002	T2-26A	EP074-UT: C6 - C9 Fraction	---	28 mg/kg	75.3	43	111
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1623543)							
EM1807394-017	Anonymous	EP071-EM: C10 - C14 Fraction	---	806 mg/kg	81.1	53	123
		EP071-EM: C15 - C28 Fraction	---	3006 mg/kg	91.0	70	124
		EP071-EM: C29 - C36 Fraction	---	1584 mg/kg	88.6	64	118
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1622735)							
EM1807431-002	T2-26A	EP074-UT: C6 - C10 Fraction	C6_C10	33 mg/kg	75.3	42	106
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1623543)							
EM1807394-017	Anonymous	EP071-EM: >C10 - C16 Fraction	---	1160 mg/kg	83.1	65	123
		EP071-EM: >C16 - C34 Fraction	---	3978 mg/kg	92.4	67	121
		EP071-EM: >C34 - C40 Fraction	---	313 mg/kg	84.0	44	126

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 1623477)							
EM1807355-002	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	101	82	118
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	86.7	75	129
		EG020A-T: Chromium	7440-47-3	1 mg/L	88.6	80	118

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EG020T: Total Metals by ICP-MS (QCLot: 1623477) - continued							
EM1807355-002	Anonymous	EG020A-T: Copper	7440-50-8	1 mg/L	88.1	81	115
		EG020A-T: Lead	7439-92-1	1 mg/L	87.8	83	121
		EG020A-T: Nickel	7440-02-0	1 mg/L	92.7	80	118
		EG020A-T: Zinc	7440-66-6	1 mg/L	88.3	74	116
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1626832)							
EM1807396-007	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	79.9	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1623289)							
EM1804804-002	Anonymous	EP080: C6 - C9 Fraction	---	280 µg/L	67.3	43	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1623289)							
EM1804804-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	330 µg/L	64.2	44	122
EP080: BTEXN (QCLot: 1623289)							
EM1804804-002	Anonymous	EP080: Benzene	71-43-2	20 µg/L	89.9	68	130
		EP080: Toluene	108-88-3	20 µg/L	92.4	72	132

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM1807431**	Page	: 1 of 11
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: OLFA NAZARIO	Telephone	: +61-3-8549 9609
Project	: 2135645A	Date Samples Received	: 07-May-2018
Site	: Thames Promenade	Issue Date	: 10-May-2018
Sampler	: ----	No. of samples received	: 11
Order number	:	No. of samples analysed	: 11

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EP075B: Polynuclear Aromatic Hydrocarbons	EM1807394--015	Anonymous	**Pyrene**	129-00-0	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA001: pH in soil using 0.01M CaCl extract							
Soil Glass Jar - Unpreserved (EA001)							
TP18-26A-10	**03-May-2018**	**08-May-2018**	10-May-2018	✓	**08-May-2018**	08-May-2018	✓
Soil Glass Jar - Unpreserved (EA001)							
T1-26A, T2-26A, TP18-26A-02, TP18-26A-09, TP18-26A-01, TP18-26A-04, QC01	**04-May-2018**	**08-May-2018**	11-May-2018	✓	**08-May-2018**	08-May-2018	✓
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
TP18-26A-10	**03-May-2018**	**----**	----	----	**07-May-2018**	17-May-2018	✓
Soil Glass Jar - Unpreserved (EA055)							
T1-26A, T2-26A, TP18-26A-02, TP18-26A-09, TP18-26A-01, TP18-26A-04, QC01	**04-May-2018**	**----**	----	----	**07-May-2018**	18-May-2018	✓
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
TP18-26A-10	**03-May-2018**	**08-May-2018**	30-Oct-2018	✓	**08-May-2018**	30-Oct-2018	✓
Soil Glass Jar - Unpreserved (EG005T)							
T1-26A, T2-26A, TP18-26A-02, TP18-26A-09, TP18-26A-01, TP18-26A-04, QC01	**04-May-2018**	**08-May-2018**	31-Oct-2018	✓	**08-May-2018**	31-Oct-2018	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
TP18-26A-10	**03-May-2018**	**08-May-2018**	31-May-2018	✓	**08-May-2018**	31-May-2018	✓
Soil Glass Jar - Unpreserved (EG035T)							
T1-26A, T2-26A, TP18-26A-02, TP18-26A-09, TP18-26A-01, TP18-26A-04, QC01	**04-May-2018**	**08-May-2018**	01-Jun-2018	✓	**08-May-2018**	01-Jun-2018	✓
EG048: Hexavalent Chromium (Alkaline Digest)							
Soil Glass Jar - Unpreserved (EG048G)							
TP18-26A-10	**03-May-2018**	**08-May-2018**	31-May-2018	✓	**08-May-2018**	15-May-2018	✓
Soil Glass Jar - Unpreserved (EG048G)							
T1-26A, T2-26A, TP18-26A-02, TP18-26A-09, TP18-26A-01, TP18-26A-04, QC01	**04-May-2018**	**08-May-2018**	01-Jun-2018	✓	**08-May-2018**	15-May-2018	✓
EK026SF: Total CN by Segmented Flow Analyser							
Soil Glass Jar - Unpreserved (EK026SF)							
TP18-26A-10	**03-May-2018**	**08-May-2018**	17-May-2018	✓	**09-May-2018**	22-May-2018	✓
Soil Glass Jar - Unpreserved (EK026SF)							
T1-26A, T2-26A, TP18-26A-02, TP18-26A-09, TP18-26A-01, TP18-26A-04, QC01	**04-May-2018**	**08-May-2018**	18-May-2018	✓	**09-May-2018**	22-May-2018	✓
EK040T: Fluoride Total							
Soil Glass Jar - Unpreserved (EK040T)							
TP18-26A-10	**03-May-2018**	**07-May-2018**	31-May-2018	✓	**09-May-2018**	31-May-2018	✓
Soil Glass Jar - Unpreserved (EK040T)							
T1-26A, T2-26A, TP18-26A-02, TP18-26A-09, TP18-26A-01, TP18-26A-04, QC01	**04-May-2018**	**07-May-2018**	01-Jun-2018	✓	**09-May-2018**	01-Jun-2018	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066-EM)							
TP18-26A-10	**03-May-2018**	**08-May-2018**	17-May-2018	✓	**08-May-2018**	17-Jun-2018	✓
Soil Glass Jar - Unpreserved (EP066-EM)							
T1-26A, T2-26A, TP18-26A-02, TP18-26A-09, TP18-26A-01, TP18-26A-04, QC01	**04-May-2018**	**08-May-2018**	18-May-2018	✓	**08-May-2018**	17-Jun-2018	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074A: Monocyclic Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074-UT)							
TP18-26A-10	**03-May-2018**	**07-May-2018**	10-May-2018	✓	**08-May-2018**	10-May-2018	✓
Soil Glass Jar - Unpreserved (EP074-UT)							
T1-26A, T2-26A, TP18-26A-02, TP18-26A-09, TP18-26A-01, TP18-26A-04, QC01	**04-May-2018**	**07-May-2018**	11-May-2018	✓	**08-May-2018**	11-May-2018	✓
EP074H: Naphthalene							
Soil Glass Jar - Unpreserved (EP074-UT)							
TP18-26A-10	**03-May-2018**	**07-May-2018**	10-May-2018	✓	**08-May-2018**	10-May-2018	✓
Soil Glass Jar - Unpreserved (EP074-UT)							
T1-26A, T2-26A, TP18-26A-02, TP18-26A-09, TP18-26A-01, TP18-26A-04, QC01	**04-May-2018**	**07-May-2018**	11-May-2018	✓	**08-May-2018**	11-May-2018	✓
EP074I: Volatile Halogenated Compounds							
Soil Glass Jar - Unpreserved (EP074-UT)							
TP18-26A-10	**03-May-2018**	**07-May-2018**	10-May-2018	✓	**08-May-2018**	10-May-2018	✓
Soil Glass Jar - Unpreserved (EP074-UT)							
T1-26A, T2-26A, TP18-26A-02, TP18-26A-09, TP18-26A-01, TP18-26A-04, QC01	**04-May-2018**	**07-May-2018**	11-May-2018	✓	**08-May-2018**	11-May-2018	✓
EP075A: Phenolic Compounds (Halogenated)							
Soil Glass Jar - Unpreserved (EP075-EM)							
TP18-26A-10	**03-May-2018**	**08-May-2018**	17-May-2018	✓	**08-May-2018**	17-Jun-2018	✓
Soil Glass Jar - Unpreserved (EP075-EM)							
T1-26A, T2-26A, TP18-26A-02, TP18-26A-09, TP18-26A-01, TP18-26A-04, QC01	**04-May-2018**	**08-May-2018**	18-May-2018	✓	**08-May-2018**	17-Jun-2018	✓
EP075A: Phenolic Compounds (Non-halogenated)							
Soil Glass Jar - Unpreserved (EP075-EM)							
TP18-26A-10	**03-May-2018**	**08-May-2018**	17-May-2018	✓	**08-May-2018**	17-Jun-2018	✓
Soil Glass Jar - Unpreserved (EP075-EM)							
T1-26A, T2-26A, TP18-26A-02, TP18-26A-09, TP18-26A-01, TP18-26A-04, QC01	**04-May-2018**	**08-May-2018**	18-May-2018	✓	**08-May-2018**	17-Jun-2018	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075-EM)							
TP18-26A-10	**03-May-2018**	**08-May-2018**	17-May-2018	✓	**08-May-2018**	17-Jun-2018	✓
Soil Glass Jar - Unpreserved (EP075-EM)							
T1-26A, T2-26A, TP18-26A-02, TP18-26A-09, TP18-26A-01, TP18-26A-04, QC01	**04-May-2018**	**08-May-2018**	18-May-2018	✓	**08-May-2018**	17-Jun-2018	✓
EP075I: Organochlorine Pesticides							
Soil Glass Jar - Unpreserved (EP075-EM)							
TP18-26A-10	**03-May-2018**	**08-May-2018**	17-May-2018	✓	**08-May-2018**	17-Jun-2018	✓
Soil Glass Jar - Unpreserved (EP075-EM)							
T1-26A, T2-26A, TP18-26A-02, TP18-26A-09, TP18-26A-01, TP18-26A-04, QC01	**04-May-2018**	**08-May-2018**	18-May-2018	✓	**08-May-2018**	17-Jun-2018	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074-UT)							
TP18-26A-10	**03-May-2018**	**07-May-2018**	10-May-2018	✓	**08-May-2018**	10-May-2018	✓
Soil Glass Jar - Unpreserved (EP071-EM)							
TP18-26A-10	**03-May-2018**	**08-May-2018**	17-May-2018	✓	**08-May-2018**	17-Jun-2018	✓
Soil Glass Jar - Unpreserved (EP074-UT)							
T1-26A, T2-26A, TP18-26A-02, TP18-26A-09, TP18-26A-01, TP18-26A-04, QC01	**04-May-2018**	**07-May-2018**	11-May-2018	✓	**08-May-2018**	11-May-2018	✓
Soil Glass Jar - Unpreserved (EP071-EM)							
T1-26A, T2-26A, TP18-26A-02, TP18-26A-09, TP18-26A-01, TP18-26A-04, QC01	**04-May-2018**	**08-May-2018**	18-May-2018	✓	**08-May-2018**	17-Jun-2018	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP074-UT)							
TP18-26A-10	**03-May-2018**	**07-May-2018**	10-May-2018	✓	**08-May-2018**	10-May-2018	✓
Soil Glass Jar - Unpreserved (EP071-EM)							
TP18-26A-10	**03-May-2018**	**08-May-2018**	17-May-2018	✓	**08-May-2018**	17-Jun-2018	✓
Soil Glass Jar - Unpreserved (EP074-UT)							
T1-26A, T2-26A, TP18-26A-02, TP18-26A-09, TP18-26A-01, TP18-26A-04, QC01	**04-May-2018**	**07-May-2018**	11-May-2018	✓	**08-May-2018**	11-May-2018	✓
Soil Glass Jar - Unpreserved (EP071-EM)							
T1-26A, T2-26A, TP18-26A-02, TP18-26A-09, TP18-26A-01, TP18-26A-04, QC01	**04-May-2018**	**08-May-2018**	18-May-2018	✓	**08-May-2018**	17-Jun-2018	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020B-T)							
RINSATE	**03-May-2018**	**08-May-2018**	30-Oct-2018	✓	**08-May-2018**	30-Oct-2018	✓
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020B-T)							
RINSATE	**04-May-2018**	**08-May-2018**	31-Oct-2018	✓	**08-May-2018**	31-Oct-2018	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T)							
RINSATE	**03-May-2018**	**----**	----	----	**10-May-2018**	31-May-2018	✓
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T)							
RINSATE	**04-May-2018**	**----**	----	----	**10-May-2018**	01-Jun-2018	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP080)							
TRIPBLANK	**04-May-2018**	**08-May-2018**	18-May-2018	✓	**08-May-2018**	18-May-2018	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber VOC Vial - Sulfuric Acid (EP080)							
TRIPBLANK	**04-May-2018**	**08-May-2018**	18-May-2018	✓	**08-May-2018**	18-May-2018	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
TRIPBLANK	**04-May-2018**	**08-May-2018**	18-May-2018	✓	**08-May-2018**	18-May-2018	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	3	24	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	9	**22.22**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	2	24	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	2	24	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	2	24	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Matrix Spikes (MS) - Continued							
Total Fluoride	EK040T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	18	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Total Mercury by FIMS	EG035T	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite B	EG020B-T	1	4	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Total Mercury by FIMS	EG035T	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite B	EG020B-T	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Total Mercury by FIMS	EG035T	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite B	EG020B-T	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Total Mercury by FIMS	EG035T	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH in soil using a 0.01M CaCl2 extract	EA001	SOIL	In house: Referenced to Rayment and Lyons (2011) 4B3 (mod.) or 4B4 (mod.) 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM (2013) Schedule B(3)
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	SOIL	In house: Referenced to USEPA SW846, Method 3060A. Hexavalent chromium is extracted by alkaline digestion. The digest is determined by photometrically by automatic discrete analyser, following pH adjustment. The instrument uses colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Cyanide by Segmented Flow Analyser	EK026SF	SOIL	In house: Referenced to APHA 4500-CN C / ASTM D7511. Caustic leachates of soil samples are introduced into an automated segmented flow analyser. Complex bound cyanide is decomposed in a continuously flowing stream, at a pH of 3.8, by the effect of UV light. A UV-B lamp (312 nm) and a decomposition spiral of borosilicate glass are used to filter out UV light with a wavelength of less than 290 nm thus preventing the conversion of thiocyanate into cyanide. The hydrogen cyanide present at a pH of 3.8 is separated by gas dialysis. The hydrogen cyanide is then determined photometrically, based on the reaction of cyanide with chloramine-T to form cyanogen chloride. This then reacts with 4-pyridine carboxylic acid and 1,3-dimethylbarbituric acid to give a red colour which is measured at 600 nm. This method is compliant with NEPM (2013) Schedule B(3)
Total Fluoride	EK040T	SOIL	(In-house) Total fluoride is determined by ion specific electrode (ISE) in a solution obtained after a Sodium Carbonate / Potassium Carbonate fusion dissolution.
PCB - VIC EPA 448.3 Screen	EP066-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
TRH - Semivolatile Fraction	EP071-EM	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40.
Volatile Organic Compounds - Ultra-trace	EP074-UT	SOIL	In house: Referenced to USEPA SW 846 - 8260B Extracts are analysed by Purge and Trap, Capillary GC/MS in partial SIM/Scan mode. Quantification is by comparison against an established multi-point calibration curves. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)

Analytical Methods	Method	Matrix	Method Descriptions
Volatile Organic Compounds - Ultra-trace - Summations	EP074-UT-SUM	SOIL	Summation of MAHs and VHCs
Semivolatile Organic Compounds - Waste Classification	EP075-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (2013) Schedule B(3) (Method 502)
SVOC - Waste Classification (Sums)	EP075-EM-SUM	SOIL	Summations for EP075 (EM variation)
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite B	EG020B-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
NaOH leach for CN in Soils	CN-PR	SOIL	In house: APHA 4500 CN. Samples are extracted by end-over-end tumbling with NaOH.
pH in soil using a 0.01M CaCl2 extract	EA001-PR	SOIL	In house: Referenced to Rayment and Higginson 4B1, 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Alkaline digestion for Hexavalent Chromium	EG048PR	SOIL	In house: Referenced to USEPA SW846, Method 3060A.
Total Fluoride	EK040T-PR	SOIL	In house: Samples are fused with Sodium Carbonate / Potassium Carbonate flux.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils - Ultra-trace.	ORG16-UT	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids - VIC EPA Screen	ORG17-EM	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

Preparation Methods	Method	Matrix	Method Descriptions
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EM1807431**

Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: OLFA NAZARIO	Contact	: Graeme Jablonskas
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: olfa.nazario@wsp.com	E-mail	: graeme.jablonskas@alsglobal.com
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9609
Facsimile	: +61 03 9861 1144	Facsimile	: +61-3-8549 9626
Project	: 2135645A	Page	: 1 of 3
Order number	:	Quote number	: EM2016PARBRIVIC0006 (ME-525-16)
C-O-C number	: 94258	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Thames Promenade		
Sampler	:		

Dates

Date Samples Received	: 07-May-2018 12:00	Issue Date	: 07-May-2018
Client Requested Due Date	: 14-May-2018	Scheduled Reporting Date	: **14-May-2018**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 2.1°C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 11 / 11

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **The soil jar for sample 'TP18-26A-01' was received cracked/broken. None of the contents has been lost.**
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **Analytical work for this work order will be conducted at ALS Springvale.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA055-103 Moisture Content	SOIL - P-16 IWRG 621
EM1807431-001	04-May-2018 00:00	T1-26A	✓	✓
EM1807431-002	04-May-2018 00:00	T2-26A	✓	✓
EM1807431-003	04-May-2018 00:00	TP18-26A-02	✓	✓
EM1807431-004	04-May-2018 00:00	TP18-26A-09	✓	✓
EM1807431-005	04-May-2018 00:00	TP18-26A-01	✓	✓
EM1807431-006	04-May-2018 00:00	TP18-26A-04	✓	✓
EM1807431-007	03-May-2018 00:00	TP18-26A-10	✓	✓
EM1807431-011	[04-May-2018]	QC01	✓	✓

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - IWRG621 Metals (Total) IWRG621 Total Metals in Water (inc. total Cr)	WATER - W-18 TRH(C6 - C9)/BTEXN
EM1807431-008	04-May-2018 00:00	RINSATE	✓	
EM1807431-009	03-May-2018 00:00	RINSATE	✓	
EM1807431-010	[04-May-2018]	TRIPBLANK		✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ALL INVOICES

- A4 - AU Tax Invoice (INV)	Email	AU.AccountsPayable@wsp.com

OLFA NAZARIO

- *AU Certificate of Analysis - NATA (COA)	Email	olfa.nazario@wsp.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	olfa.nazario@wsp.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	olfa.nazario@wsp.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	olfa.nazario@wsp.com
- Chain of Custody (CoC) (COC)	Email	olfa.nazario@wsp.com
- EDI Format - ENMRG (ENMRG)	Email	olfa.nazario@wsp.com
- EDI Format - ESDAT (ESDAT)	Email	olfa.nazario@wsp.com
- EPA Waste Classification & Categorisation Guideline Report (COA_GL_EPA_WASTE)	Email	olfa.nazario@wsp.com

Enviro Sample Vic

From: Mary Makarios
Sent: Friday, 26 May 2017 11:17 AM
To: Nazario, Olfa
Cc: Enviro Sample Vic
Subject: RE: Samples from ALS

Follow Up Flag: Follow up
Flag Status: Completed

No worries, thanks Olfa.

Mary Makarios
Phone : +61 3 8564 5088
Email : MaryMakarios@eurofins.com

From: Nazario, Olfa [mailto:ONazario@pb.com.au]
Sent: Friday, 26 May 2017 11:11 AM
To: Mary Makarios
Subject: Samples from ALS

Hi Mary,

We have two samples that are on its way from ALS with sample IDs:

- DUPB TP17-26-64/0.5
- DUP TP17-26-70/0.7

These two samples are to be analysed for IWRG621.

Thanks

Olfa Nazario
Environmental Scientist

D: +61 3 98612375

ONazario@pb.com.au

WSP Australia Pty Limited
Level 15, 28 Freshwater Place
Southbank VIC
3006 Australia

wsp.com

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Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261 Site # 18217

ABN – 50 005 085 521 e.mail : EnviroSales@eurofins.com web : www.eurofins.com.au

Sample Receipt Advice

Company name: **WSP | Parsons Brinckerhoff Australia P/L MELB**

Contact name: Olfa Nazario
Project name: OSAR
Project ID: 2135645A
COC number: Not provided
Turn around time: 5 Day
Date/Time received: May 26, 2017 2:36 PM
Eurofins | mgt reference: **547924**

Sample information

☑ A detailed list of analytes logged into our LIMS, is included in the attached summary table.

☑ All samples have been received as described on the above COC.

☑ COC has been completed correctly.

☑ Attempt to chill was evident.

☑ Appropriately preserved sample containers have been used.

☑ All samples were received in good condition.

☑ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.

☑ Appropriate sample containers have been used.

☒ Some samples have been subcontracted.

N/A Custody Seals intact (if used).

Contact notes

If you have any questions with respect to these samples please contact:

Mary Makarios on Phone : +61 3 8564 5000 or by e.mail: MaryMakarios@eurofins.com

Results will be delivered electronically via e.mail to Olfa Nazario - ONazario@pb.com.au.

eurofins | mgt

Certificate of Analysis

WSP | Parsons Brinckerhoff Australia P/L
Lvl 15, 28 FreshwaterPlace
Southbank
VIC 3006

NATA Accredited
Accreditation Number 1261
Site Number 1254

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Attention: **Olfa Nazario**

Report **547924-S**
Project name OSAR
Project ID 2135645A
Received Date May 26, 2017

Client Sample ID			**DUPB TP17-26-64/0.5**
Sample Matrix			**Soil**
Eurofins | mgt Sample No.			**M17-My27409**
Date Sampled			**May 24, 2017**
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons - 1999 NEPM Fractions			
TRH C6-C9	20	mg/kg	< 20
TRH C10-C14	20	mg/kg	< 20
TRH C15-C28	50	mg/kg	< 50
TRH C29-C36	50	mg/kg	< 50
TRH C10-36 (Total)	50	mg/kg	< 50
Volatile Organics			
1.2.4-Trichlorobenzene	0.2	mg/kg	< 0.2
Hexachlorobutadiene	0.2	mg/kg	< 0.2
1.1-Dichloroethane	0.5	mg/kg	< 0.5
1.1-Dichloroethene	0.5	mg/kg	< 0.5
1.1.1-Trichloroethane	0.5	mg/kg	< 0.5
1.1.1.2-Tetrachloroethane	0.5	mg/kg	< 0.5
1.1.2-Trichloroethane	0.5	mg/kg	< 0.5
1.1.2.2-Tetrachloroethane	0.5	mg/kg	< 0.5
1.2-Dibromoethane	0.5	mg/kg	< 0.5
1.2-Dichlorobenzene	0.5	mg/kg	< 0.5
1.2-Dichloroethane	0.5	mg/kg	< 0.5
1.2-Dichloropropane	0.5	mg/kg	< 0.5
1.2.3-Trichloropropane	0.5	mg/kg	< 0.5
1.2.4-Trimethylbenzene	0.5	mg/kg	< 0.5
1.3-Dichlorobenzene	0.5	mg/kg	< 0.5
1.3-Dichloropropane	0.5	mg/kg	< 0.5
1.3.5-Trimethylbenzene	0.5	mg/kg	< 0.5
1.4-Dichlorobenzene	0.5	mg/kg	< 0.5
2-Butanone (MEK)	0.5	mg/kg	< 0.5
2-Propanone (Acetone)	0.5	mg/kg	< 0.5
4-Chlorotoluene	0.5	mg/kg	< 0.5
4-Methyl-2-pentanone (MIBK)	0.5	mg/kg	< 0.5
Allyl chloride	0.5	mg/kg	< 0.5
Benzene	0.1	mg/kg	< 0.1
Bromobenzene	0.5	mg/kg	< 0.5
Bromochloromethane	0.5	mg/kg	< 0.5
Bromodichloromethane	0.5	mg/kg	< 0.5
Bromoform	0.5	mg/kg	< 0.5
Bromomethane	0.5	mg/kg	< 0.5

Client Sample ID			DUPB TP17-26-64/0.5
Sample Matrix			**Soil**
Eurofins | mgt Sample No.			**M17-My27409**
Date Sampled			**May 24, 2017**
Test/Reference	LOR	Unit	
Volatile Organics			
Carbon disulfide	0.5	mg/kg	< 0.5
Carbon Tetrachloride	0.5	mg/kg	< 0.5
Chlorobenzene	0.5	mg/kg	< 0.5
Chloroethane	0.5	mg/kg	< 0.5
Chloroform	0.5	mg/kg	< 0.5
Chloromethane	0.5	mg/kg	< 0.5
cis-1.2-Dichloroethene	0.5	mg/kg	< 0.5
cis-1.3-Dichloropropene	0.5	mg/kg	< 0.5
Dibromochloromethane	0.5	mg/kg	< 0.5
Dibromomethane	0.5	mg/kg	< 0.5
Dichlorodifluoromethane	0.5	mg/kg	< 0.5
Ethylbenzene	0.1	mg/kg	< 0.1
Iodomethane	0.5	mg/kg	< 0.5
Isopropyl benzene (Cumene)	0.5	mg/kg	< 0.5
m&p-Xylenes	0.2	mg/kg	< 0.2
Methylene Chloride	0.5	mg/kg	< 0.5
o-Xylene	0.1	mg/kg	< 0.1
Styrene	0.5	mg/kg	< 0.5
Tetrachloroethene	0.5	mg/kg	< 0.5
Toluene	0.1	mg/kg	< 0.1
trans-1.2-Dichloroethene	0.5	mg/kg	< 0.5
trans-1.3-Dichloropropene	0.5	mg/kg	< 0.5
Trichloroethene	0.5	mg/kg	< 0.5
Trichlorofluoromethane	0.5	mg/kg	< 0.5
Vinyl chloride	0.5	mg/kg	< 0.5
Xylenes - Total	0.3	mg/kg	< 0.3
Fluorobenzene (surr.)	1	%	83
4-Bromofluorobenzene (surr.)	1	%	78
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene[N02]	0.5	mg/kg	< 0.5
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50
TRH C6-C10	20	mg/kg	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20
Polycyclic Aromatic Hydrocarbons			
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2
Acenaphthene	0.5	mg/kg	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5
Anthracene	0.5	mg/kg	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5
Chrysene	0.5	mg/kg	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5
Fluorene	0.5	mg/kg	< 0.5

Client Sample ID			DUPB TP17-26-64/0.5
Sample Matrix			**Soil**
Eurofins | mgt Sample No.			**M17-My27409**
Date Sampled			**May 24, 2017**
Test/Reference	LOR	Unit	
Polycyclic Aromatic Hydrocarbons			
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5
Naphthalene	0.5	mg/kg	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5
Pyrene	0.5	mg/kg	< 0.5
Total PAH*	0.5	mg/kg	< 0.5
2-Fluorobiphenyl (surr.)	1	%	113
p-Terphenyl-d14 (surr.)	1	%	85
Organochlorine Pesticides			
Chlordanes - Total	0.1	mg/kg	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05
a-BHC	0.05	mg/kg	< 0.05
Aldrin	0.05	mg/kg	< 0.05
b-BHC	0.05	mg/kg	< 0.05
d-BHC	0.05	mg/kg	< 0.05
Dieldrin	0.05	mg/kg	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05
Endrin	0.05	mg/kg	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05
Heptachlor	0.05	mg/kg	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05
Toxaphene	1	mg/kg	< 1
Dibutylchlorendate (surr.)	1	%	119
Tetrachloro-m-xylene (surr.)	1	%	95
Polychlorinated Biphenyls			
Aroclor-1016	0.1	mg/kg	< 0.1
Aroclor-1221	0.1	mg/kg	< 0.1
Aroclor-1232	0.1	mg/kg	< 0.1
Aroclor-1242	0.1	mg/kg	< 0.1
Aroclor-1248	0.1	mg/kg	< 0.1
Aroclor-1254	0.1	mg/kg	< 0.1
Aroclor-1260	0.1	mg/kg	< 0.1
Total PCB*	0.1	mg/kg	< 0.1
Dibutylchlorendate (surr.)	1	%	119
Tetrachloro-m-xylene (surr.)	1	%	95
Phenols (Halogenated)			
2-Chlorophenol	0.5	mg/kg	< 0.5
2.4-Dichlorophenol	0.5	mg/kg	< 0.5
2.4.5-Trichlorophenol	1.0	mg/kg	< 1
2.4.6-Trichlorophenol	1.0	mg/kg	< 1
2.6-Dichlorophenol	0.5	mg/kg	< 0.5
4-Chloro-3-methylphenol	1.0	mg/kg	< 1

Client Sample ID			DUPB TP17-26-64/0.5
Sample Matrix			**Soil**
Eurofins | mgt Sample No.			**M17-My27409**
Date Sampled			**May 24, 2017**
Test/Reference	LOR	Unit	
Phenols (Halogenated)			
Pentachlorophenol	1.0	mg/kg	< 1
Tetrachlorophenols - Total	1.0	mg/kg	< 1
Total Halogenated Phenol*	1	mg/kg	< 1
Phenols (non-Halogenated)			
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	< 20
2-Methyl-4.6-dinitrophenol	5	mg/kg	< 5
2-Methylphenol (o-Cresol)	0.2	mg/kg	< 0.2
2-Nitrophenol	1.0	mg/kg	< 1
2.4-Dimethylphenol	0.5	mg/kg	< 0.5
2.4-Dinitrophenol	5	mg/kg	< 5
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	< 0.4
4-Nitrophenol	5	mg/kg	< 5
Dinoseb	20	mg/kg	< 20
Phenol	0.5	mg/kg	< 0.5
Total Non-Halogenated Phenol*	20	mg/kg	< 20
Phenol-d6 (surr.)	1	%	119
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
TRH >C10-C16	50	mg/kg	< 50
TRH >C16-C34	100	mg/kg	< 100
TRH >C34-C40	100	mg/kg	< 100
Chromium (hexavalent)	1	mg/kg	< 1
Cyanide (total)	5	mg/kg	< 5
Fluoride	100	mg/kg	< 100
pH (1:5 Aqueous extract)	0.1	pH Units	5.3
% Moisture	1	%	9.1
Heavy Metals			
Arsenic	2	mg/kg	< 2
Cadmium	0.4	mg/kg	< 0.4
Chromium	5	mg/kg	< 5
Copper	5	mg/kg	< 5
Lead	5	mg/kg	8.5
Mercury	0.1	mg/kg	< 0.1
Molybdenum	5	mg/kg	< 5
Nickel	5	mg/kg	< 5
Selenium	2	mg/kg	< 2
Silver	0.2	mg/kg	< 0.2
Tin	10	mg/kg	< 10
Zinc	5	mg/kg	7.9

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Vic EPA IWRG 621 (Solids)			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	May 29, 2017	14 Day
- Method: TRH C6-C36 - LTM-ORG-2010			
Volatile Organics	Melbourne	May 29, 2017	7 Days
- Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	May 29, 2017	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Polycyclic Aromatic Hydrocarbons	Melbourne	May 29, 2017	14 Day
- Method: LTM-ORG-2140 PAH and Phenols in Soils by GCMS			
Organochlorine Pesticides	Melbourne	May 29, 2017	14 Day
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Polychlorinated Biphenyls	Melbourne	May 29, 2017	28 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Phenols (Halogenated)	Melbourne	May 29, 2017	14 Days
- Method: LTM-ORG-2140 PAH and Phenols in Soils by GCMS			
Phenols (non-Halogenated)	Melbourne	May 29, 2017	14 Day
- Method: LTM-ORG-2140 PAH and Phenols in Soils by GCMS			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	May 29, 2017	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Chromium (hexavalent)	Melbourne	May 30, 2017	28 Day
- Method: APHA 3500-Cr Hexavalent Chromium- (Extraction:- USEPA3060)			
Cyanide (total)	Melbourne	May 29, 2017	14 Day
- Method: LTM-INO-4020 Total Free WAD Cyanide by CFA			
Fluoride	Melbourne	May 30, 2017	28 Day
- Method: NEPC 404 (Fusion followed by ISE)			
pH (1:5 Aqueous extract)	Melbourne	May 29, 2017	7 Day
- Method: LTM-GEN-7090 pH in soil by ISE			
IWRG 621 Metals : Metals M12	Melbourne	May 29, 2017	28 Day
- Method: LTM-MET-3030 by ICP-OES (hydride ICP-OES for Mercury)			
% Moisture	Melbourne	May 27, 2017	14 Day
- Method: LTM-GEN-7080 Moisture			

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NATA # 1261
Site # 18217

Company Name:	WSP | Parsons Brinckerhoff Australia P/L MELB	**Order No.:**		**Received:**	May 26, 2017 2:36 PM
Address:	Lvl 15, 28 FreshwaterPlace	**Report #:**	547924	**Due:**	Jun 2, 2017
	Southbank	**Phone:**	9861 1111	**Priority:**	5 Day
	VIC 3006	**Fax:**	9861 1144	**Contact Name:**	Olfa Nazario
Project Name:	OSAR				
Project ID:	2135645A				

Eurofins | mgt Analytical Services Manager : Mary Makarios

Sample Detail						Moisture Set	Vic EPA IWRG 621 (Solids)
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X
Sydney Laboratory - NATA Site # 18217							
Brisbane Laboratory - NATA Site # 20794							
Perth Laboratory - NATA Site # 18217							
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	DUPB TP17-26-64/0.5	May 24, 2017		Soil	M17-My27409	X	X
Test Counts						1	1

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. All biota results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands. In the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
Batch Duplicate	A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.
Batch SPIKE	Spike recovery reported on a sample from outside of the clients batch of samples but run within the laboratory batch of analysis.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs 20-130%

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
Volatile Organics							
1.2.4-Trichlorobenzene	mg/kg	< 0.2			0.2	Pass	
Hexachlorobutadiene	mg/kg	< 0.2			0.2	Pass	
1.1-Dichloroethane	mg/kg	< 0.5			0.5	Pass	
1.1-Dichloroethene	mg/kg	< 0.5			0.5	Pass	
1.1.1-Trichloroethane	mg/kg	< 0.5			0.5	Pass	
1.1.1.2-Tetrachloroethane	mg/kg	< 0.5			0.5	Pass	
1.1.2-Trichloroethane	mg/kg	< 0.5			0.5	Pass	
1.1.2.2-Tetrachloroethane	mg/kg	< 0.5			0.5	Pass	
1.2-Dibromoethane	mg/kg	< 0.5			0.5	Pass	
1.2-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.2-Dichloroethane	mg/kg	< 0.5			0.5	Pass	
1.2-Dichloropropane	mg/kg	< 0.5			0.5	Pass	
1.2.3-Trichloropropane	mg/kg	< 0.5			0.5	Pass	
1.2.4-Trimethylbenzene	mg/kg	< 0.5			0.5	Pass	
1.3-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.3-Dichloropropane	mg/kg	< 0.5			0.5	Pass	
1.3.5-Trimethylbenzene	mg/kg	< 0.5			0.5	Pass	
1.4-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
2-Butanone (MEK)	mg/kg	< 0.5			0.5	Pass	
2-Propanone (Acetone)	mg/kg	< 0.5			0.5	Pass	
4-Chlorotoluene	mg/kg	< 0.5			0.5	Pass	
4-Methyl-2-pentanone (MIBK)	mg/kg	< 0.5			0.5	Pass	
Allyl chloride	mg/kg	< 0.5			0.5	Pass	
Benzene	mg/kg	< 0.1			0.1	Pass	
Bromobenzene	mg/kg	< 0.5			0.5	Pass	
Bromochloromethane	mg/kg	< 0.5			0.5	Pass	
Bromodichloromethane	mg/kg	< 0.5			0.5	Pass	
Bromoform	mg/kg	< 0.5			0.5	Pass	
Bromomethane	mg/kg	< 0.5			0.5	Pass	
Carbon disulfide	mg/kg	< 0.5			0.5	Pass	
Carbon Tetrachloride	mg/kg	< 0.5			0.5	Pass	
Chlorobenzene	mg/kg	< 0.5			0.5	Pass	
Chloroethane	mg/kg	< 0.5			0.5	Pass	
Chloroform	mg/kg	< 0.5			0.5	Pass	
Chloromethane	mg/kg	< 0.5			0.5	Pass	
cis-1.2-Dichloroethene	mg/kg	< 0.5			0.5	Pass	
cis-1.3-Dichloropropene	mg/kg	< 0.5			0.5	Pass	
Dibromochloromethane	mg/kg	< 0.5			0.5	Pass	
Dibromomethane	mg/kg	< 0.5			0.5	Pass	
Dichlorodifluoromethane	mg/kg	< 0.5			0.5	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
Iodomethane	mg/kg	< 0.5			0.5	Pass	
Isopropyl benzene (Cumene)	mg/kg	< 0.5			0.5	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Methylene Chloride	mg/kg	< 0.5			0.5	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Styrene	mg/kg	< 0.5			0.5	Pass	
Tetrachloroethene	mg/kg	< 0.5			0.5	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
trans-1.2-Dichloroethene	mg/kg	< 0.5			0.5	Pass	
trans-1.3-Dichloropropene	mg/kg	< 0.5			0.5	Pass	
Trichloroethene	mg/kg	< 0.5			0.5	Pass	
Trichlorofluoromethane	mg/kg	< 0.5			0.5	Pass	
Vinyl chloride	mg/kg	< 0.5			0.5	Pass	
Xylenes - Total	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-BHC	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-BHC	mg/kg	< 0.05			0.05	Pass	
d-BHC	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-BHC (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Methoxychlor	mg/kg	< 0.05			0.05	Pass	
Toxaphene	mg/kg	< 1			1	Pass	
Method Blank							
Polychlorinated Biphenyls							
Aroclor-1016	mg/kg	< 0.1			0.1	Pass	
Aroclor-1221	mg/kg	< 0.1			0.1	Pass	
Aroclor-1232	mg/kg	< 0.1			0.1	Pass	
Aroclor-1242	mg/kg	< 0.1			0.1	Pass	
Aroclor-1248	mg/kg	< 0.1			0.1	Pass	
Aroclor-1254	mg/kg	< 0.1			0.1	Pass	
Aroclor-1260	mg/kg	< 0.1			0.1	Pass	
Total PCB*	mg/kg	< 0.1			0.1	Pass	
Method Blank							
Phenols (Halogenated)							
2-Chlorophenol	mg/kg	< 0.5			0.5	Pass	
2.4-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
2.4.5-Trichlorophenol	mg/kg	< 1			1.0	Pass	
2.4.6-Trichlorophenol	mg/kg	< 1			1.0	Pass	
2.6-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
4-Chloro-3-methylphenol	mg/kg	< 1			1.0	Pass	
Pentachlorophenol	mg/kg	< 1			1.0	Pass	
Tetrachlorophenols - Total	mg/kg	< 1			1.0	Pass	
Method Blank							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	mg/kg	< 20			20	Pass	
2-Methyl-4.6-dinitrophenol	mg/kg	< 5			5	Pass	
2-Methylphenol (o-Cresol)	mg/kg	< 0.2			0.2	Pass	
2-Nitrophenol	mg/kg	< 1			1.0	Pass	
2.4-Dimethylphenol	mg/kg	< 0.5			0.5	Pass	
2.4-Dinitrophenol	mg/kg	< 5			5	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/kg	< 0.4			0.4	Pass	
4-Nitrophenol	mg/kg	< 5			5	Pass	
Dinoseb	mg/kg	< 20			20	Pass	
Phenol	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Chromium (hexavalent)	mg/kg	< 1			1	Pass	
Cyanide (total)	mg/kg	< 5			5	Pass	
Fluoride	mg/kg	< 100			100	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Molybdenum	mg/kg	< 5			5	Pass	
Nickel	mg/kg	< 5			5	Pass	
Selenium	mg/kg	< 2			2	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Silver	mg/kg	< 0.2			0.2	Pass	
Tin	mg/kg	< 10			10	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	125			70-130	Pass	
TRH C10-C14	%	83			70-130	Pass	
LCS - % Recovery							
Volatile Organics							
1.1-Dichloroethene	%	97			70-130	Pass	
1.1.1-Trichloroethane	%	114			70-130	Pass	
1.2-Dichlorobenzene	%	113			70-130	Pass	
1.2-Dichloroethane	%	110			70-130	Pass	
Benzene	%	108			70-130	Pass	
Ethylbenzene	%	108			70-130	Pass	
m&p-Xylenes	%	114			70-130	Pass	
Toluene	%	109			70-130	Pass	
Trichloroethene	%	111			70-130	Pass	
Xylenes - Total	%	111			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	125			70-130	Pass	
TRH C6-C10	%	113			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	111			70-130	Pass	
Acenaphthylene	%	121			70-130	Pass	
Anthracene	%	121			70-130	Pass	
Benz(a)anthracene	%	118			70-130	Pass	
Benzo(a)pyrene	%	126			70-130	Pass	
Benzo(b&j)fluoranthene	%	119			70-130	Pass	
Benzo(g.h.i)perylene	%	128			70-130	Pass	
Benzo(k)fluoranthene	%	108			70-130	Pass	
Chrysene	%	108			70-130	Pass	
Dibenz(a.h)anthracene	%	125			70-130	Pass	
Fluoranthene	%	106			70-130	Pass	
Fluorene	%	113			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	130			70-130	Pass	
Naphthalene	%	110			70-130	Pass	
Phenanthrene	%	114			70-130	Pass	
Pyrene	%	100			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
4.4'-DDD	%	113			70-130	Pass	
4.4'-DDE	%	104			70-130	Pass	
4.4'-DDT	%	76			70-130	Pass	
a-BHC	%	101			70-130	Pass	
Aldrin	%	106			70-130	Pass	
b-BHC	%	90			70-130	Pass	
d-BHC	%	98			70-130	Pass	
Dieldrin	%	103			70-130	Pass	
Endosulfan I	%	103			70-130	Pass	
Endosulfan II	%	105			70-130	Pass	
Endosulfan sulphate	%	103			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endrin	%	104			70-130	Pass	
Endrin aldehyde	%	106			70-130	Pass	
Endrin ketone	%	108			70-130	Pass	
g-BHC (Lindane)	%	98			70-130	Pass	
Heptachlor	%	113			70-130	Pass	
Heptachlor epoxide	%	102			70-130	Pass	
Hexachlorobenzene	%	98			70-130	Pass	
Methoxychlor	%	78			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls							
Aroclor-1260	%	120			70-130	Pass	
LCS - % Recovery							
Phenols (Halogenated)							
2-Chlorophenol	%	116			30-130	Pass	
2.4-Dichlorophenol	%	116			30-130	Pass	
2.4.5-Trichlorophenol	%	120			30-130	Pass	
2.4.6-Trichlorophenol	%	119			30-130	Pass	
2.6-Dichlorophenol	%	118			30-130	Pass	
4-Chloro-3-methylphenol	%	122			30-130	Pass	
Pentachlorophenol	%	104			30-130	Pass	
Tetrachlorophenols - Total	%	123			30-130	Pass	
LCS - % Recovery							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	%	61			30-130	Pass	
2-Methyl-4.6-dinitrophenol	%	74			30-130	Pass	
2-Methylphenol (o-Cresol)	%	114			30-130	Pass	
2-Nitrophenol	%	100			30-130	Pass	
2.4-Dimethylphenol	%	101			30-130	Pass	
2.4-Dinitrophenol	%	61			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	%	117			30-130	Pass	
4-Nitrophenol	%	122			30-130	Pass	
Dinoseb	%	74			30-130	Pass	
Phenol	%	118			30-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	%	86			70-130	Pass	
LCS - % Recovery							
Chromium (hexavalent)	%	96			70-130	Pass	
Cyanide (total)	%	89			70-130	Pass	
Fluoride	%	108			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	110			80-120	Pass	
Cadmium	%	108			80-120	Pass	
Chromium	%	117			80-120	Pass	
Copper	%	114			80-120	Pass	
Lead	%	116			80-120	Pass	
Mercury	%	108			75-125	Pass	
Molybdenum	%	110			80-120	Pass	
Nickel	%	114			80-120	Pass	
Selenium	%	111			80-120	Pass	
Silver	%	108			80-120	Pass	
Tin	%	110			80-120	Pass	
Zinc	%	110			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	M17-My27303	NCP	%	92			70-130	Pass	
TRH C10-C14	M17-My27347	NCP	%	72			70-130	Pass	
Spike - % Recovery									
Volatile Organics				Result 1					
1.1-Dichloroethene	M17-My27303	NCP	%	71			70-130	Pass	
1.1.1-Trichloroethane	M17-My27303	NCP	%	83			70-130	Pass	
1.2-Dichlorobenzene	M17-My27303	NCP	%	108			70-130	Pass	
1.2-Dichloroethane	M17-My27303	NCP	%	92			70-130	Pass	
Benzene	M17-My27303	NCP	%	88			70-130	Pass	
Ethylbenzene	M17-My27303	NCP	%	93			70-130	Pass	
m&p-Xylenes	M17-My27303	NCP	%	95			70-130	Pass	
o-Xylene	M17-My27303	NCP	%	92			70-130	Pass	
Toluene	M17-My27303	NCP	%	94			70-130	Pass	
Trichloroethene	M17-My27303	NCP	%	89			70-130	Pass	
Xylenes - Total	M17-My27303	NCP	%	94			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	M17-My27303	NCP	%	115			70-130	Pass	
TRH C6-C10	M17-My27303	NCP	%	92			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	M17-My26188	NCP	%	113			70-130	Pass	
Acenaphthylene	M17-My26188	NCP	%	120			70-130	Pass	
Anthracene	M17-My26188	NCP	%	114			70-130	Pass	
Benz(a)anthracene	M17-My26188	NCP	%	115			70-130	Pass	
Benzo(a)pyrene	M17-My26188	NCP	%	124			70-130	Pass	
Benzo(b&j)fluoranthene	M17-My26188	NCP	%	126			70-130	Pass	
Benzo(g.h.i)perylene	M17-My26188	NCP	%	108			70-130	Pass	
Benzo(k)fluoranthene	M17-My26188	NCP	%	112			70-130	Pass	
Chrysene	M17-My26188	NCP	%	110			70-130	Pass	
Dibenz(a.h)anthracene	M17-My26188	NCP	%	123			70-130	Pass	
Fluoranthene	M17-My26188	NCP	%	116			70-130	Pass	
Fluorene	M17-My26188	NCP	%	114			70-130	Pass	
Indeno(1.2.3-cd)pyrene	M17-My26188	NCP	%	110			70-130	Pass	
Naphthalene	M17-My26188	NCP	%	110			70-130	Pass	
Phenanthrene	M17-My26188	NCP	%	112			70-130	Pass	
Pyrene	M17-My26188	NCP	%	107			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
4.4'-DDD	M17-My25230	NCP	%	106			70-130	Pass	
4.4'-DDE	M17-My25230	NCP	%	99			70-130	Pass	
4.4'-DDT	M17-My25230	NCP	%	90			70-130	Pass	
a-BHC	M17-My25230	NCP	%	96			70-130	Pass	
Aldrin	M17-My25230	NCP	%	100			70-130	Pass	
b-BHC	M17-My25230	NCP	%	87			70-130	Pass	
d-BHC	M17-My25230	NCP	%	94			70-130	Pass	
Dieldrin	M17-My25230	NCP	%	98			70-130	Pass	
Endosulfan I	M17-My25230	NCP	%	95			70-130	Pass	
Endosulfan II	M17-My25230	NCP	%	99			70-130	Pass	
Endosulfan sulphate	M17-My25230	NCP	%	96			70-130	Pass	
Endrin	M17-My25230	NCP	%	106			70-130	Pass	
Endrin aldehyde	M17-My25230	NCP	%	97			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endrin ketone	M17-My25230	NCP	%	98			70-130	Pass	
g-BHC (Lindane)	M17-My25230	NCP	%	93			70-130	Pass	
Heptachlor	M17-My25230	NCP	%	112			70-130	Pass	
Heptachlor epoxide	M17-My25230	NCP	%	95			70-130	Pass	
Hexachlorobenzene	M17-My25230	NCP	%	95			70-130	Pass	
Methoxychlor	M17-My25230	NCP	%	89			70-130	Pass	
Spike - % Recovery									
Polychlorinated Biphenyls				Result 1					
Aroclor-1260	M17-My25223	NCP	%	127			70-130	Pass	
Spike - % Recovery									
Phenols (Halogenated)				Result 1					
2-Chlorophenol	M17-My26188	NCP	%	112			30-130	Pass	
2.4-Dichlorophenol	M17-My26188	NCP	%	114			30-130	Pass	
2.4.5-Trichlorophenol	M17-My26188	NCP	%	122			30-130	Pass	
2.4.6-Trichlorophenol	M17-My26188	NCP	%	118			30-130	Pass	
2.6-Dichlorophenol	M17-My26188	NCP	%	116			30-130	Pass	
4-Chloro-3-methylphenol	M17-My26188	NCP	%	121			30-130	Pass	
Pentachlorophenol	M17-My26188	NCP	%	63			30-130	Pass	
Tetrachlorophenols - Total	M17-My26188	NCP	%	117			30-130	Pass	
Spike - % Recovery									
Phenols (non-Halogenated)				Result 1					
2-Cyclohexyl-4.6-dinitrophenol	M17-My26188	NCP	%	32			30-130	Pass	
2-Methyl-4.6-dinitrophenol	M17-My26188	NCP	%	33			30-130	Pass	
2-Methylphenol (o-Cresol)	M17-My26188	NCP	%	118			30-130	Pass	
2-Nitrophenol	M17-My26188	NCP	%	97			30-130	Pass	
2.4-Dimethylphenol	M17-My26188	NCP	%	110			30-130	Pass	
2.4-Dinitrophenol	M17-My26188	NCP	%	32			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	M17-My26188	NCP	%	120			30-130	Pass	
4-Nitrophenol	M17-My26188	NCP	%	116			30-130	Pass	
Dinoseb	M17-My26188	NCP	%	46			30-130	Pass	
Phenol	M17-My26188	NCP	%	113			30-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	M17-My27347	NCP	%	75			70-130	Pass	
Spike - % Recovery									
				Result 1					
Chromium (hexavalent)	M17-My29237	NCP	%	102			70-130	Pass	
Cyanide (total)	M17-My27427	NCP	%	81			70-130	Pass	
Fluoride	M17-My27427	NCP	%	91			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Cadmium	M17-My27370	NCP	%	104			75-125	Pass	
Chromium	M17-My27370	NCP	%	90			75-125	Pass	
Copper	M17-My27370	NCP	%	110			75-125	Pass	
Lead	M17-My27370	NCP	%	96			75-125	Pass	
Mercury	M17-My27370	NCP	%	100			70-130	Pass	
Molybdenum	M17-My27370	NCP	%	107			75-125	Pass	
Nickel	M17-My27370	NCP	%	108			75-125	Pass	
Selenium	M17-My27370	NCP	%	104			75-125	Pass	
Silver	M17-My27370	NCP	%	103			75-125	Pass	
Tin	M17-My27370	NCP	%	106			75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	M17-My27302	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	M17-My27346	NCP	mg/kg	45	54	18	30%	Pass	
TRH C15-C28	M17-My27346	NCP	mg/kg	63	74	16	30%	Pass	
TRH C29-C36	M17-My27346	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
Volatile Organics				Result 1	Result 2	RPD			
1.2.4-Trichlorobenzene	M17-My27302	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Hexachlorobutadiene	M17-My27302	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
1.1-Dichloroethane	M17-My27302	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1-Dichloroethene	M17-My27302	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.1-Trichloroethane	M17-My27302	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.1.2-Tetrachloroethane	M17-My27302	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.2-Trichloroethane	M17-My27302	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.2.2-Tetrachloroethane	M17-My27302	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dibromoethane	M17-My27302	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dichlorobenzene	M17-My27302	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dichloroethane	M17-My27302	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dichloropropane	M17-My27302	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2.3-Trichloropropane	M17-My27302	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2.4-Trimethylbenzene	M17-My27302	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.3-Dichlorobenzene	M17-My27302	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.3-Dichloropropane	M17-My27302	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.3.5-Trimethylbenzene	M17-My27302	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.4-Dichlorobenzene	M17-My27302	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2-Butanone (MEK)	M17-My27302	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2-Propanone (Acetone)	M17-My27302	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Chlorotoluene	M17-My27302	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Methyl-2-pentanone (MIBK)	M17-My27302	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Allyl chloride	M17-My27302	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzene	M17-My27302	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Bromobenzene	M17-My27302	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromochloromethane	M17-My27302	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromodichloromethane	M17-My27302	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromoform	M17-My27302	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromomethane	M17-My27302	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Carbon disulfide	M17-My27302	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Carbon Tetrachloride	M17-My27302	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chlorobenzene	M17-My27302	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chloroethane	M17-My27302	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chloroform	M17-My27302	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chloromethane	M17-My27302	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
cis-1.2-Dichloroethene	M17-My27302	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
cis-1.3-Dichloropropene	M17-My27302	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibromochloromethane	M17-My27302	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibromomethane	M17-My27302	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dichlorodifluoromethane	M17-My27302	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Ethylbenzene	M17-My27302	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Iodomethane	M17-My27302	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Isopropyl benzene (Cumene)	M17-My27302	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
m&p-Xylenes	M17-My27302	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Methylene Chloride	M17-My27302	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
o-Xylene	M17-My27302	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	

Duplicate									
Volatile Organics				Result 1	Result 2	RPD			
Styrene	M17-My27302	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Tetrachloroethene	M17-My27302	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Toluene	M17-My27302	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
trans-1.2-Dichloroethene	M17-My27302	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
trans-1.3-Dichloropropene	M17-My27302	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Trichloroethene	M17-My27302	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Trichlorofluoromethane	M17-My27302	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Vinyl chloride	M17-My27302	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Xylenes - Total	M17-My27302	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	M17-My27302	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	M17-My27302	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	M17-My25821	NCP	mg/kg	0.9	0.8	15	30%	Pass	
Acenaphthylene	M17-My25821	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	M17-My25821	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	M17-My25821	NCP	mg/kg	1.0	1.1	10	30%	Pass	
Benzo(a)pyrene	M17-My25821	NCP	mg/kg	1.0	1.3	20	30%	Pass	
Benzo(b&j)fluoranthene	M17-My25821	NCP	mg/kg	1.0	1.4	37	30%	Fail	Q15
Benzo(g.h.i)perylene	M17-My25821	NCP	mg/kg	0.9	1.1	26	30%	Pass	
Benzo(k)fluoranthene	M17-My25821	NCP	mg/kg	0.9	1.1	22	30%	Pass	
Chrysene	M17-My25821	NCP	mg/kg	1.1	1.2	14	30%	Pass	
Dibenz(a.h)anthracene	M17-My25821	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	M17-My25821	NCP	mg/kg	2.6	2.5	3.0	30%	Pass	
Fluorene	M17-My25821	NCP	mg/kg	1.2	1.0	16	30%	Pass	
Indeno(1.2.3-cd)pyrene	M17-My25821	NCP	mg/kg	0.7	0.9	27	30%	Pass	
Naphthalene	M17-My25821	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	M17-My25821	NCP	mg/kg	2.3	2.0	13	30%	Pass	
Pyrene	M17-My25821	NCP	mg/kg	2.2	2.1	5.0	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	M17-My25223	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	M17-My25223	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	B17-My17271	NCP	mg/kg	0.42	0.21	69	30%	Fail	Q15
4.4'-DDT	M17-My25223	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-BHC	M17-My25223	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	M17-My25223	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-BHC	M17-My25223	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-BHC	M17-My25223	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	M17-My25223	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	M17-My25223	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	M17-My25223	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	M17-My25223	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	M17-My25223	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	M17-My25223	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	M17-My26158	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-BHC (Lindane)	M17-My25223	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	M17-My25223	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	M17-My25223	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	M17-My25223	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	M17-My25223	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Toxaphene	M17-My25223	NCP	mg/kg	< 1	< 1	<1	30%	Pass	

Duplicate									
Polychlorinated Biphenyls				Result 1	Result 2	RPD			
Aroclor-1016	M17-My25223	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1221	M17-My25223	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1232	M17-My25223	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1242	M17-My25223	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1248	M17-My25223	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1254	M17-My25223	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1260	M17-My25223	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Total PCB*	M17-My25223	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
Phenols (Halogenated)				Result 1	Result 2	RPD			
2-Chlorophenol	M17-My25821	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dichlorophenol	M17-My25821	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4.5-Trichlorophenol	M17-My25821	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4.6-Trichlorophenol	M17-My25821	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
2.6-Dichlorophenol	M17-My25821	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Chloro-3-methylphenol	M17-My25821	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Pentachlorophenol	M17-My25821	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Tetrachlorophenols - Total	M17-My25821	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Duplicate									
Phenols (non-Halogenated)				Result 1	Result 2	RPD			
2-Cyclohexyl-4.6-dinitrophenol	M17-My25821	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
2-Methyl-4.6-dinitrophenol	M17-My25821	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
2-Methylphenol (o-Cresol)	M17-My25821	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
2-Nitrophenol	M17-My25821	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4-Dimethylphenol	M17-My25821	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dinitrophenol	M17-My25821	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
3&4-Methylphenol (m&p-Cresol)	M17-My25821	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
4-Nitrophenol	M17-My25821	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Dinoseb	M17-My25821	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
Phenol	M17-My25821	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	M17-My27346	NCP	mg/kg	77	93	19	30%	Pass	
TRH >C16-C34	M17-My27346	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	M17-My27346	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Chromium (hexavalent)	M17-My27410	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Cyanide (total)	M17-My27426	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Fluoride	M17-My27426	NCP	mg/kg	330	120	93	30%	Fail	Q15
pH (1:5 Aqueous extract)	M17-My26763	NCP	pH Units	7.9	7.9	pass	30%	Pass	
% Moisture	M17-My27346	NCP	%	15	15	1.0	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M17-My27409	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Cadmium	M17-My27409	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	M17-My27409	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Copper	M17-My27409	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Lead	M17-My27409	CP	mg/kg	8.5	10.0	16	30%	Pass	
Mercury	M17-My27409	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Molybdenum	M17-My27409	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Nickel	M17-My27409	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Selenium	M17-My27409	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Silver	M17-My27409	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Tin	M17-My27409	CP	mg/kg	< 10	< 10	<1	30%	Pass	
Zinc	M17-My27409	CP	mg/kg	7.9	8.3	5.0	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
Q15	The RPD reported passes Eurofins | mgt's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised By

Mary Makarios	Analytical Services Manager
Alex Petridis	Senior Analyst-Metal (VIC)
Alex Petridis	Senior Analyst-Organic (VIC)
Harry Bacalis	Senior Analyst-Volatile (VIC)
Huong Le	Senior Analyst-Inorganic (VIC)
Joseph Edouard	Senior Analyst-Organic (VIC)



Glenn Jackson

National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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PARSONS BRINCKERHOFF

White Page - Laboratory Copy
Yellow Page - Project File Copy
Pink Page - Remains in Book

ABN 80 078 004 798

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PO Box 1162 Newcastle NSW, 2300
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Sydney
Level 27, Ernst & Young Centre
680 George Street,
GPO Box 5394, Sydney NSW 2001
Tel: (02) 9272 5100 Fax: (02) 9272 5101

Chain of Custody

Order No: 72867

Job Title: OSAR - 2135645

PB Job Number: 2135645A

Job Location: Site 26

Project Manager: Olfa Nazario

Laboratory Name: ALS

Address: ALS Springvale

Terms of Business: PB ✓ | Other | Checked

Results Expected by/on:

Fax Results to: Onazario@pb.com.au

Fax Number:

Phone Number: 8549 -9600

Phone Number:

Contact Name: Graeme Jablonkas

Spreadsheet of Results Required: (Y) / N

Delivery Method: Courier

Format:

Quote Number: MF525-16

Turnaround Time Required:

Invoice to: Olfa Nazario

Comments:

Date Sampled	Time	Sample I.D.	Container Size	Sample Location	Medium*	Preservative Type	Filtered (X)	TPH	BTEX	PAH's	OC/OP/PCB's	Metals**	IWRG 621 // Suite //	IWRG metals	Initials	Comments/Additional Information and/or Analysis Required
25/05	14	TP17-26-41/0.8	250	Site 26	S								X			#15
"	15	TP17-26-70/0.7											X			
"	16	DUP A TP17-26-70/0.7											X			
"	17	DUP B "											X			Fwd to Eurofins - BN 26/5
"	18	TP17-26-43/0.7											X			
22/05/17	19	RB260417												X		
23/05/17	20	"														
24/05/17	21	"												X		
25/05/17	22	"														
25/05/17	23	TB/260417						X	X							
		Extra sample														
23/05/17	24	DUPA 26-24/0.8		Soil	-		-	HOLD								TB - To be analysed for TRH/BTEX

BN 26/5

Relinquished by:	Relinquished by:	Relinquished by:	Medium*: S = Soil, W = Water, V = Vapour
Date & Time:	Date & Time: 26/5/17 1:40pm	Date & Time:	Legend**: (circle the following to be tested)
Company:	Company:	Company:	Metals: Al As Be Cd Co Cr Cu Fe Hg Li Mg Mn Ni Pb Se Sn V Zn
Signature:	Signature:	Signature:	
Received in Good Order & Condition by (Name):	Received in Good Order & Condition by (Name):	Received in Good Order & Condition by (Name): SD	Samples on Ice: ☐ Yes ☐ No
Date & Time: 25/5 16:00	Date & Time:	Date & Time: 26/5 2:36pm	547925
Company: ALS	Company:	Company: EF	**Please fax back a signed copy when samples are received at the laboratory**

Bharathi Narayanan

From: Nazario, Olfa <ONazario@pb.com.au>
Sent: Friday, 26 May 2017 10:32 AM
To: Graeme Jablonskas
Subject: RE: WO INFO: EM1706717 PARBRIVIC Job:2135645A

Thanks Graham,

Please do the following:

- analyse both DUPA samples for IWRG621.
- forward the two DUPB samples to Eurofins.
- put DUPA 26-24/0.8 on hold

#15

Regards

Olfa Nazario
Environmental Scientist

wsp

D: +61 3 98612375

ONazario@pb.com.au

WSP Australia Pty Limited
Level 15, 28 Freshwater Place
Southbank VIC
3006 Australia

wsp.com

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From: Graeme Jablonskas [mailto:Graeme.Jablonskas@alsglobal.com]
Sent: Friday, 26 May 2017 10:02 AM
To: Nazario, Olfa <ONazario@pb.com.au>
Subject: RE: WO INFO: EM1706717 PARBRIVIC Job:2135645A

Hi Olfa

Yes we did received these Dup A/B samples.

Kind Regards

Graeme Jablonskas
Senior Project Manager – Springvale
Environmental

Fri (Aus)
26/5/17 C
1.00 pm

Enviro Sample Vic

From: Mary Makarios
Sent: Friday, 26 May 2017 11:17 AM
To: Nazario, Olfa
Cc: Enviro Sample Vic
Subject: RE: Samples from ALS

Follow Up Flag: Follow up
Flag Status: Completed

No worries, thanks Olfa.

Mary Makarios
Phone : +61 3 8564 5088
Email : MaryMakarios@eurofins.com

From: Nazario, Olfa [mailto:ONazario@pb.com.au]
Sent: Friday, 26 May 2017 11:11 AM
To: Mary Makarios
Subject: Samples from ALS

Hi Mary,

We have two samples that are on its way from ALS with sample IDs:

- DUPB TP17-26-64/0.5
- DUP TP17-26-70/0.7

These two samples are to be analysed for IWRG621.

Thanks

Olfa Nazario
Environmental Scientist

D: +61 3 98612375

ONazario@pb.com.au

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Level 15, 28 Freshwater Place
Southbank VIC
3006 Australia

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eurofins | mgt

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ABN – 50 005 085 521 e.mail : EnviroSales@eurofins.com web : www.eurofins.com.au

Sample Receipt Advice

Company name:	**WSP | Parsons Brinckerhoff Australia P/L MELB**
Contact name:	Olfa Nazario
Project name:	OSAR - 2135645
Project ID:	2135645A
COC number:	Not provided
Turn around time:	5 Day
Date/Time received:	May 26, 2017 2:36 PM
Eurofins | mgt reference:	**547925**

Sample information

☑ A detailed list of analytes logged into our LIMS, is included in the attached summary table.

☑ All samples have been received as described on the above COC.

☑ COC has been completed correctly.

☑ Attempt to chill was evident.

☑ Appropriately preserved sample containers have been used.

☑ All samples were received in good condition.

☑ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.

☑ Appropriate sample containers have been used.

☒ Some samples have been subcontracted.

N/A Custody Seals intact (if used).

Contact notes

If you have any questions with respect to these samples please contact:

Mary Makarios on Phone : +61 3 8564 5000 or by e.mail: MaryMakarios@eurofins.com

Results will be delivered electronically via e.mail to Olfa Nazario - ONazario@pb.com.au.

eurofins | mgt

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NATA # 1261
Site # 18217

Company Name: WSP | Parsons Brinckerhoff Australia P/L MELB
Address: Lvl 15, 28 FreshwaterPlace
Southbank
VIC 3006

Project Name: OSAR - 2135645
Project ID: 2135645A

Order No.:
Report #: 547925
Phone: 9861 1111
Fax: 9861 1144

Received: May 26, 2017 2:36 PM
Due: Jun 2, 2017
Priority: 5 Day
Contact Name: Olfa Nazario

Eurofins | mgt Analytical Services Manager : Mary Makarios

Sample Detail						Moisture Set	Vic EPA IWRG 621 (Solids)
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X
Sydney Laboratory - NATA Site # 18217							
Brisbane Laboratory - NATA Site # 20794							
Perth Laboratory - NATA Site # 18217							
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	DUPB TP17-26-70/0.7	May 25, 2017		Soil	M17-My27410	X	X
Test Counts						1	1

eurofins | mgt

Certificate of Analysis

WSP | Parsons Brinckerhoff Australia P/L
Lvl 15, 28 FreshwaterPlace
Southbank
VIC 3006

NATA Accredited
Accreditation Number 1261
Site Number 1254

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Attention: **Olfa Nazario**

Report **547925-S**
Project name OSAR - 2135645
Project ID 2135645A
Received Date May 26, 2017

Client Sample ID			**DUPB TP17-26-70/0.7**
Sample Matrix			**Soil**
Eurofins | mgt Sample No.			**M17-My27410**
Date Sampled			**May 25, 2017**
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons - 1999 NEPM Fractions			
TRH C6-C9	20	mg/kg	< 20
TRH C10-C14	20	mg/kg	< 20
TRH C15-C28	50	mg/kg	< 50
TRH C29-C36	50	mg/kg	< 50
TRH C10-36 (Total)	50	mg/kg	< 50
Volatile Organics			
1.2.4-Trichlorobenzene	0.5	mg/kg	< 0.5
Hexachlorobutadiene	0.2	mg/kg	< 0.2
1.1-Dichloroethane	0.5	mg/kg	< 0.5
1.1-Dichloroethene	0.5	mg/kg	< 0.5
1.1.1-Trichloroethane	0.5	mg/kg	< 0.5
1.1.1.2-Tetrachloroethane	0.5	mg/kg	< 0.5
1.1.2-Trichloroethane	0.5	mg/kg	< 0.5
1.1.2.2-Tetrachloroethane	0.5	mg/kg	< 0.5
1.2-Dibromoethane	0.5	mg/kg	< 0.5
1.2-Dichlorobenzene	0.5	mg/kg	< 0.5
1.2-Dichloroethane	0.5	mg/kg	< 0.5
1.2-Dichloropropane	0.5	mg/kg	< 0.5
1.2.3-Trichloropropane	0.5	mg/kg	< 0.5
1.2.4-Trimethylbenzene	0.5	mg/kg	< 0.5
1.3-Dichlorobenzene	0.5	mg/kg	< 0.5
1.3-Dichloropropane	0.5	mg/kg	< 0.5
1.3.5-Trimethylbenzene	0.5	mg/kg	< 0.5
1.4-Dichlorobenzene	0.5	mg/kg	< 0.5
2-Butanone (MEK)	0.5	mg/kg	< 0.5
2-Propanone (Acetone)	0.5	mg/kg	< 0.5
4-Chlorotoluene	0.5	mg/kg	< 0.5
4-Methyl-2-pentanone (MIBK)	0.5	mg/kg	< 0.5
Allyl chloride	0.5	mg/kg	< 0.5
Benzene	0.1	mg/kg	< 0.1
Bromobenzene	0.5	mg/kg	< 0.5
Bromochloromethane	0.5	mg/kg	< 0.5
Bromodichloromethane	0.5	mg/kg	< 0.5
Bromoform	0.5	mg/kg	< 0.5
Bromomethane	0.5	mg/kg	< 0.5

Client Sample ID			DUPB TP17-26-70/0.7
Sample Matrix			**Soil**
Eurofins | mgt Sample No.			**M17-My27410**
Date Sampled			**May 25, 2017**
Test/Reference	LOR	Unit	
Volatile Organics			
Carbon disulfide	0.5	mg/kg	< 0.5
Carbon Tetrachloride	0.5	mg/kg	< 0.5
Chlorobenzene	0.5	mg/kg	< 0.5
Chloroethane	0.5	mg/kg	< 0.5
Chloroform	0.5	mg/kg	< 0.5
Chloromethane	0.5	mg/kg	< 0.5
cis-1.2-Dichloroethene	0.5	mg/kg	< 0.5
cis-1.3-Dichloropropene	0.5	mg/kg	< 0.5
Dibromochloromethane	0.5	mg/kg	< 0.5
Dibromomethane	0.5	mg/kg	< 0.5
Dichlorodifluoromethane	0.5	mg/kg	< 0.5
Ethylbenzene	0.1	mg/kg	< 0.1
Iodomethane	0.5	mg/kg	< 0.5
Isopropyl benzene (Cumene)	0.5	mg/kg	< 0.5
m&p-Xylenes	0.2	mg/kg	< 0.2
Methylene Chloride	0.5	mg/kg	< 0.5
o-Xylene	0.1	mg/kg	< 0.1
Styrene	0.5	mg/kg	< 0.5
Tetrachloroethene	0.5	mg/kg	< 0.5
Toluene	0.1	mg/kg	< 0.1
trans-1.2-Dichloroethene	0.5	mg/kg	< 0.5
trans-1.3-Dichloropropene	0.5	mg/kg	< 0.5
Trichloroethene	0.5	mg/kg	< 0.5
Trichlorofluoromethane	0.5	mg/kg	< 0.5
Vinyl chloride	0.5	mg/kg	< 0.5
Xylenes - Total	0.3	mg/kg	< 0.3
Fluorobenzene (surr.)	1	%	91
4-Bromofluorobenzene (surr.)	1	%	85
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene[N02]	0.5	mg/kg	< 0.5
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50
TRH C6-C10	20	mg/kg	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20
Polycyclic Aromatic Hydrocarbons			
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2
Acenaphthene	0.5	mg/kg	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5
Anthracene	0.5	mg/kg	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5
Chrysene	0.5	mg/kg	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5
Fluorene	0.5	mg/kg	< 0.5

Client Sample ID			DUPB TP17-26-70/0.7
Sample Matrix			**Soil**
Eurofins | mgt Sample No.			**M17-My27410**
Date Sampled			**May 25, 2017**
Test/Reference	LOR	Unit	
Polycyclic Aromatic Hydrocarbons			
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5
Naphthalene	0.5	mg/kg	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5
Pyrene	0.5	mg/kg	< 0.5
Total PAH*	0.5	mg/kg	< 0.5
2-Fluorobiphenyl (surr.)	1	%	117
p-Terphenyl-d14 (surr.)	1	%	82
Organochlorine Pesticides			
Chlordanes - Total	0.1	mg/kg	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05
a-BHC	0.05	mg/kg	< 0.05
Aldrin	0.05	mg/kg	< 0.05
b-BHC	0.05	mg/kg	< 0.05
d-BHC	0.05	mg/kg	< 0.05
Dieldrin	0.05	mg/kg	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05
Endrin	0.05	mg/kg	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05
Heptachlor	0.05	mg/kg	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05
Toxaphene	1	mg/kg	< 1
Dibutylchlorendate (surr.)	1	%	115
Tetrachloro-m-xylene (surr.)	1	%	94
Polychlorinated Biphenyls			
Aroclor-1016	0.1	mg/kg	< 0.1
Aroclor-1221	0.1	mg/kg	< 0.1
Aroclor-1232	0.1	mg/kg	< 0.1
Aroclor-1242	0.1	mg/kg	< 0.1
Aroclor-1248	0.1	mg/kg	< 0.1
Aroclor-1254	0.1	mg/kg	< 0.1
Aroclor-1260	0.1	mg/kg	< 0.1
Total PCB*	0.1	mg/kg	< 0.1
Dibutylchlorendate (surr.)	1	%	115
Tetrachloro-m-xylene (surr.)	1	%	94
Phenols (Halogenated)			
2-Chlorophenol	0.5	mg/kg	< 0.5
2.4-Dichlorophenol	0.5	mg/kg	< 0.5
2.4.5-Trichlorophenol	1.0	mg/kg	< 1
2.4.6-Trichlorophenol	1.0	mg/kg	< 1
2.6-Dichlorophenol	0.5	mg/kg	< 0.5
4-Chloro-3-methylphenol	1.0	mg/kg	< 1

Client Sample ID			DUPB TP17-26-70/0.7
Sample Matrix			**Soil**
Eurofins | mgt Sample No.			**M17-My27410**
Date Sampled			**May 25, 2017**
Test/Reference	LOR	Unit	
Phenols (Halogenated)			
Pentachlorophenol	1.0	mg/kg	< 1
Tetrachlorophenols - Total	1.0	mg/kg	< 1
Total Halogenated Phenol*	1	mg/kg	< 1
Phenols (non-Halogenated)			
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	< 20
2-Methyl-4.6-dinitrophenol	5	mg/kg	< 5
2-Methylphenol (o-Cresol)	0.2	mg/kg	< 0.2
2-Nitrophenol	1.0	mg/kg	< 1
2.4-Dimethylphenol	0.5	mg/kg	< 0.5
2.4-Dinitrophenol	5	mg/kg	< 5
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	< 0.4
4-Nitrophenol	5	mg/kg	< 5
Dinoseb	20	mg/kg	< 20
Phenol	0.5	mg/kg	< 0.5
Total Non-Halogenated Phenol*	20	mg/kg	< 20
Phenol-d6 (surr.)	1	%	115
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
TRH >C10-C16	50	mg/kg	< 50
TRH >C16-C34	100	mg/kg	< 100
TRH >C34-C40	100	mg/kg	< 100
Chromium (hexavalent)	1	mg/kg	< 1
Cyanide (total)	5	mg/kg	< 5
Fluoride	100	mg/kg	210
pH (1:5 Aqueous extract)	0.1	pH Units	6.6
% Moisture	1	%	2.5
Heavy Metals			
Arsenic	2	mg/kg	< 2
Cadmium	0.4	mg/kg	< 0.4
Chromium	5	mg/kg	< 5
Copper	5	mg/kg	< 5
Lead	5	mg/kg	< 5
Mercury	0.1	mg/kg	< 0.1
Molybdenum	5	mg/kg	< 5
Nickel	5	mg/kg	< 5
Selenium	2	mg/kg	< 2
Silver	0.2	mg/kg	< 0.2
Tin	10	mg/kg	< 10
Zinc	5	mg/kg	< 5

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Vic EPA IWRG 621 (Solids)			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	May 29, 2017	14 Day
- Method: TRH C6-C36 - LTM-ORG-2010			
Volatile Organics	Melbourne	May 29, 2017	7 Days
- Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	May 29, 2017	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Polycyclic Aromatic Hydrocarbons	Melbourne	May 29, 2017	14 Day
- Method: LTM-ORG-2140 PAH and Phenols in Soils by GCMS			
Organochlorine Pesticides	Melbourne	May 29, 2017	14 Day
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Polychlorinated Biphenyls	Melbourne	May 29, 2017	28 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Phenols (Halogenated)	Melbourne	May 29, 2017	14 Days
- Method: LTM-ORG-2140 PAH and Phenols in Soils by GCMS			
Phenols (non-Halogenated)	Melbourne	May 29, 2017	14 Day
- Method: LTM-ORG-2140 PAH and Phenols in Soils by GCMS			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	May 29, 2017	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Chromium (hexavalent)	Melbourne	May 30, 2017	28 Day
- Method: APHA 3500-Cr Hexavalent Chromium- (Extraction:- USEPA3060)			
Cyanide (total)	Melbourne	May 29, 2017	14 Day
- Method: LTM-INO-4020 Total Free WAD Cyanide by CFA			
Fluoride	Melbourne	May 30, 2017	28 Day
- Method: NEPC 404 (Fusion followed by ISE)			
pH (1:5 Aqueous extract)	Melbourne	May 29, 2017	7 Day
- Method: LTM-GEN-7090 pH in soil by ISE			
IWRG 621 Metals : Metals M12	Melbourne	May 29, 2017	28 Day
- Method: LTM-MET-3030 by ICP-OES (hydride ICP-OES for Mercury)			
% Moisture	Melbourne	May 27, 2017	14 Day
- Method: LTM-GEN-7080 Moisture			

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Address: Lvl 15, 28 FreshwaterPlace
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VIC 3006

Project Name: OSAR - 2135645
Project ID: 2135645A

Order No.:
Report #: 547925
Phone: 9861 1111
Fax: 9861 1144

Received: May 26, 2017 2:36 PM
Due: Jun 2, 2017
Priority: 5 Day
Contact Name: Olfa Nazario

Eurofins | mgt Analytical Services Manager : Mary Makarios

Sample Detail						Moisture Set	Vic EPA IWRG 621 (Solids)
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X
Sydney Laboratory - NATA Site # 18217							
Brisbane Laboratory - NATA Site # 20794							
Perth Laboratory - NATA Site # 18217							
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	DUPB TP17-26-70/0.7	May 25, 2017		Soil	M17-My27410	X	X
Test Counts						1	1

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. All biota results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands. In the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
Batch Duplicate	A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.
Batch SPIKE	Spike recovery reported on a sample from outside of the clients batch of samples but run within the laboratory batch of analysis.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs 20-130%

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
Volatile Organics							
1.2.4-Trichlorobenzene	mg/kg	< 0.5			0.5	Pass	
Hexachlorobutadiene	mg/kg	< 0.2			0.2	Pass	
1.1-Dichloroethane	mg/kg	< 0.5			0.5	Pass	
1.1-Dichloroethene	mg/kg	< 0.5			0.5	Pass	
1.1.1-Trichloroethane	mg/kg	< 0.5			0.5	Pass	
1.1.1.2-Tetrachloroethane	mg/kg	< 0.5			0.5	Pass	
1.1.2-Trichloroethane	mg/kg	< 0.5			0.5	Pass	
1.1.2.2-Tetrachloroethane	mg/kg	< 0.5			0.5	Pass	
1.2-Dibromoethane	mg/kg	< 0.5			0.5	Pass	
1.2-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.2-Dichloroethane	mg/kg	< 0.5			0.5	Pass	
1.2-Dichloropropane	mg/kg	< 0.5			0.5	Pass	
1.2.3-Trichloropropane	mg/kg	< 0.5			0.5	Pass	
1.2.4-Trimethylbenzene	mg/kg	< 0.5			0.5	Pass	
1.3-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.3-Dichloropropane	mg/kg	< 0.5			0.5	Pass	
1.3.5-Trimethylbenzene	mg/kg	< 0.5			0.5	Pass	
1.4-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
2-Butanone (MEK)	mg/kg	< 0.5			0.5	Pass	
2-Propanone (Acetone)	mg/kg	< 0.5			0.5	Pass	
4-Chlorotoluene	mg/kg	< 0.5			0.5	Pass	
4-Methyl-2-pentanone (MIBK)	mg/kg	< 0.5			0.5	Pass	
Allyl chloride	mg/kg	< 0.5			0.5	Pass	
Benzene	mg/kg	< 0.1			0.1	Pass	
Bromobenzene	mg/kg	< 0.5			0.5	Pass	
Bromochloromethane	mg/kg	< 0.5			0.5	Pass	
Bromodichloromethane	mg/kg	< 0.5			0.5	Pass	
Bromoform	mg/kg	< 0.5			0.5	Pass	
Bromomethane	mg/kg	< 0.5			0.5	Pass	
Carbon disulfide	mg/kg	< 0.5			0.5	Pass	
Carbon Tetrachloride	mg/kg	< 0.5			0.5	Pass	
Chlorobenzene	mg/kg	< 0.5			0.5	Pass	
Chloroethane	mg/kg	< 0.5			0.5	Pass	
Chloroform	mg/kg	< 0.5			0.5	Pass	
Chloromethane	mg/kg	< 0.5			0.5	Pass	
cis-1.2-Dichloroethene	mg/kg	< 0.5			0.5	Pass	
cis-1.3-Dichloropropene	mg/kg	< 0.5			0.5	Pass	
Dibromochloromethane	mg/kg	< 0.5			0.5	Pass	
Dibromomethane	mg/kg	< 0.5			0.5	Pass	
Dichlorodifluoromethane	mg/kg	< 0.5			0.5	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
Iodomethane	mg/kg	< 0.5			0.5	Pass	
Isopropyl benzene (Cumene)	mg/kg	< 0.5			0.5	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Methylene Chloride	mg/kg	< 0.5			0.5	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Styrene	mg/kg	< 0.5			0.5	Pass	
Tetrachloroethene	mg/kg	< 0.5			0.5	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
trans-1.2-Dichloroethene	mg/kg	< 0.5			0.5	Pass	
trans-1.3-Dichloropropene	mg/kg	< 0.5			0.5	Pass	
Trichloroethene	mg/kg	< 0.5			0.5	Pass	
Trichlorofluoromethane	mg/kg	< 0.5			0.5	Pass	
Vinyl chloride	mg/kg	< 0.5			0.5	Pass	
Xylenes - Total	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-BHC	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-BHC	mg/kg	< 0.05			0.05	Pass	
d-BHC	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-BHC (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Methoxychlor	mg/kg	< 0.05			0.05	Pass	
Toxaphene	mg/kg	< 1			1	Pass	
Method Blank							
Polychlorinated Biphenyls							
Aroclor-1016	mg/kg	< 0.1			0.1	Pass	
Aroclor-1221	mg/kg	< 0.1			0.1	Pass	
Aroclor-1232	mg/kg	< 0.1			0.1	Pass	
Aroclor-1242	mg/kg	< 0.1			0.1	Pass	
Aroclor-1248	mg/kg	< 0.1			0.1	Pass	
Aroclor-1254	mg/kg	< 0.1			0.1	Pass	
Aroclor-1260	mg/kg	< 0.1			0.1	Pass	
Total PCB*	mg/kg	< 0.1			0.1	Pass	
Method Blank							
Phenols (Halogenated)							
2-Chlorophenol	mg/kg	< 0.5			0.5	Pass	
2.4-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
2.4.5-Trichlorophenol	mg/kg	< 1			1.0	Pass	
2.4.6-Trichlorophenol	mg/kg	< 1			1.0	Pass	
2.6-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
4-Chloro-3-methylphenol	mg/kg	< 1			1.0	Pass	
Pentachlorophenol	mg/kg	< 1			1.0	Pass	
Tetrachlorophenols - Total	mg/kg	< 1			1.0	Pass	
Method Blank							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	mg/kg	< 20			20	Pass	
2-Methyl-4.6-dinitrophenol	mg/kg	< 5			5	Pass	
2-Methylphenol (o-Cresol)	mg/kg	< 0.2			0.2	Pass	
2-Nitrophenol	mg/kg	< 1			1.0	Pass	
2.4-Dimethylphenol	mg/kg	< 0.5			0.5	Pass	
2.4-Dinitrophenol	mg/kg	< 5			5	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/kg	< 0.4			0.4	Pass	
4-Nitrophenol	mg/kg	< 5			5	Pass	
Dinoseb	mg/kg	< 20			20	Pass	
Phenol	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Chromium (hexavalent)	mg/kg	< 1			1	Pass	
Cyanide (total)	mg/kg	< 5			5	Pass	
Fluoride	mg/kg	< 100			100	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Molybdenum	mg/kg	< 5			5	Pass	
Nickel	mg/kg	< 5			5	Pass	
Selenium	mg/kg	< 2			2	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Silver	mg/kg	< 0.2			0.2	Pass	
Tin	mg/kg	< 10			10	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	125			70-130	Pass	
TRH C10-C14	%	83			70-130	Pass	
LCS - % Recovery							
Volatile Organics							
1.1-Dichloroethene	%	97			70-130	Pass	
1.1.1-Trichloroethane	%	114			70-130	Pass	
1.2-Dichlorobenzene	%	113			70-130	Pass	
1.2-Dichloroethane	%	110			70-130	Pass	
Benzene	%	108			70-130	Pass	
Ethylbenzene	%	108			70-130	Pass	
m&p-Xylenes	%	114			70-130	Pass	
Toluene	%	109			70-130	Pass	
Trichloroethene	%	111			70-130	Pass	
Xylenes - Total	%	111			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	125			70-130	Pass	
TRH C6-C10	%	113			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	107			70-130	Pass	
Acenaphthylene	%	116			70-130	Pass	
Anthracene	%	114			70-130	Pass	
Benz(a)anthracene	%	110			70-130	Pass	
Benzo(a)pyrene	%	120			70-130	Pass	
Benzo(b&j)fluoranthene	%	126			70-130	Pass	
Benzo(g.h.i)perylene	%	108			70-130	Pass	
Benzo(k)fluoranthene	%	122			70-130	Pass	
Chrysene	%	104			70-130	Pass	
Dibenz(a.h)anthracene	%	127			70-130	Pass	
Fluoranthene	%	106			70-130	Pass	
Fluorene	%	112			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	116			70-130	Pass	
Naphthalene	%	107			70-130	Pass	
Phenanthrene	%	111			70-130	Pass	
Pyrene	%	98			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
4.4'-DDD	%	113			70-130	Pass	
4.4'-DDE	%	104			70-130	Pass	
4.4'-DDT	%	76			70-130	Pass	
a-BHC	%	101			70-130	Pass	
Aldrin	%	106			70-130	Pass	
b-BHC	%	90			70-130	Pass	
d-BHC	%	98			70-130	Pass	
Dieldrin	%	103			70-130	Pass	
Endosulfan I	%	103			70-130	Pass	
Endosulfan II	%	105			70-130	Pass	
Endosulfan sulphate	%	103			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endrin	%	104			70-130	Pass	
Endrin aldehyde	%	106			70-130	Pass	
Endrin ketone	%	108			70-130	Pass	
g-BHC (Lindane)	%	98			70-130	Pass	
Heptachlor	%	113			70-130	Pass	
Heptachlor epoxide	%	102			70-130	Pass	
Hexachlorobenzene	%	98			70-130	Pass	
Methoxychlor	%	78			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls							
Aroclor-1260	%	120			70-130	Pass	
LCS - % Recovery							
Phenols (Halogenated)							
2-Chlorophenol	%	108			30-130	Pass	
2.4-Dichlorophenol	%	111			30-130	Pass	
2.4.5-Trichlorophenol	%	115			30-130	Pass	
2.4.6-Trichlorophenol	%	113			30-130	Pass	
2.6-Dichlorophenol	%	111			30-130	Pass	
4-Chloro-3-methylphenol	%	114			30-130	Pass	
Pentachlorophenol	%	93			30-130	Pass	
Tetrachlorophenols - Total	%	116			30-130	Pass	
LCS - % Recovery							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	%	36			30-130	Pass	
2-Methyl-4.6-dinitrophenol	%	35			30-130	Pass	
2-Methylphenol (o-Cresol)	%	107			30-130	Pass	
2-Nitrophenol	%	87			30-130	Pass	
2.4-Dimethylphenol	%	103			30-130	Pass	
2.4-Dinitrophenol	%	31			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	%	116			30-130	Pass	
4-Nitrophenol	%	105			30-130	Pass	
Dinoseb	%	38			30-130	Pass	
Phenol	%	107			30-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	%	86			70-130	Pass	
LCS - % Recovery							
Chromium (hexavalent)	%	96			70-130	Pass	
Cyanide (total)	%	89			70-130	Pass	
Fluoride	%	108			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	110			80-120	Pass	
Cadmium	%	108			80-120	Pass	
Chromium	%	117			80-120	Pass	
Copper	%	114			80-120	Pass	
Lead	%	116			80-120	Pass	
Mercury	%	108			75-125	Pass	
Molybdenum	%	110			80-120	Pass	
Nickel	%	114			80-120	Pass	
Selenium	%	111			80-120	Pass	
Silver	%	108			80-120	Pass	
Tin	%	110			80-120	Pass	
Zinc	%	110			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	M17-My29237	NCP	%	102			70-130	Pass	
TRH C10-C14	M17-My27347	NCP	%	72			70-130	Pass	
Spike - % Recovery									
Volatile Organics				Result 1					
1.1-Dichloroethene	M17-My29237	NCP	%	79			70-130	Pass	
1.1.1-Trichloroethane	M17-My29237	NCP	%	96			70-130	Pass	
1.2-Dichlorobenzene	M17-My29237	NCP	%	108			70-130	Pass	
1.2-Dichloroethane	M17-My29237	NCP	%	98			70-130	Pass	
Benzene	M17-My29237	NCP	%	92			70-130	Pass	
Ethylbenzene	M17-My29237	NCP	%	102			70-130	Pass	
m&p-Xylenes	M17-My29237	NCP	%	110			70-130	Pass	
o-Xylene	M17-My29237	NCP	%	101			70-130	Pass	
Toluene	M17-My29237	NCP	%	95			70-130	Pass	
Trichloroethene	M17-My29237	NCP	%	95			70-130	Pass	
Xylenes - Total	M17-My29237	NCP	%	107			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	M17-My29237	NCP	%	118			70-130	Pass	
TRH C6-C10	M17-My29237	NCP	%	101			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	M17-My27410	CP	%	112			70-130	Pass	
Acenaphthylene	M17-My27410	CP	%	122			70-130	Pass	
Anthracene	M17-My27410	CP	%	124			70-130	Pass	
Benz(a)anthracene	M17-My27410	CP	%	117			70-130	Pass	
Benzo(a)pyrene	M17-My27410	CP	%	128			70-130	Pass	
Benzo(b&j)fluoranthene	M17-My27410	CP	%	121			70-130	Pass	
Benzo(g.h.i)perylene	M17-My27410	CP	%	117			70-130	Pass	
Benzo(k)fluoranthene	M17-My27410	CP	%	111			70-130	Pass	
Chrysene	M17-My27410	CP	%	110			70-130	Pass	
Dibenz(a.h)anthracene	M17-My27410	CP	%	121			70-130	Pass	
Fluoranthene	M17-My27410	CP	%	108			70-130	Pass	
Fluorene	M17-My27410	CP	%	116			70-130	Pass	
Indeno(1.2.3-cd)pyrene	M17-My27410	CP	%	124			70-130	Pass	
Naphthalene	M17-My27410	CP	%	108			70-130	Pass	
Phenanthrene	M17-My27410	CP	%	117			70-130	Pass	
Pyrene	M17-My27410	CP	%	100			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
4.4'-DDD	M17-My25230	NCP	%	106			70-130	Pass	
4.4'-DDE	M17-My25230	NCP	%	99			70-130	Pass	
4.4'-DDT	M17-My25230	NCP	%	90			70-130	Pass	
a-BHC	M17-My25230	NCP	%	96			70-130	Pass	
Aldrin	M17-My25230	NCP	%	100			70-130	Pass	
b-BHC	M17-My25230	NCP	%	87			70-130	Pass	
d-BHC	M17-My25230	NCP	%	94			70-130	Pass	
Dieldrin	M17-My25230	NCP	%	98			70-130	Pass	
Endosulfan I	M17-My25230	NCP	%	95			70-130	Pass	
Endosulfan II	M17-My25230	NCP	%	99			70-130	Pass	
Endosulfan sulphate	M17-My25230	NCP	%	96			70-130	Pass	
Endrin	M17-My25230	NCP	%	106			70-130	Pass	
Endrin aldehyde	M17-My25230	NCP	%	97			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endrin ketone	M17-My25230	NCP	%	98			70-130	Pass	
g-BHC (Lindane)	M17-My25230	NCP	%	93			70-130	Pass	
Heptachlor	M17-My25230	NCP	%	112			70-130	Pass	
Heptachlor epoxide	M17-My25230	NCP	%	95			70-130	Pass	
Hexachlorobenzene	M17-My25230	NCP	%	95			70-130	Pass	
Methoxychlor	M17-My25230	NCP	%	89			70-130	Pass	
Spike - % Recovery									
Polychlorinated Biphenyls				Result 1					
Aroclor-1260	M17-My25223	NCP	%	127			70-130	Pass	
Spike - % Recovery									
Phenols (Halogenated)				Result 1					
2-Chlorophenol	M17-My27410	CP	%	113			30-130	Pass	
2.4-Dichlorophenol	M17-My27410	CP	%	117			30-130	Pass	
2.4.5-Trichlorophenol	M17-My27410	CP	%	130			30-130	Pass	
2.4.6-Trichlorophenol	M17-My27410	CP	%	121			30-130	Pass	
2.6-Dichlorophenol	M17-My27410	CP	%	118			30-130	Pass	
4-Chloro-3-methylphenol	M17-My27410	CP	%	121			30-130	Pass	
Pentachlorophenol	M17-My27410	CP	%	113			30-130	Pass	
Tetrachlorophenols - Total	M17-My27410	CP	%	125			30-130	Pass	
Spike - % Recovery									
Phenols (non-Halogenated)				Result 1					
2-Cyclohexyl-4.6-dinitrophenol	M17-My26188	NCP	%	32			30-130	Pass	
2-Methyl-4.6-dinitrophenol	M17-My26188	NCP	%	33			30-130	Pass	
2-Methylphenol (o-Cresol)	M17-My27410	CP	%	118			30-130	Pass	
2-Nitrophenol	M17-My27410	CP	%	86			30-130	Pass	
2.4-Dimethylphenol	M17-My27410	CP	%	109			30-130	Pass	
2.4-Dinitrophenol	M17-My27510	NCP	%	41			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	M17-My27410	CP	%	121			30-130	Pass	
4-Nitrophenol	M17-My27410	CP	%	126			30-130	Pass	
Dinoseb	B17-My26727	NCP	%	31			30-130	Pass	
Phenol	M17-My27410	CP	%	114			30-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	M17-My27347	NCP	%	75			70-130	Pass	
Spike - % Recovery									
				Result 1					
Chromium (hexavalent)	M17-My29237	NCP	%	102			70-130	Pass	
Cyanide (total)	M17-My27427	NCP	%	81			70-130	Pass	
Fluoride	M17-My27427	NCP	%	91			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	M17-My27370	NCP	%	25			75-125	Fail	Q08
Cadmium	M17-My27370	NCP	%	104			75-125	Pass	
Chromium	M17-My27370	NCP	%	90			75-125	Pass	
Copper	M17-My27370	NCP	%	110			75-125	Pass	
Lead	M17-My27370	NCP	%	96			75-125	Pass	
Mercury	M17-My27370	NCP	%	100			70-130	Pass	
Molybdenum	M17-My27370	NCP	%	107			75-125	Pass	
Nickel	M17-My27370	NCP	%	108			75-125	Pass	
Selenium	M17-My27370	NCP	%	104			75-125	Pass	
Silver	M17-My27370	NCP	%	103			75-125	Pass	
Tin	M17-My27370	NCP	%	106			75-125	Pass	
Zinc	M17-My27370	NCP	%	42			75-125	Fail	Q08

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	M17-My25223	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	M17-My27346	NCP	mg/kg	45	54	18	30%	Pass	
TRH C15-C28	M17-My27346	NCP	mg/kg	63	74	16	30%	Pass	
TRH C29-C36	M17-My27346	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
Volatile Organics				Result 1	Result 2	RPD			
1.2.4-Trichlorobenzene	M17-My25223	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Hexachlorobutadiene	M17-My25223	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
1.1-Dichloroethane	M17-My25223	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1-Dichloroethene	M17-My25223	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.1-Trichloroethane	M17-My25223	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.1.2-Tetrachloroethane	M17-My25223	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.2-Trichloroethane	M17-My25223	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.2.2-Tetrachloroethane	M17-My25223	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dibromoethane	M17-My25223	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dichlorobenzene	M17-My25223	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dichloroethane	M17-My25223	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dichloropropane	M17-My25223	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2.3-Trichloropropane	M17-My25223	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2.4-Trimethylbenzene	M17-My25223	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.3-Dichlorobenzene	M17-My25223	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.3-Dichloropropane	M17-My25223	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.3.5-Trimethylbenzene	M17-My25223	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.4-Dichlorobenzene	M17-My25223	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2-Butanone (MEK)	M17-My25223	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2-Propanone (Acetone)	M17-My25223	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Chlorotoluene	M17-My25223	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Methyl-2-pentanone (MIBK)	M17-My25223	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Allyl chloride	M17-My25223	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzene	M17-My25223	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Bromobenzene	M17-My25223	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromochloromethane	M17-My25223	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromodichloromethane	M17-My25223	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromoform	M17-My25223	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromomethane	M17-My25223	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Carbon disulfide	M17-My25223	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Carbon Tetrachloride	M17-My25223	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chlorobenzene	M17-My25223	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chloroethane	M17-My25223	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chloroform	M17-My25223	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chloromethane	M17-My25223	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
cis-1.2-Dichloroethene	M17-My25223	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
cis-1.3-Dichloropropene	M17-My25223	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibromochloromethane	M17-My25223	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibromomethane	M17-My25223	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dichlorodifluoromethane	M17-My25223	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Ethylbenzene	M17-My25223	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Iodomethane	M17-My25223	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Isopropyl benzene (Cumene)	M17-My25223	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
m&p-Xylenes	M17-My25223	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Methylene Chloride	M17-My25223	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
o-Xylene	M17-My25223	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	

Duplicate									
Volatile Organics				Result 1	Result 2	RPD			
Styrene	M17-My25223	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Tetrachloroethene	M17-My25223	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Toluene	M17-My25223	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
trans-1.2-Dichloroethene	M17-My25223	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
trans-1.3-Dichloropropene	M17-My25223	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Trichloroethene	M17-My25223	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Trichlorofluoromethane	M17-My25223	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Vinyl chloride	M17-My25223	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Xylenes - Total	M17-My25223	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	M17-My25223	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	M17-My25223	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	M17-My28410	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	M17-My28410	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	M17-My28410	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	M17-My28410	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	M17-My28410	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	M17-My28410	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	M17-My28410	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	M17-My28410	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	M17-My28410	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	M17-My28410	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	M17-My28410	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	M17-My28410	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	M17-My28410	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	M17-My28410	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	M17-My28410	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	M17-My28410	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	A17-My28785	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	A17-My28785	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	B17-My17271	NCP	mg/kg	0.42	0.21	69	30%	Fail	Q15
4.4'-DDT	A17-My28785	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-BHC	A17-My28785	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	A17-My28785	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-BHC	A17-My28785	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-BHC	A17-My28785	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	A17-My28785	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	A17-My28785	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	A17-My28785	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	A17-My28785	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	A17-My28785	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	A17-My28785	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	M17-My26158	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-BHC (Lindane)	A17-My28785	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	A17-My28785	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	A17-My28785	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	A17-My28785	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	A17-My28785	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Toxaphene	A17-My28785	NCP	mg/kg	< 1	< 1	<1	30%	Pass	

Duplicate									
Polychlorinated Biphenyls				Result 1	Result 2	RPD			
Aroclor-1016	A17-My28785	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1221	A17-My28785	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1232	A17-My28785	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1242	A17-My28785	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1248	A17-My28785	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1254	A17-My28785	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1260	A17-My28785	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Total PCB*	A17-My28785	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
Phenols (Halogenated)				Result 1	Result 2	RPD			
2-Chlorophenol	M17-My28410	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dichlorophenol	M17-My28410	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4.5-Trichlorophenol	M17-My28410	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4.6-Trichlorophenol	M17-My28410	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
2.6-Dichlorophenol	M17-My28410	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Chloro-3-methylphenol	M17-My28410	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Pentachlorophenol	M17-My28410	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Tetrachlorophenols - Total	M17-My28410	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Duplicate									
Phenols (non-Halogenated)				Result 1	Result 2	RPD			
2-Cyclohexyl-4.6-dinitrophenol	M17-My28410	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
2-Methyl-4.6-dinitrophenol	M17-My28410	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
2-Methylphenol (o-Cresol)	M17-My28410	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
2-Nitrophenol	M17-My28410	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4-Dimethylphenol	M17-My28410	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dinitrophenol	M17-My28410	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
3&4-Methylphenol (m&p-Cresol)	M17-My28410	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
4-Nitrophenol	M17-My28410	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Dinoseb	M17-My28410	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
Phenol	M17-My28410	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	M17-My27346	NCP	mg/kg	77	93	19	30%	Pass	
TRH >C16-C34	M17-My27346	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	M17-My27346	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Chromium (hexavalent)	M17-My27410	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Cyanide (total)	M17-My27426	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Fluoride	M17-My27426	NCP	mg/kg	330	120	93	30%	Fail	Q15
pH (1:5 Aqueous extract)	M17-My26763	NCP	pH Units	7.9	7.9	pass	30%	Pass	
% Moisture	M17-My27346	NCP	%	15	15	1.0	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M17-My27409	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Cadmium	M17-My27409	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	M17-My27409	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Copper	M17-My27409	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Lead	M17-My27409	NCP	mg/kg	8.5	10	16	30%	Pass	
Mercury	M17-My27409	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Molybdenum	M17-My27409	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Nickel	M17-My27409	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Selenium	M17-My27409	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Silver	M17-My27409	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Tin	M17-My27409	NCP	mg/kg	< 10	< 10	<1	30%	Pass	
Zinc	M17-My27409	NCP	mg/kg	7.9	8.3	5.0	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
Q08	The matrix spike recovery is outside of the recommended acceptance criteria. An acceptable recovery was obtained for the laboratory control sample indicating a sample matrix interference
Q15	The RPD reported passes Eurofins | mgt's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised By

Mary Makarios	Analytical Services Manager
Alex Petridis	Senior Analyst-Metal (VIC)
Alex Petridis	Senior Analyst-Organic (VIC)
Harry Bacalis	Senior Analyst-Volatile (VIC)
Huong Le	Senior Analyst-Inorganic (VIC)
Joseph Edouard	Senior Analyst-Organic (VIC)



Glenn Jackson

National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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WSP | PARSONS BRINCKERHOFF

White Page - Laboratory Copy
Yellow Page - Project File Copy
Pink Page - Remains in Book

ABN 80 078 004 798

☐ **Adelaide** Level 1, 1 King William Street, GPO Box 398 Adelaide SA 5001 Tel: (08) 8405 4300 Fax: (08) 8405 4301

☐ **Brisbane** Level 3, Northbank Plaza 69 Ann Street, GPO Box 2907 Brisbane QLD 4001 Tel: (07) 3854 6200 Fax: (07) 3854 6500

☑ **Melbourne** Level 15, 28 Freshwater Place, Tel: (03) 9861 1111 Fax: (03) 9861 1144

☐ **Sydney** Level 27, Ernst & Young Centre 680 George Street, GPO Box 5394, Sydney NSW 2001 Tel: (02) 9272 5100 Fax: (02) 9272 5101

☐ **Perth** Level 5, 503 Murray Street, PO Box 7181 Cloisters Square WA 6850 Tel: (08) 9489 9700 Fax: (08) 9489 9777

☐ **Singleton** 188 John Street, PO Box 115 Singleton NSW 2330 Tel: (02) 6572 3377 Fax: (02) 6572 4080

☐ **Newcastle** Level 3, 51-55 Bolton Street, Suite 1 PO Box 1162 Newcastle NSW, 2300 Tel: (02) 4929 8300 Fax: (02) 4929 8382

Chain of Custody

Order No: 85463

Job Title: Mordialloc Bypass	PB Job Number: 2135645A	Job Location: Site 26	Project Manager: Olivia Henderson
Laboratory Name: ALS SPRINGVALE	Terms of Business: PB ✓	Other	Checked	Results Expected by/on:
Address:			Fax Results to: olivia.henderson@wsp.com
Fax Number:			Fax Number:
Phone Number:			Phone Number:
Contact Name:			Spreadsheet of Results Required: (Y) / N
Delivery Method:			Format:
Quote Number:			Turnaround Time Required:
			Invoice to: Olivia Henderson
			Comments:

Date Sampled	Time (Lab ID)	Sample I.D.	Container Size	Sample Location	Medium*	Preservative Type	Filtered (X)	TPH	BTEX	PAH's	OC/OP/PCB's	Metals**	Indoor Gas Suite	Indoor Gas Metals	BTEXN	TPH C6 - C10	Initials	Comments/Additional Information and/or Analysis Required
10.10.17	1	TB/101017	Vial		W										1	1		
↓	2	RB/101017	Vial plastic 250ml Jar		W									1				
↓	3	B17-68421		0.8	S								1					
11.10.17	4	RB/111017	Vial plastic 250ml Jar		W									1				
↓	5	B17-68420		0.7	S								1					
12.10.17	6	RB/121017	Vial plastic 250ml Jar		W									1				
↓	7	B17-68419		0.7	S								1					
↓	8	B17-68419	↓	7.4	S								1					
↓	9	DUPA-26/0.7			S								1					
↓	→	DUPB-26/0.7	↓		S								1				SLS	Forward to Eurofins 567678

Environmental Division
Melbourne
Work Order Reference
EM1714071

Telephone : +61-3-8549 9600

Relinquished by: SLS	Relinquished by: Rin (Ans	Relinquished by:	Medium*: S = Soil, W = Water, V = Vapour
Date & Time: 12/10 1645	Date & Time: 13/10/17 2:00pm	Date & Time:	Legend**: (circle the following to be tested)
Company: WSP	Company:	Company:	Metals: Al As Be Cd Co Cr Cu Fe Hg Li Mg Mn Ni Pb Se Sn V Zn
Signature:	Signature:	Signature:	
Received in Good Order & Condition by (Name): RAMA	Received in Good Order & Condition by (Name):	Received in Good Order & Condition by (Name): SA	Samples on Ice: ☐ Yes ☐ No
Date & Time: 12/10, 16.45	Date & Time:	Date & Time: 13/10 3:24pm	
Company: ALS	Company:	Company: SA	***Please fax back a signed copy when samples are received at the laboratory***
Signature:	Signature:	Signature:	

Melbourne
3-5 Kingston Town Close
Oakleigh Vic 3166
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
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Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
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NATA # 1261 Site # 23736

ABN – 50 005 085 521 e.mail : EnviroSales@eurofins.com web : www.eurofins.com.au

Sample Receipt Advice

Company name:	**WSP Australia P/L MELB**
Contact name:	Olivia Henderson
Project name:	MORDIALLOC BYPASS
Project ID:	2135645A
COC number:	Not provided
Turn around time:	5 Day
Date/Time received:	Oct 13, 2017 3:24 PM
Eurofins | mgt reference:	**567678**

Sample information

☑ A detailed list of analytes logged into our LIMS, is included in the attached summary table.

☑ All samples have been received as described on the above COC.

☑ COC has been completed correctly.

☑ Attempt to chill was evident.

☑ Appropriately preserved sample containers have been used.

☑ All samples were received in good condition.

☑ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.

☑ Appropriate sample containers have been used.

☒ Split sample sent to requested external lab.

☒ Some samples have been subcontracted.

N/A Custody Seals intact (if used).

Contact notes

If you have any questions with respect to these samples please contact:

Mary Makarios on Phone : +61 3 8564 5000 or by e.mail: MaryMakarios@eurofins.com

Results will be delivered electronically via e.mail to Olivia Henderson - ohenderson@pb.com.au.

eurofins | mgt

ABN– 50 005 085 521
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Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name: WSP Australia P/L MELB
Address: Lvl 15, 28 FreshwaterPlace
Southbank
VIC 3006

Project Name: MORDIALLOC BYPASS
Project ID: 2135645A

Order No.:
Report #: 567678
Phone: 9861 1111
Fax: 9861 1144

Received: Oct 13, 2017 3:24 PM
Due: Oct 20, 2017
Priority: 5 Day
Contact Name: Olivia Henderson

Eurofins | mgt Analytical Services Manager : Mary Makarios

Sample Detail						Moisture Set	Vic EPA IWRG 621 (Solids)
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X
Sydney Laboratory - NATA Site # 18217							
Brisbane Laboratory - NATA Site # 20794							
Perth Laboratory - NATA Site # 23736							
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	DUPB-26/0.7	Oct 12, 2017		Soil	M17-Oc16372	X	X
Test Counts						1	1

eurofins | mgt

Certificate of Analysis

WSP Australia P/L MELB
Lvl 15, 28 FreshwaterPlace
Southbank
VIC 3006

NATA Accredited
Accreditation Number 1261
Site Number 1254

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Attention: **Olivia Henderson**

Report **567678-S**
Project name MORDIALLOC BYPASS
Project ID 2135645A
Received Date Oct 13, 2017

Client Sample ID			**DUPB-26/0.7**
Sample Matrix			**Soil**
Eurofins | mgt Sample No.			**M17-Oc16372**
Date Sampled			**Oct 12, 2017**
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons - 1999 NEPM Fractions			
TRH C6-C9	20	mg/kg	< 20
TRH C10-C14	20	mg/kg	< 20
TRH C15-C28	50	mg/kg	< 50
TRH C29-C36	50	mg/kg	< 50
TRH C10-36 (Total)	50	mg/kg	< 50
Volatile Organics			
1.1-Dichloroethane	0.5	mg/kg	< 0.5
1.2.4-Trichlorobenzene	0.5	mg/kg	< 0.5
Hexachlorobutadiene	0.5	mg/kg	< 0.5
1.1-Dichloroethene	0.5	mg/kg	< 0.5
1.1.1-Trichloroethane	0.5	mg/kg	< 0.5
1.1.1.2-Tetrachloroethane	0.5	mg/kg	< 0.5
1.1.2-Trichloroethane	0.5	mg/kg	< 0.5
1.1.2.2-Tetrachloroethane	0.5	mg/kg	< 0.5
1.2-Dibromoethane	0.5	mg/kg	< 0.5
1.2-Dichlorobenzene	0.5	mg/kg	< 0.5
1.2-Dichloroethane	0.5	mg/kg	< 0.5
1.2-Dichloropropane	0.5	mg/kg	< 0.5
1.2.3-Trichloropropane	0.5	mg/kg	< 0.5
1.2.4-Trimethylbenzene	0.5	mg/kg	< 0.5
1.3-Dichlorobenzene	0.5	mg/kg	< 0.5
1.3-Dichloropropane	0.5	mg/kg	< 0.5
1.3.5-Trimethylbenzene	0.5	mg/kg	< 0.5
1.4-Dichlorobenzene	0.5	mg/kg	< 0.5
2-Butanone (MEK)	0.5	mg/kg	< 0.5
2-Propanone (Acetone)	0.5	mg/kg	< 0.5
4-Chlorotoluene	0.5	mg/kg	< 0.5
4-Methyl-2-pentanone (MIBK)	0.5	mg/kg	< 0.5
Allyl chloride	0.5	mg/kg	< 0.5
Benzene	0.1	mg/kg	< 0.1
Bromobenzene	0.5	mg/kg	< 0.5
Bromochloromethane	0.5	mg/kg	< 0.5
Bromodichloromethane	0.5	mg/kg	< 0.5
Bromoform	0.5	mg/kg	< 0.5
Bromomethane	0.5	mg/kg	< 0.5

Client Sample ID			DUPB-26/0.7
Sample Matrix			Soil
Eurofins | mgt Sample No.			M17-Oc16372
Date Sampled			Oct 12, 2017
Test/Reference	LOR	Unit	
Volatile Organics			
Carbon disulfide	0.5	mg/kg	< 0.5
Carbon Tetrachloride	0.5	mg/kg	< 0.5
Chlorobenzene	0.5	mg/kg	< 0.5
Chloroethane	0.5	mg/kg	< 0.5
Chloroform	0.5	mg/kg	< 0.5
Chloromethane	0.5	mg/kg	< 0.5
cis-1.2-Dichloroethene	0.5	mg/kg	< 0.5
cis-1.3-Dichloropropene	0.5	mg/kg	< 0.5
Dibromochloromethane	0.5	mg/kg	< 0.5
Dibromomethane	0.5	mg/kg	< 0.5
Dichlorodifluoromethane	0.5	mg/kg	< 0.5
Ethylbenzene	0.1	mg/kg	< 0.1
Iodomethane	0.5	mg/kg	< 0.5
Isopropyl benzene (Cumene)	0.5	mg/kg	< 0.5
m&p-Xylenes	0.2	mg/kg	< 0.2
Methylene Chloride	0.5	mg/kg	< 0.5
o-Xylene	0.1	mg/kg	< 0.1
Styrene	0.5	mg/kg	< 0.5
Tetrachloroethene	0.5	mg/kg	< 0.5
Toluene	0.1	mg/kg	< 0.1
trans-1.2-Dichloroethene	0.5	mg/kg	< 0.5
trans-1.3-Dichloropropene	0.5	mg/kg	< 0.5
Trichloroethene	0.5	mg/kg	< 0.5
Trichlorofluoromethane	0.5	mg/kg	< 0.5
Vinyl chloride	0.5	mg/kg	< 0.5
Xylenes - Total	0.3	mg/kg	< 0.3
Total MAH*	0.5	mg/kg	< 0.5
Vic EPA IWRG 621 CHC (Total)*	0.5	mg/kg	< 0.5
Vic EPA IWRG 621 Other CHC (Total)*	0.5	mg/kg	< 0.5
4-Bromofluorobenzene (surr.)	1	%	101
Toluene-d8 (surr.)	1	%	87
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene[N02]	0.5	mg/kg	< 0.5
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20
TRH C6-C10	20	mg/kg	< 20
TRH >C10-C16	50	mg/kg	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50
TRH >C16-C34	100	mg/kg	< 100
TRH >C34-C40	100	mg/kg	< 100
Polycyclic Aromatic Hydrocarbons			
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2
Acenaphthene	0.5	mg/kg	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5
Anthracene	0.5	mg/kg	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5

Client Sample ID			DUPB-26/0.7
Sample Matrix			Soil
Eurofins | mgt Sample No.			M17-Oc16372
Date Sampled			Oct 12, 2017
Test/Reference	LOR	Unit	
Polycyclic Aromatic Hydrocarbons			
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5
Chrysene	0.5	mg/kg	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5
Fluorene	0.5	mg/kg	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5
Naphthalene	0.5	mg/kg	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5
Pyrene	0.5	mg/kg	< 0.5
Total PAH*	0.5	mg/kg	< 0.5
2-Fluorobiphenyl (surr.)	1	%	105
p-Terphenyl-d14 (surr.)	1	%	105
Organochlorine Pesticides			
Chlordanes - Total	0.1	mg/kg	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05
a-BHC	0.05	mg/kg	< 0.05
Aldrin	0.05	mg/kg	< 0.05
b-BHC	0.05	mg/kg	< 0.05
d-BHC	0.05	mg/kg	< 0.05
Dieldrin	0.05	mg/kg	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05
Endrin	0.05	mg/kg	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05
Heptachlor	0.05	mg/kg	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05
Toxaphene	1	mg/kg	< 1
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1
Dibutylchlorendate (surr.)	1	%	67
Tetrachloro-m-xylene (surr.)	1	%	93
Polychlorinated Biphenyls			
Aroclor-1016	0.1	mg/kg	< 0.1
Aroclor-1221	0.1	mg/kg	< 0.1
Aroclor-1232	0.1	mg/kg	< 0.1
Aroclor-1242	0.1	mg/kg	< 0.1
Aroclor-1248	0.1	mg/kg	< 0.1
Aroclor-1254	0.1	mg/kg	< 0.1
Aroclor-1260	0.1	mg/kg	< 0.1

Client Sample ID			DUPB-26/0.7
Sample Matrix			Soil
Eurofins | mgt Sample No.			M17-Oc16372
Date Sampled			Oct 12, 2017
Test/Reference	LOR	Unit	
Polychlorinated Biphenyls			
Total PCB*	0.1	mg/kg	< 0.1
Dibutylchlorendate (surr.)	1	%	67
Tetrachloro-m-xylene (surr.)	1	%	93
Phenols (Halogenated)			
2-Chlorophenol	0.5	mg/kg	< 0.5
2.4-Dichlorophenol	0.5	mg/kg	< 0.5
2.4.5-Trichlorophenol	1.0	mg/kg	< 1
2.4.6-Trichlorophenol	1.0	mg/kg	< 1
2.6-Dichlorophenol	0.5	mg/kg	< 0.5
4-Chloro-3-methylphenol	1.0	mg/kg	< 1
Pentachlorophenol	1.0	mg/kg	< 1
Tetrachlorophenols - Total	1.0	mg/kg	< 1
Total Halogenated Phenol*	1	mg/kg	< 1
Phenols (non-Halogenated)			
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	< 20
2-Methyl-4.6-dinitrophenol	5	mg/kg	< 5
2-Methylphenol (o-Cresol)	0.2	mg/kg	< 0.2
2-Nitrophenol	1.0	mg/kg	< 1
2.4-Dimethylphenol	0.5	mg/kg	< 0.5
2.4-Dinitrophenol	5	mg/kg	< 5
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	< 0.4
4-Nitrophenol	5	mg/kg	< 5
Dinoseb	20	mg/kg	< 20
Phenol	0.5	mg/kg	< 0.5
Total Non-Halogenated Phenol*	20	mg/kg	< 20
Phenol-d6 (surr.)	1	%	86
Chromium (hexavalent)	1	mg/kg	< 1
Cyanide (total)	5	mg/kg	< 5
Fluoride	100	mg/kg	150
pH (1:5 Aqueous extract)	0.1	pH Units	10
% Moisture	1	%	12
Heavy Metals			
Arsenic	2	mg/kg	16
Cadmium	0.4	mg/kg	< 0.4
Chromium	5	mg/kg	26
Copper	5	mg/kg	12
Lead	5	mg/kg	12
Mercury	0.1	mg/kg	< 0.1
Molybdenum	5	mg/kg	< 5
Nickel	5	mg/kg	21
Selenium	2	mg/kg	< 2
Silver	0.2	mg/kg	< 0.2
Tin	10	mg/kg	< 10
Zinc	5	mg/kg	28

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Vic EPA IWRG 621 (Solids)			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Oct 18, 2017	14 Day
- Method: LTM-ORG-2010 TRH C6-C36			
Volatile Organics	Melbourne	Oct 18, 2017	7 Days
- Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Oct 18, 2017	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Oct 18, 2017	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Polycyclic Aromatic Hydrocarbons	Melbourne	Oct 18, 2017	14 Day
- Method: LTM-ORG-2140 PAH and Phenols in Soils by GCMS			
Organochlorine Pesticides	Melbourne	Oct 18, 2017	14 Day
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Polychlorinated Biphenyls	Melbourne	Oct 18, 2017	28 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Phenols (Halogenated)	Melbourne	Oct 18, 2017	14 Days
- Method: LTM-ORG-2140 PAH and Phenols in Soils by GCMS			
Phenols (non-Halogenated)	Melbourne	Oct 18, 2017	14 Day
- Method: LTM-ORG-2140 PAH and Phenols in Soils by GCMS			
Chromium (hexavalent)	Melbourne	Oct 18, 2017	28 Day
- Method: APHA 3500-Cr Hexavalent Chromium- (Extraction:- USEPA3060)			
Cyanide (total)	Melbourne	Oct 18, 2017	14 Day
- Method: LTM-INO-4020 Total Free WAD Cyanide by CFA			
Fluoride	Melbourne	Oct 19, 2017	28 Day
- Method: LTM-INO-4150 Determination of Total Fluoride PART A – CIC			
pH (1:5 Aqueous extract)	Melbourne	Oct 18, 2017	7 Day
- Method: LTM-GEN-7090 pH in soil by ISE			
IWRG 621 Metals : Metals M12	Melbourne	Oct 18, 2017	28 Day
- Method: LTM-MET-3030 by ICP-OES (hydride ICP-OES for Mercury)			
% Moisture	Melbourne	Oct 14, 2017	14 Day
- Method: LTM-GEN-7080 Moisture			

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NATA # 1261
Site # 23736

Company Name:	WSP Australia P/L MELB	**Order No.:**	
Address:	Lvl 15, 28 FreshwaterPlace Southbank VIC 3006	**Report #:** **Phone:** **Fax:**	567678 9861 1111 9861 1144
Project Name:	MORDIALLOC BYPASS		
Project ID:	2135645A		

Received:	Oct 13, 2017 3:24 PM		
Due:	Oct 20, 2017		
Priority:	5 Day		
Contact Name:	Olivia Henderson		

Eurofins | mgt Analytical Services Manager : Mary Makarios

Sample Detail						Moisture Set	Vic EPA IWRG 621 (Solids)
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X
Sydney Laboratory - NATA Site # 18217							
Brisbane Laboratory - NATA Site # 20794							
Perth Laboratory - NATA Site # 23736							
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	DUPB-26/0.7	Oct 12, 2017		Soil	M17-Oc16372	X	X
Test Counts						1	1

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. All biota results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	Quality Systems Manual ver 5.1 US Department of Defense
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.1 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
Volatile Organics							
1.1-Dichloroethane	mg/kg	< 0.5			0.5	Pass	
1.2.4-Trichlorobenzene	mg/kg	< 0.5			0.5	Pass	
Hexachlorobutadiene	mg/kg	< 0.5			0.5	Pass	
1.1-Dichloroethene	mg/kg	< 0.5			0.5	Pass	
1.1.1-Trichloroethane	mg/kg	< 0.5			0.5	Pass	
1.1.1.2-Tetrachloroethane	mg/kg	< 0.5			0.5	Pass	
1.1.2-Trichloroethane	mg/kg	< 0.5			0.5	Pass	
1.1.2.2-Tetrachloroethane	mg/kg	< 0.5			0.5	Pass	
1.2-Dibromoethane	mg/kg	< 0.5			0.5	Pass	
1.2-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.2-Dichloroethane	mg/kg	< 0.5			0.5	Pass	
1.2-Dichloropropane	mg/kg	< 0.5			0.5	Pass	
1.2.3-Trichloropropane	mg/kg	< 0.5			0.5	Pass	
1.2.4-Trimethylbenzene	mg/kg	< 0.5			0.5	Pass	
1.3-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.3-Dichloropropane	mg/kg	< 0.5			0.5	Pass	
1.3.5-Trimethylbenzene	mg/kg	< 0.5			0.5	Pass	
1.4-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
2-Butanone (MEK)	mg/kg	< 0.5			0.5	Pass	
2-Propanone (Acetone)	mg/kg	< 0.5			0.5	Pass	
4-Chlorotoluene	mg/kg	< 0.5			0.5	Pass	
4-Methyl-2-pentanone (MIBK)	mg/kg	< 0.5			0.5	Pass	
Allyl chloride	mg/kg	< 0.5			0.5	Pass	
Benzene	mg/kg	< 0.1			0.1	Pass	
Bromobenzene	mg/kg	< 0.5			0.5	Pass	
Bromochloromethane	mg/kg	< 0.5			0.5	Pass	
Bromodichloromethane	mg/kg	< 0.5			0.5	Pass	
Bromoform	mg/kg	< 0.5			0.5	Pass	
Bromomethane	mg/kg	< 0.5			0.5	Pass	
Carbon disulfide	mg/kg	< 0.5			0.5	Pass	
Carbon Tetrachloride	mg/kg	< 0.5			0.5	Pass	
Chlorobenzene	mg/kg	< 0.5			0.5	Pass	
Chloroethane	mg/kg	< 0.5			0.5	Pass	
Chloroform	mg/kg	< 0.5			0.5	Pass	
Chloromethane	mg/kg	< 0.5			0.5	Pass	
cis-1.2-Dichloroethene	mg/kg	< 0.5			0.5	Pass	
cis-1.3-Dichloropropene	mg/kg	< 0.5			0.5	Pass	
Dibromochloromethane	mg/kg	< 0.5			0.5	Pass	
Dibromomethane	mg/kg	< 0.5			0.5	Pass	
Dichlorodifluoromethane	mg/kg	< 0.5			0.5	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
Iodomethane	mg/kg	< 0.5			0.5	Pass	
Isopropyl benzene (Cumene)	mg/kg	< 0.5			0.5	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Methylene Chloride	mg/kg	< 0.5			0.5	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Styrene	mg/kg	< 0.5			0.5	Pass	
Tetrachloroethene	mg/kg	< 0.5			0.5	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
trans-1.2-Dichloroethene	mg/kg	< 0.5			0.5	Pass	
trans-1.3-Dichloropropene	mg/kg	< 0.5			0.5	Pass	
Trichloroethene	mg/kg	< 0.5			0.5	Pass	
Trichlorofluoromethane	mg/kg	< 0.5			0.5	Pass	
Vinyl chloride	mg/kg	< 0.5			0.5	Pass	
Xylenes - Total	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-BHC	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-BHC	mg/kg	< 0.05			0.05	Pass	
d-BHC	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-BHC (Lindane)	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.05			0.05	Pass	
Toxaphene	mg/kg	< 1			1	Pass	
Method Blank							
Polychlorinated Biphenyls							
Aroclor-1016	mg/kg	< 0.1			0.1	Pass	
Aroclor-1221	mg/kg	< 0.1			0.1	Pass	
Aroclor-1232	mg/kg	< 0.1			0.1	Pass	
Aroclor-1242	mg/kg	< 0.1			0.1	Pass	
Aroclor-1248	mg/kg	< 0.1			0.1	Pass	
Aroclor-1254	mg/kg	< 0.1			0.1	Pass	
Aroclor-1260	mg/kg	< 0.1			0.1	Pass	
Total PCB*	mg/kg	< 0.1			0.1	Pass	
Method Blank							
Phenols (Halogenated)							
2-Chlorophenol	mg/kg	< 0.5			0.5	Pass	
2.4-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
2.4.5-Trichlorophenol	mg/kg	< 1			1.0	Pass	
2.4.6-Trichlorophenol	mg/kg	< 1			1.0	Pass	
2.6-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
4-Chloro-3-methylphenol	mg/kg	< 1			1.0	Pass	
Pentachlorophenol	mg/kg	< 1			1.0	Pass	
Tetrachlorophenols - Total	mg/kg	< 1			1.0	Pass	
Method Blank							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	mg/kg	< 20			20	Pass	
2-Methyl-4.6-dinitrophenol	mg/kg	< 5			5	Pass	
2-Methylphenol (o-Cresol)	mg/kg	< 0.2			0.2	Pass	
2-Nitrophenol	mg/kg	< 1			1.0	Pass	
2.4-Dimethylphenol	mg/kg	< 0.5			0.5	Pass	
2.4-Dinitrophenol	mg/kg	< 5			5	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/kg	< 0.4			0.4	Pass	
4-Nitrophenol	mg/kg	< 5			5	Pass	
Dinoseb	mg/kg	< 20			20	Pass	
Phenol	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Chromium (hexavalent)	mg/kg	< 1			1	Pass	
Cyanide (total)	mg/kg	< 5			5	Pass	
Fluoride	mg/kg	< 100			100	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Molybdenum	mg/kg	< 5			5	Pass	
Nickel	mg/kg	< 5			5	Pass	
Selenium	mg/kg	< 2			2	Pass	
Silver	mg/kg	< 0.2			0.2	Pass	
Tin	mg/kg	< 10			10	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	100			70-130	Pass	
TRH C10-C14	%	103			70-130	Pass	
LCS - % Recovery							
Volatile Organics							
1.1-Dichloroethene	%	79			70-130	Pass	
1.1.1-Trichloroethane	%	77			70-130	Pass	
1.2-Dichlorobenzene	%	108			70-130	Pass	
1.2-Dichloroethane	%	93			70-130	Pass	
Benzene	%	92			70-130	Pass	
Ethylbenzene	%	102			70-130	Pass	
m&p-Xylenes	%	103			70-130	Pass	
Toluene	%	94			70-130	Pass	
Trichloroethene	%	95			70-130	Pass	
Xylenes - Total	%	102			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	104			70-130	Pass	
TRH C6-C10	%	92			70-130	Pass	
TRH >C10-C16	%	99			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	97			70-130	Pass	
Acenaphthylene	%	90			70-130	Pass	
Anthracene	%	79			70-130	Pass	
Benz(a)anthracene	%	80			70-130	Pass	
Benzo(a)pyrene	%	87			70-130	Pass	
Benzo(b&j)fluoranthene	%	81			70-130	Pass	
Benzo(g.h.i)perylene	%	80			70-130	Pass	
Benzo(k)fluoranthene	%	92			70-130	Pass	
Chrysene	%	91			70-130	Pass	
Dibenz(a.h)anthracene	%	96			70-130	Pass	
Fluoranthene	%	98			70-130	Pass	
Fluorene	%	96			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	84			70-130	Pass	
Naphthalene	%	95			70-130	Pass	
Phenanthrene	%	78			70-130	Pass	
Pyrene	%	95			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
4.4'-DDD	%	85			70-130	Pass	
4.4'-DDE	%	96			70-130	Pass	
4.4'-DDT	%	104			70-130	Pass	
a-BHC	%	118			70-130	Pass	
Aldrin	%	101			70-130	Pass	
b-BHC	%	91			70-130	Pass	
d-BHC	%	121			70-130	Pass	
Dieldrin	%	116			70-130	Pass	
Endosulfan I	%	106			70-130	Pass	
Endosulfan II	%	88			70-130	Pass	
Endosulfan sulphate	%	81			70-130	Pass	
Endrin	%	106			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endrin aldehyde	%	81			70-130	Pass	
Endrin ketone	%	107			70-130	Pass	
g-BHC (Lindane)	%	125			70-130	Pass	
Heptachlor	%	97			70-130	Pass	
Heptachlor epoxide	%	98			70-130	Pass	
Hexachlorobenzene	%	80			70-130	Pass	
Methoxychlor	%	108			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls							
Aroclor-1260	%	85			70-130	Pass	
LCS - % Recovery							
Phenols (Halogenated)							
2-Chlorophenol	%	119			30-130	Pass	
2.4-Dichlorophenol	%	104			30-130	Pass	
2.4.5-Trichlorophenol	%	115			30-130	Pass	
2.4.6-Trichlorophenol	%	90			30-130	Pass	
2.6-Dichlorophenol	%	97			30-130	Pass	
4-Chloro-3-methylphenol	%	96			30-130	Pass	
Pentachlorophenol	%	83			30-130	Pass	
Tetrachlorophenols - Total	%	81			30-130	Pass	
LCS - % Recovery							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	%	39			30-130	Pass	
2-Methyl-4.6-dinitrophenol	%	57			30-130	Pass	
2-Methylphenol (o-Cresol)	%	95			30-130	Pass	
2-Nitrophenol	%	90			30-130	Pass	
2.4-Dimethylphenol	%	85			30-130	Pass	
2.4-Dinitrophenol	%	33			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	%	91			30-130	Pass	
4-Nitrophenol	%	79			30-130	Pass	
Dinoseb	%	44			30-130	Pass	
Phenol	%	112			30-130	Pass	
LCS - % Recovery							
Chromium (hexavalent)	%	94			70-130	Pass	
Cyanide (total)	%	96			70-130	Pass	
Fluoride	%	107			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	112			80-120	Pass	
Cadmium	%	119			80-120	Pass	
Chromium	%	120			80-120	Pass	
Copper	%	118			80-120	Pass	
Lead	%	120			80-120	Pass	
Mercury	%	120			75-125	Pass	
Molybdenum	%	119			80-120	Pass	
Nickel	%	118			80-120	Pass	
Selenium	%	113			80-120	Pass	
Silver	%	119			80-120	Pass	
Tin	%	108			80-120	Pass	
Zinc	%	118			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	M17-Oc22454	NCP	%	108			70-130	Pass	
TRH C10-C14	M17-Oc16838	NCP	%	74			70-130	Pass	
Spike - % Recovery									
Volatile Organics				Result 1					
1.1-Dichloroethene	M17-Oc22454	NCP	%	82			70-130	Pass	
1.1.1-Trichloroethane	M17-Oc22454	NCP	%	83			70-130	Pass	
1.2-Dichlorobenzene	M17-Oc22454	NCP	%	115			70-130	Pass	
1.2-Dichloroethane	M17-Oc22454	NCP	%	102			70-130	Pass	
Benzene	M17-Oc22454	NCP	%	103			70-130	Pass	
Ethylbenzene	M17-Oc22454	NCP	%	110			70-130	Pass	
m&p-Xylenes	M17-Oc22454	NCP	%	111			70-130	Pass	
o-Xylene	M17-Oc22454	NCP	%	107			70-130	Pass	
Toluene	M17-Oc22454	NCP	%	103			70-130	Pass	
Trichloroethene	M17-Oc22454	NCP	%	101			70-130	Pass	
Xylenes - Total	M17-Oc22454	NCP	%	110			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	M17-Oc22454	NCP	%	106			70-130	Pass	
TRH C6-C10	M17-Oc22454	NCP	%	101			70-130	Pass	
TRH >C10-C16	M17-Oc16838	NCP	%	72			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	M17-Oc19048	NCP	%	92			70-130	Pass	
Acenaphthylene	M17-Oc19048	NCP	%	89			70-130	Pass	
Anthracene	M17-Oc19048	NCP	%	74			70-130	Pass	
Benz(a)anthracene	M17-Oc19048	NCP	%	82			70-130	Pass	
Benzo(a)pyrene	M17-Oc19048	NCP	%	98			70-130	Pass	
Benzo(b&j)fluoranthene	M17-Oc19048	NCP	%	73			70-130	Pass	
Benzo(g.h.i)perylene	M17-Oc19048	NCP	%	85			70-130	Pass	
Benzo(k)fluoranthene	M17-Oc19048	NCP	%	107			70-130	Pass	
Chrysene	M17-Oc19048	NCP	%	85			70-130	Pass	
Dibenz(a.h)anthracene	M17-Oc19048	NCP	%	101			70-130	Pass	
Fluoranthene	M17-Oc19048	NCP	%	84			70-130	Pass	
Fluorene	M17-Oc19048	NCP	%	90			70-130	Pass	
Indeno(1.2.3-cd)pyrene	M17-Oc19048	NCP	%	91			70-130	Pass	
Naphthalene	M17-Oc19048	NCP	%	89			70-130	Pass	
Phenanthrene	M17-Oc19048	NCP	%	75			70-130	Pass	
Pyrene	M17-Oc19048	NCP	%	79			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
4.4'-DDD	B17-Oc12975	NCP	%	75			70-130	Pass	
4.4'-DDE	B17-Oc12975	NCP	%	85			70-130	Pass	
4.4'-DDT	B17-Oc12975	NCP	%	110			70-130	Pass	
a-BHC	B17-Oc12975	NCP	%	126			70-130	Pass	
Aldrin	B17-Oc12975	NCP	%	88			70-130	Pass	
b-BHC	B17-Oc12975	NCP	%	80			70-130	Pass	
d-BHC	B17-Oc12975	NCP	%	99			70-130	Pass	
Dieldrin	B17-Oc12975	NCP	%	102			70-130	Pass	
Endosulfan I	B17-Oc12975	NCP	%	96			70-130	Pass	
Endosulfan II	B17-Oc12975	NCP	%	77			70-130	Pass	
Endosulfan sulphate	B17-Oc12975	NCP	%	92			70-130	Pass	
Endrin	B17-Oc12975	NCP	%	96			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endrin aldehyde	B17-Oc12975	NCP	%	108			70-130	Pass	
Endrin ketone	B17-Oc12975	NCP	%	86			70-130	Pass	
g-BHC (Lindane)	B17-Oc12975	NCP	%	103			70-130	Pass	
Heptachlor	B17-Oc12975	NCP	%	95			70-130	Pass	
Heptachlor epoxide	B17-Oc12975	NCP	%	90			70-130	Pass	
Hexachlorobenzene	B17-Oc12975	NCP	%	94			70-130	Pass	
Methoxychlor	B17-Oc12975	NCP	%	94			70-130	Pass	
Spike - % Recovery									
Polychlorinated Biphenyls				Result 1					
Aroclor-1260	B17-Oc12969	NCP	%	70			70-130	Pass	
Spike - % Recovery									
Phenols (Halogenated)				Result 1					
2-Chlorophenol	M17-Oc19048	NCP	%	107			30-130	Pass	
2.4-Dichlorophenol	M17-Oc19048	NCP	%	85			30-130	Pass	
2.4.5-Trichlorophenol	M17-Oc19048	NCP	%	72			30-130	Pass	
2.4.6-Trichlorophenol	M17-Oc19048	NCP	%	30			30-130	Pass	
2.6-Dichlorophenol	M17-Oc19048	NCP	%	71			30-130	Pass	
4-Chloro-3-methylphenol	M17-Oc19048	NCP	%	86			30-130	Pass	
Pentachlorophenol	M17-Oc19028	NCP	%	73			30-130	Pass	
Tetrachlorophenols - Total	M17-Oc19028	NCP	%	105			30-130	Pass	
Spike - % Recovery									
Phenols (non-Halogenated)				Result 1					
2-Cyclohexyl-4.6-dinitrophenol	M17-Oc19048	NCP	%	32			30-130	Pass	
2-Methyl-4.6-dinitrophenol	M17-Oc19048	NCP	%	33			30-130	Pass	
2-Methylphenol (o-Cresol)	M17-Oc19048	NCP	%	82			30-130	Pass	
2-Nitrophenol	M17-Oc19048	NCP	%	60			30-130	Pass	
2.4-Dimethylphenol	M17-Oc19048	NCP	%	83			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	M17-Oc19048	NCP	%	83			30-130	Pass	
4-Nitrophenol	M17-Oc19048	NCP	%	48			30-130	Pass	
Dinoseb	M17-Oc19048	NCP	%	39			30-130	Pass	
Phenol	M17-Oc19048	NCP	%	99			30-130	Pass	
Spike - % Recovery									
				Result 1					
Chromium (hexavalent)	M17-Oc15560	NCP	%	96			70-130	Pass	
Cyanide (total)	M17-Oc15626	NCP	%	71			70-130	Pass	
Fluoride	M17-Oc15989	NCP	%	47			70-130	Fail	Q08
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S17-Oc14004	NCP	%	105			75-125	Pass	
Cadmium	S17-Oc14004	NCP	%	109			75-125	Pass	
Chromium	S17-Oc14004	NCP	%	104			75-125	Pass	
Copper	S17-Oc14004	NCP	%	111			75-125	Pass	
Lead	S17-Oc14004	NCP	%	116			75-125	Pass	
Mercury	S17-Oc14004	NCP	%	103			70-130	Pass	
Molybdenum	S17-Oc14004	NCP	%	111			75-125	Pass	
Nickel	S17-Oc14004	NCP	%	109			75-125	Pass	
Selenium	S17-Oc14004	NCP	%	105			75-125	Pass	
Silver	S17-Oc14004	NCP	%	104			75-125	Pass	
Tin	S17-Oc14004	NCP	%	97			75-125	Pass	
Zinc	S17-Oc14004	NCP	%	97			75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	P17-Oc15243	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	M17-Oc16182	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	M17-Oc16182	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	M17-Oc16182	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
Volatile Organics				Result 1	Result 2	RPD			
1.1-Dichloroethane	P17-Oc15243	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2.4-Trichlorobenzene	P17-Oc15243	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Hexachlorobutadiene	P17-Oc15243	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1-Dichloroethene	P17-Oc15243	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.1-Trichloroethane	P17-Oc15243	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.1.2-Tetrachloroethane	P17-Oc15243	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.2-Trichloroethane	P17-Oc15243	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.2.2-Tetrachloroethane	P17-Oc15243	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dibromoethane	P17-Oc15243	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dichlorobenzene	P17-Oc15243	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dichloroethane	P17-Oc15243	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dichloropropane	P17-Oc15243	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2.3-Trichloropropane	P17-Oc15243	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2.4-Trimethylbenzene	P17-Oc15243	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.3-Dichlorobenzene	P17-Oc15243	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.3-Dichloropropane	P17-Oc15243	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.3.5-Trimethylbenzene	P17-Oc15243	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.4-Dichlorobenzene	P17-Oc15243	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2-Butanone (MEK)	P17-Oc15243	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2-Propanone (Acetone)	P17-Oc15243	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Chlorotoluene	P17-Oc15243	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Methyl-2-pentanone (MIBK)	P17-Oc15243	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Allyl chloride	P17-Oc15243	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzene	P17-Oc15243	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Bromobenzene	P17-Oc15243	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromochloromethane	P17-Oc15243	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromodichloromethane	P17-Oc15243	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromoform	P17-Oc15243	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromomethane	P17-Oc15243	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Carbon disulfide	P17-Oc15243	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Carbon Tetrachloride	P17-Oc15243	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chlorobenzene	P17-Oc15243	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chloroethane	P17-Oc15243	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chloroform	P17-Oc15243	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chloromethane	P17-Oc15243	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
cis-1.2-Dichloroethene	P17-Oc15243	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
cis-1.3-Dichloropropene	P17-Oc15243	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibromochloromethane	P17-Oc15243	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibromomethane	P17-Oc15243	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dichlorodifluoromethane	P17-Oc15243	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Ethylbenzene	P17-Oc15243	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Iodomethane	P17-Oc15243	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Isopropyl benzene (Cumene)	P17-Oc15243	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
m&p-Xylenes	P17-Oc15243	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Methylene Chloride	P17-Oc15243	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
o-Xylene	P17-Oc15243	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	

Duplicate									
Volatile Organics				Result 1	Result 2	RPD			
Styrene	P17-Oc15243	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Tetrachloroethene	P17-Oc15243	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Toluene	P17-Oc15243	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
trans-1.2-Dichloroethene	P17-Oc15243	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
trans-1.3-Dichloropropene	P17-Oc15243	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Trichloroethene	P17-Oc15243	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Trichlorofluoromethane	P17-Oc15243	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Vinyl chloride	P17-Oc15243	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Xylenes - Total	P17-Oc15243	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	P17-Oc15243	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	P17-Oc15243	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	M17-Oc16182	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	M17-Oc16182	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	M17-Oc16182	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	M17-Oc16037	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	M17-Oc16037	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	M17-Oc16037	NCP	mg/kg	0.6	0.5	16	30%	Pass	
Benz(a)anthracene	M17-Oc16037	NCP	mg/kg	2.8	2.1	25	30%	Pass	
Benzo(a)pyrene	M17-Oc16037	NCP	mg/kg	2.9	2.6	12	30%	Pass	
Benzo(b&j)fluoranthene	M17-Oc16037	NCP	mg/kg	2.5	1.2	70	30%	Fail	Q15
Benzo(g.h.i)perylene	M17-Oc16037	NCP	mg/kg	1.5	1.3	13	30%	Pass	
Benzo(k)fluoranthene	M17-Oc16037	NCP	mg/kg	2.1	1.7	20	30%	Pass	
Chrysene	M17-Oc16037	NCP	mg/kg	2.6	2.2	17	30%	Pass	
Dibenz(a.h)anthracene	M17-Oc16037	NCP	mg/kg	0.9	0.9	4.0	30%	Pass	
Fluoranthene	M17-Oc16037	NCP	mg/kg	6.1	4.8	23	30%	Pass	
Fluorene	M17-Oc16037	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	M17-Oc16037	NCP	mg/kg	1.5	1.3	9.0	30%	Pass	
Naphthalene	M17-Oc16037	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	M17-Oc16037	NCP	mg/kg	2.1	1.7	19	30%	Pass	
Pyrene	M17-Oc16037	NCP	mg/kg	5.8	4.8	19	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	B17-Oc12974	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	B17-Oc12974	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	B17-Oc12974	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	B17-Oc12974	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-BHC	B17-Oc12974	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	B17-Oc12974	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-BHC	B17-Oc12974	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-BHC	B17-Oc12974	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	B17-Oc12974	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	B17-Oc12974	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	B17-Oc12974	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	B17-Oc12974	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	B17-Oc12974	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	B17-Oc12974	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	B17-Oc12974	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-BHC (Lindane)	B17-Oc12974	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	B17-Oc12974	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	B17-Oc12974	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	

Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Hexachlorobenzene	B17-Oc12974	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	B17-Oc12974	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Toxaphene	B17-Oc12974	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Duplicate									
Polychlorinated Biphenyls				Result 1	Result 2	RPD			
Aroclor-1016	B17-Oc12974	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1221	B17-Oc12974	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1232	B17-Oc12974	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1242	B17-Oc12974	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1248	B17-Oc12974	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1254	B17-Oc12974	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1260	B17-Oc12974	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Total PCB*	B17-Oc12974	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
Phenols (Halogenated)				Result 1	Result 2	RPD			
2-Chlorophenol	M17-Oc14497	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dichlorophenol	M17-Oc14497	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4.5-Trichlorophenol	M17-Oc14497	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4.6-Trichlorophenol	M17-Oc14497	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
2.6-Dichlorophenol	M17-Oc14497	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Chloro-3-methylphenol	M17-Oc14497	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Pentachlorophenol	M17-Oc14497	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Tetrachlorophenols - Total	M17-Oc14497	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Duplicate									
Phenols (non-Halogenated)				Result 1	Result 2	RPD			
2-Cyclohexyl-4.6-dinitrophenol	M17-Oc14497	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
2-Methyl-4.6-dinitrophenol	M17-Oc14497	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
2-Methylphenol (o-Cresol)	M17-Oc14497	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
2-Nitrophenol	M17-Oc14497	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4-Dimethylphenol	M17-Oc14497	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dinitrophenol	M17-Oc14497	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
3&4-Methylphenol (m&p-Cresol)	M17-Oc14497	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
4-Nitrophenol	M17-Oc14497	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Dinoseb	M17-Oc14497	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
Phenol	M17-Oc14497	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Chromium (hexavalent)	M17-Oc16150	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Cyanide (total)	M17-Oc15625	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Fluoride	M17-Oc14120	NCP	mg/kg	150	180	23	30%	Pass	
pH (1:5 Aqueous extract)	M17-Oc14384	NCP	pH Units	6.9	6.7	pass	30%	Pass	
% Moisture	M17-Oc16643	NCP	%	1.7	1.7	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S17-Oc14004	NCP	mg/kg	18	19	1.0	30%	Pass	
Cadmium	S17-Oc14004	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S17-Oc14004	NCP	mg/kg	32	32	1.0	30%	Pass	
Copper	S17-Oc14004	NCP	mg/kg	25	26	3.0	30%	Pass	
Lead	S17-Oc14004	NCP	mg/kg	30	31	2.0	30%	Pass	
Mercury	S17-Oc14004	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Molybdenum	S17-Oc14004	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Nickel	S17-Oc14004	NCP	mg/kg	14	14	2.0	30%	Pass	
Selenium	S17-Oc14004	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Silver	S17-Oc14004	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Tin	S17-Oc14004	NCP	mg/kg	< 10	< 10	<1	30%	Pass	
Zinc	S17-Oc14004	NCP	mg/kg	120	120	2.0	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
Q08	The matrix spike recovery is outside of the recommended acceptance criteria. An acceptable recovery was obtained for the laboratory control sample indicating a sample matrix interference
Q15	The RPD reported passes Eurofins | mgt's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised By

Mary Makarios	Analytical Services Manager
Alex Petridis	Senior Analyst-Metal (VIC)
Alex Petridis	Senior Analyst-Organic (VIC)
Harry Bacalis	Senior Analyst-Volatile (VIC)
Huong Le	Senior Analyst-Inorganic (VIC)
Joseph Edouard	Senior Analyst-Organic (VIC)



Glenn Jackson

National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1805503**	Page	: 1 of 14
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: OLFA NAZARIO	Contact	: Graeme Jablonskas
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9609
Project	: 2135645A	Date Samples Received	: 29-Mar-2018 17:50
Order number	:	Date Analysis Commenced	: 29-Mar-2018
C-O-C number	: 94475-94477	Issue Date	: 10-Apr-2018 13:32
Sampler	: SA		
Site	: Dingley		
Quote number	: ME-525-16		
No. of samples received	: 28		
No. of samples analysed	: 20		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Franco Lentini		Sydney Organics, Smithfield, NSW
Nancy Wang	2IC Organic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP075-EM/066-EM: Particular samples (EM-1805503-010,013,016) required dilution prior to analysis due to matrix interferences. LOR values have been adjusted accordingly.
- EP231: Low surrogate recovery due to matrix interference. Confirmed by re-extraction and re-analysis
- pH analysis is done under non-stirring condition.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.

Analytical Results

Sub-Matrix: ASLP LEACHATE (Matrix: WATER)				Client sample ID	BH1_0.2	BH2_0.2	BH3_0.2	----	----
				Client sampling date / time	29-Mar-2018 13:00	29-Mar-2018 13:45	29-Mar-2018 14:20	----	----
Compound	CAS Number	LOR	Unit		EM1805503-010	EM1805503-013	EM1805503-016	--------	--------
					Result	Result	Result	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	**0.02**	<0.01	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	**0.03**	<0.01	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	----	----
EP231P: PFAS Sums									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	**0.02**	<0.01	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	**0.05**	<0.01	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**72.2**	**63.2**	**74.3**	----	----
13C8-PFOA	----	0.02	%		**89.8**	**81.8**	**89.2**	----	----

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)			Client sample ID	SED1/290318/1S	SED2/290318/2S	----	----	----
			Client sampling date / time	29-Mar-2018 11:05	29-Mar-2018 11:15	----	----	----
Compound	CAS Number	LOR	Unit	EM1805503-007	EM1805503-009	--------	--------	--------
				Result	Result	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**36.2**	**20.4**	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	**0.0008**	**0.0005**	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	----	----	----
EP231P: PFAS Sums								
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	**0.0008**	**0.0005**	----	----	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg	**0.0008**	**0.0005**	----	----	----
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.0002	%	**75.5**	**96.5**	----	----	----
13C8-PFOA	----	0.0002	%	**99.5**	**86.0**	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH1_0.2	BH2_0.2	BH3_0.2	BH4_0.2/290318	DUPC/290318
			Client sampling date / time	29-Mar-2018 13:00	29-Mar-2018 13:45	29-Mar-2018 14:20	29-Mar-2018 15:15	29-Mar-2018 15:15
Compound	CAS Number	LOR	Unit	EM1805503-010	EM1805503-013	EM1805503-016	EM1805503-017	EM1805503-020
				Result	Result	Result	Result	Result
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	7.9	6.5	7.8	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	6.0	22.4	2.2	2.6	3.3
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	12	<5	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	----	----
Copper	7440-50-8	5	mg/kg	25	45	25	----	----
Lead	7439-92-1	5	mg/kg	16	53	47	----	----
Molybdenum	7439-98-7	2	mg/kg	<2	<2	<2	----	----
Nickel	7440-02-0	2	mg/kg	41	14	39	----	----
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	----	----
Silver	7440-22-4	2	mg/kg	<2	<2	<2	----	----
Tin	7440-31-5	5	mg/kg	<5	<5	<5	----	----
Zinc	7440-66-6	5	mg/kg	37	245	82	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	----	----
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
EK026SF: Total CN by Segmented Flow Analyser								
Total Cyanide	57-12-5	1	mg/kg	<1	4	<1	----	----
EK040T: Fluoride Total								
Fluoride	16984-48-8	40	mg/kg	150	160	130	----	----
EN60: ASLP Leaching Procedure								
Initial pH	----	0.1	pH Unit	9.3	6.7	8.9	----	----
After HCl pH	----	0.1	pH Unit	1.3	1.6	1.2	----	----
Extraction Fluid pH	----	0.1	pH Unit	5.0	5.0	5.0	----	----
Final pH	----	0.1	pH Unit	5.0	5.2	5.0	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.2	<0.2	<0.4	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	0.6	<0.5	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	3.2	<0.5	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH1_0.2	BH2_0.2	BH3_0.2	BH4_0.2/290318	DUPC/290318
				Client sampling date / time	29-Mar-2018 13:00	29-Mar-2018 13:45	29-Mar-2018 14:20	29-Mar-2018 15:15	29-Mar-2018 15:15
Compound	CAS Number	LOR	Unit		EM1805503-010	EM1805503-013	EM1805503-016	EM1805503-017	EM1805503-020
					Result	Result	Result	Result	Result
EP074A: Monocyclic Aromatic Hydrocarbons - Continued									
Styrene	100-42-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	1.1	<0.5	----	----
^ Sum of monocyclic aromatic hydrocarbons	----	0.2	mg/kg		<0.2	4.9	<0.2	----	----
^ Total Xylenes	----	0.5	mg/kg		<0.5	4.3	<0.5	----	----
EP074H: Naphthalene									
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	----	----
EP074I: Volatile Halogenated Compounds									
Vinyl chloride	75-01-4	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
1.1-Dichloroethene	75-35-4	0.01	mg/kg		<0.01	<0.01	<0.01	----	----
Methylene chloride	75-09-2	0.4	mg/kg		<0.4	<0.4	<0.4	----	----
trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg		<0.01	<0.01	<0.01	----	----
Chloroform	67-66-3	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
1.1.1-Trichloroethane	71-55-6	0.01	mg/kg		<0.01	<0.01	<0.01	----	----
Carbon Tetrachloride	56-23-5	0.01	mg/kg		<0.01	<0.01	<0.01	----	----
1.2-Dichloroethane	107-06-2	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
Trichloroethene	79-01-6	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
1.1.2-Trichloroethane	79-00-5	0.04	mg/kg		<0.04	<0.04	<0.04	----	----
Tetrachloroethene	127-18-4	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg		<0.01	<0.01	<0.01	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
Hexachlorobutadiene	87-68-3	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
Chlorobenzene	108-90-7	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
1.4-Dichlorobenzene	106-46-7	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
1.2-Dichlorobenzene	95-50-1	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg		<0.01	<0.01	<0.01	----	----
^ Sum of volatile chlorinated hydrocarbons	----	0.01	mg/kg		<0.01	<0.01	<0.01	----	----
^ Sum of other chlorinated hydrocarbons	----	0.01	mg/kg		<0.01	<0.01	<0.01	----	----
EP075A: Phenolic Compounds (Halogenated)									
2-Chlorophenol	95-57-8	0.03	mg/kg		<0.07	<0.07	<0.14	----	----
2.4-Dichlorophenol	120-83-2	0.03	mg/kg		<0.07	<0.07	<0.14	----	----
2.6-Dichlorophenol	87-65-0	0.03	mg/kg		<0.07	<0.07	<0.14	----	----
4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg		<0.07	<0.07	<0.14	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH1_0.2	BH2_0.2	BH3_0.2	BH4_0.2/290318	DUPC/290318
			Client sampling date / time	29-Mar-2018 13:00	29-Mar-2018 13:45	29-Mar-2018 14:20	29-Mar-2018 15:15	29-Mar-2018 15:15
Compound	CAS Number	LOR	Unit	EM1805503-010	EM1805503-013	EM1805503-016	EM1805503-017	EM1805503-020
				Result	Result	Result	Result	Result
EP075A: Phenolic Compounds (Halogenated) - Continued								
2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.07	<0.07	<0.14	----	----
2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.07	<0.07	<0.14	----	----
2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.07	<0.07	<0.14	----	----
2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg	<0.14	<0.14	<0.28	----	----
Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
^ Sum of Phenols (halogenated)	----	0.03	mg/kg	<0.07	<0.07	<0.14	----	----
EP075A: Phenolic Compounds (Non-halogenated)								
Phenol	108-95-2	1	mg/kg	<1	<1	<1	----	----
2-Methylphenol	95-48-7	1	mg/kg	<1	<1	<1	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	----	----
2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	<1	----	----
2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	<1	----	----
2.4-Dinitrophenol	51-28-5	5	mg/kg	<6	<6	<11	----	----
4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	<6	----	----
2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	<6	----	----
Dinoseb	88-85-7	5	mg/kg	<5	<5	<6	----	----
2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	<6	----	----
^ Sum of Phenols (non-halogenated)	----	1	mg/kg	<1	<1	<1	----	----
EP075B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH1_0.2	BH2_0.2	BH3_0.2	BH4_0.2/290318	DUPC/290318
				Client sampling date / time	29-Mar-2018 13:00	29-Mar-2018 13:45	29-Mar-2018 14:20	29-Mar-2018 15:15	29-Mar-2018 15:15
Compound	CAS Number	LOR	Unit		EM1805503-010	EM1805503-013	EM1805503-016	EM1805503-017	EM1805503-020
					Result	Result	Result	Result	Result
EP075B: Polynuclear Aromatic Hydrocarbons - Continued									
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<1.4	<1.4	<2.8	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		<1.4	<1.4	<2.8	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		<1.4	<1.4	<2.8	----	----
EP075I: Organochlorine Pesticides									
alpha-BHC	319-84-6	0.03	mg/kg		<0.07	<0.07	<0.14	----	----
Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg		<0.07	<0.07	<0.14	----	----
beta-BHC	319-85-7	0.03	mg/kg		<0.07	<0.07	<0.14	----	----
gamma-BHC	58-89-9	0.03	mg/kg		<0.07	<0.07	<0.14	----	----
delta-BHC	319-86-8	0.03	mg/kg		<0.07	<0.07	<0.14	----	----
Heptachlor	76-44-8	0.03	mg/kg		<0.07	<0.07	<0.14	----	----
Aldrin	309-00-2	0.03	mg/kg		<0.07	<0.07	<0.14	----	----
Heptachlor epoxide	1024-57-3	0.03	mg/kg		<0.07	<0.07	<0.14	----	----
cis-Chlordane	5103-71-9	0.03	mg/kg		<0.07	<0.07	<0.14	----	----
trans-Chlordane	5103-74-2	0.03	mg/kg		<0.07	<0.07	<0.14	----	----
Endosulfan 1	959-98-8	0.03	mg/kg		<0.07	<0.07	<0.14	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		<0.07	<0.07	<0.14	----	----
Dieldrin	60-57-1	0.03	mg/kg		<0.07	<0.07	<0.14	----	----
Endrin aldehyde	7421-93-4	0.03	mg/kg		<0.07	<0.07	<0.14	----	----
Endrin	72-20-8	0.03	mg/kg		<0.07	<0.07	<0.14	----	----
Endosulfan 2	33213-65-9	0.03	mg/kg		<0.07	<0.07	<0.14	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.07	<0.07	<0.14	----	----
Endosulfan sulfate	1031-07-8	0.03	mg/kg		<0.07	<0.07	<0.14	----	----
4.4`-DDT	50-29-3	0.05	mg/kg		<0.07	<0.07	<0.14	----	----
Methoxychlor	72-43-5	0.03	mg/kg		<0.07	<0.07	<0.14	----	----
^ Sum of organochlorine pesticides	----	0.03	mg/kg		<0.07	<0.07	<0.14	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.03	mg/kg		<0.07	<0.07	<0.14	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.07	<0.07	<0.14	----	----
^ Chlordane	57-74-9	0.03	mg/kg		<0.07	<0.07	<0.14	----	----
^ Sum of other organochlorine pesticides	----	0.03	mg/kg		<0.07	<0.07	<0.14	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	50	<50	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH1_0.2	BH2_0.2	BH3_0.2	BH4_0.2/290318	DUPC/290318
				Client sampling date / time	29-Mar-2018 13:00	29-Mar-2018 13:45	29-Mar-2018 14:20	29-Mar-2018 15:15	29-Mar-2018 15:15
Compound	CAS Number	LOR	Unit		EM1805503-010	EM1805503-013	EM1805503-016	EM1805503-017	EM1805503-020
					Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	**370**	**110**	----	----
C29 - C36 Fraction	----	100	mg/kg		**140**	**500**	**560**	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		**140**	**920**	**670**	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
>C10 - C16 Fraction	----	50	mg/kg		<50	**70**	<50	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	**680**	**410**	----	----
>C34 - C40 Fraction	----	100	mg/kg		**180**	**290**	**750**	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		**180**	**1040**	**1160**	----	----
>C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	**70**	<50	----	----
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		<0.0002	**0.0007**	<0.0002	<0.0002	<0.0002
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		<0.0002	**0.0036**	<0.0002	<0.0002	**0.0003**
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	**0.0002**	<0.0002	<0.0002	<0.0002
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	**0.0008**	<0.0002	<0.0002	<0.0002
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH1_0.2	BH2_0.2	BH3_0.2	BH4_0.2/290318	DUPC/290318
				Client sampling date / time	29-Mar-2018 13:00	29-Mar-2018 13:45	29-Mar-2018 14:20	29-Mar-2018 15:15	29-Mar-2018 15:15
Compound	CAS Number	LOR	Unit		EM1805503-010	EM1805503-013	EM1805503-016	EM1805503-017	EM1805503-020
					Result	Result	Result	Result	Result
EP231P: PFAS Sums									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		<0.0002	**0.0043**	<0.0002	<0.0002	**0.0003**
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		<0.0002	**0.0053**	<0.0002	<0.0002	**0.0003**
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**98.4**	**92.7**	**120**	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		**85.6**	**79.7**	**80.2**	----	----
Toluene-D8	2037-26-5	0.1	%		**85.6**	**83.7**	**83.4**	----	----
4-Bromofluorobenzene	460-00-4	0.1	%		**80.6**	**83.9**	**80.6**	----	----
EP075S: Acid Extractable Surrogates									
Phenol-d6	13127-88-3	0.025	%		**107**	**97.4**	**98.5**	----	----
2-Chlorophenol-D4	93951-73-6	0.025	%		**82.0**	**76.7**	**88.7**	----	----
2.4.6-Tribromophenol	118-79-6	0.025	%		**77.8**	**91.3**	**101**	----	----
EP075T: Base/Neutral Extractable Surrogates									
Nitrobenzene-D5	4165-60-0	0.025	%		**100**	**108**	**126**	----	----
1.2-Dichlorobenzene-D4	2199-69-1	0.025	%		**100**	**98.0**	**121**	----	----
2-Fluorobiphenyl	321-60-8	0.025	%		**100**	**99.5**	**118**	----	----
Anthracene-d10	1719-06-8	0.025	%		**98.8**	**105**	**112**	----	----
4-Terphenyl-d14	1718-51-0	0.025	%		**112**	**119**	**123**	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**19.5**	**78.0**	**18.0**	**81.5**	**91.5**
13C8-PFOA	----	0.0002	%		**27.5**	**104**	**29.5**	**90.0**	**99.0**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH5_0.2/290318	BH6_0.2/290318	TRIP BLANK	----	----
				Client sampling date / time	29-Mar-2018 15:43	29-Mar-2018 16:23	29-Mar-2018 00:00	----	----
Compound	CAS Number	LOR	Unit		EM1805503-021	EM1805503-024	EM1805503-026	--------	--------
					Result	Result	Result	----	----
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		**5.6**	**6.8**	<1.0	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		<0.0002	**0.0002**	<0.0002	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	<0.001	<0.001	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	----	----
EP231P: PFAS Sums									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		<0.0002	**0.0002**	<0.0002	----	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		<0.0002	**0.0002**	<0.0002	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**18.0**	**60.0**	**77.5**	----	----
13C8-PFOA	----	0.0002	%		**33.5**	**82.5**	**75.0**	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	GW17-26-03/290318/1 W	GW17-26-02/290318/2 W	LW17-26-01/290318/3 W	DUPA/290318	GW17-26-01/290318/4 W
				Client sampling date / time	29-Mar-2018 08:30	29-Mar-2018 09:40	29-Mar-2018 10:15	29-Mar-2018 10:16	29-Mar-2018 10:23
Compound	CAS Number	LOR	Unit		EM1805503-001	EM1805503-002	EM1805503-003	EM1805503-004	EM1805503-005
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	**0.02**	<0.02	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L		<0.02	<0.02	**0.07**	**0.08**	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.02**	<0.01	**0.17**	**0.18**	<0.01
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	**0.2**	**0.2**	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	**0.03**	**0.03**	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	**0.09**	**0.08**	<0.02
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	**0.03**	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.02**	<0.01	**0.20**	**0.20**	<0.01
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.02**	<0.01	**0.24**	**0.26**	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.04**	**0.02**	**0.76**	**0.80**	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**92.9**	**97.1**	**105**	**106**	**103**
13C8-PFOA	----	0.02	%		**106**	**108**	**107**	**105**	**113**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	SW1/290318/5W	SW2/290318/6W	TRIP BLANK	RB/290318	RB2/290318
				Client sampling date / time	29-Mar-2018 11:00	29-Mar-2018 11:10	29-Mar-2018 00:00	29-Mar-2018 10:15	29-Mar-2018 13:20
Compound	CAS Number	LOR	Unit		EM1805503-006	EM1805503-008	EM1805503-025	EM1805503-027	EM1805503-028
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.03**	**0.02**	<0.01	<0.01	<0.01
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.02**	**0.02**	<0.01	<0.01	<0.01
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.03**	**0.02**	<0.01	<0.01	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.05**	**0.04**	<0.01	<0.01	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**91.0**	**99.9**	**100**	**94.2**	**95.4**
13C8-PFOA	----	0.02	%		**97.1**	**120**	**90.3**	**98.7**	**102**

Surrogate Control Limits

Sub-Matrix: **ASLP LEACHATE**

Compound	CAS Number	Recovery Limits (%) Low	High
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	130
13C8-PFOA	----	60	130

Sub-Matrix: **SEDIMENT**

Compound	CAS Number	Recovery Limits (%) Low	High
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	130
13C8-PFOA	----	60	130

Sub-Matrix: **SOIL**

Compound	CAS Number	Recovery Limits (%) Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	41	122
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	59	119
Toluene-D8	2037-26-5	55	117
4-Bromofluorobenzene	460-00-4	59	123
EP075S: Acid Extractable Surrogates			
Phenol-d6	13127-88-3	28	134
2-Chlorophenol-D4	93951-73-6	27	123
2.4.6-Tribromophenol	118-79-6	25	149
EP075T: Base/Neutral Extractable Surrogates			
Nitrobenzene-D5	4165-60-0	29	125
1.2-Dichlorobenzene-D4	2199-69-1	31	117
2-Fluorobiphenyl	321-60-8	44	136
Anthracene-d10	1719-06-8	53	133
4-Terphenyl-d14	1718-51-0	59	141
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	130
13C8-PFOA	----	60	130

Sub-Matrix: **WATER**

Compound	CAS Number	Recovery Limits (%) Low	High
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	130
13C8-PFOA	----	60	130

Automated Guideline Comparison Report

EPA Victoria Publication IWRG 621 (2009) - Table 2: Soil Hazard Categorisation

Work Order	: **EM1805503**	Page	: 1 of 8
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: OLFA NAZARIO		
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: olfa.nazario@wsp.com	E-mail	: graeme.jablonskas@alsglobal.com
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9609
Facsimile	: +61 03 9861 1144	Facsimile	: +61-3-8549 9626
Project	: 2135645A	Date Received	: 29-Mar-2018 17:50
Order number	:	Date Analysed	: 29-Mar-2018
C-O-C number	: 94475-94477	Date Issued	: 10-Apr-2018 13:32
No. of samples received	: 28		
No. of samples analysed	: 20	Quote number	: ME-525-16

General Comments

This guideline comparison report **only** provides evaluation of total concentration data against upper limit thresholds for the 'Fill Material', 'C', 'B' Categories in Table 2 of EPA Publication IWRG621.

This guideline comparison report is **NOT** a soil classification report. Classification of soils as Fill Material, Category C, Category B or Category A requires consideration of a number of other factors including preliminary site investigation, sampling density and statistical calculations, as set out in EPA Publication IWRG 702.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

This guideline comparison report only provides evaluation data where chemical parameters specifically listed within the IWRG621 (2009) guideline are analysed by ALS using the **P-16 package in full**.

Red shading is applied where the result is equal to or greater than the guideline upper limit and/or equal to or lower than the guideline lower limit. Red shading is not applied to the 'Summary of Thresholds Reached or Exceeded'.

For the 'Summary of Thresholds Reached or Exceeded' to accurately function, all samples must be analysed and included in the 'Analytical Results' section of the following report. Please verify that all required IDs are listed and analysed.

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Summary of Thresholds Reached or Exceeded

EPA Victoria Publication IWRG 621 (2009)

Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Client Sample ID	ALS Sample ID	Compound	Method	LOR	Limits	Result
BH2_0.2	**EM1805503-013**	Zinc	EG005T	5	*< 200 mg/kg*	**245 mg/kg**

Analytical Results

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B: Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

				Client sample ID	Guideline	Guideline	BH1_0.2	BH2_0.2	BH3_0.2	----	----
				Sampling date/time			29-Mar-2018 13:00	29-Mar-2018 13:45	29-Mar-2018 14:20	----	----
Compound	*Method*	*LOR*	*Unit*		Lower Limit	Upper Limit	EM1805503-010	EM1805503-013	EM1805503-016	--------	--------
EA001: pH in soil using 0.01M CaCl extract											
pH (CaCl2)	EA001	0.1	pH Unit		2	12.5	**7.9**	**6.5**	**7.8**	----	----
EG005T: Total Metals by ICP-AES											
Arsenic	EG005T	5	mg/kg		----	2000	<5	**12**	<5	----	----
Cadmium	EG005T	1	mg/kg		----	400	<1	<1	<1	----	----
Copper	EG005T	5	mg/kg		----	20000	**25**	**45**	**25**	----	----
Lead	EG005T	5	mg/kg		----	6000	**16**	**53**	**47**	----	----
Molybdenum	EG005T	2	mg/kg		----	4000	<2	<2	<2	----	----
Nickel	EG005T	2	mg/kg		----	12000	**41**	**14**	**39**	----	----
Selenium	EG005T	5	mg/kg		----	200	<5	<5	<5	----	----
Silver	EG005T	2	mg/kg		----	720	<2	<2	<2	----	----
Zinc	EG005T	5	mg/kg		----	140000	**37**	**245**	**82**	----	----
EG035T: Total Recoverable Mercury by FIMS											
Mercury	EG035T	0.1	mg/kg		----	300	<0.1	<0.1	<0.1	----	----
EG048: Hexavalent Chromium (Alkaline Digest)											
Hexavalent Chromium	EG048G	0.5	mg/kg		----	2000	<0.5	<0.5	<0.5	----	----
EK026SF: Total CN by Segmented Flow Analyser											
Total Cyanide	EK026SF	1	mg/kg		----	10000	<1	**4**	<1	----	----
EK040T: Fluoride Total											
Fluoride	EK040T	40	mg/kg		----	40000	**150**	**160**	**130**	----	----
EP074A: Monocyclic Aromatic Hydrocarbons											
Benzene	EP074-UT	0.2	mg/kg		----	16	<0.2	<0.2	<0.2	----	----
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg		----	240	<0.2	**4.9**	<0.2	----	----
EP074I: Volatile Halogenated Compounds											
Vinyl chloride	EP074-UT	0.02	mg/kg		----	4.8	<0.02	<0.02	<0.02	----	----
Hexachlorobutadiene	EP074-UT	0.02	mg/kg		----	11	<0.02	<0.02	<0.02	----	----
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg		----	50	<0.01	<0.01	<0.01	----	----
EP075A: Phenolic Compounds (Halogenated)											
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg		----	320	<0.07	<0.07	<0.14	----	----
EP075A: Phenolic Compounds (Non-halogenated)											
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg		----	2200	<1	<1	<1	----	----
EP075B: Polynuclear Aromatic Hydrocarbons											
Benzo(a)pyrene	EP075-EM	0.5	mg/kg		----	20	<0.5	<0.5	<0.5	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category B: Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SOIL**

				Client sample ID	Guideline	Guideline	BH1_0.2	BH2_0.2	BH3_0.2	----	----
				Sampling date/time			29-Mar-2018 13:00	29-Mar-2018 13:45	29-Mar-2018 14:20	----	----
Compound	*Method*	*LOR*	*Unit*		Lower Limit	Upper Limit	EM1805503-010	EM1805503-013	EM1805503-016	--------	--------
EP075B: Polynuclear Aromatic Hydrocarbons - Continued											
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg		----	400	<0.5	<0.5	<0.5	----	----
EP075I: Organochlorine Pesticides											
Heptachlor	EP075-EM	0.03	mg/kg		----	4.8	<0.07	<0.07	<0.14	----	----
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg		----	4.8	<0.07	<0.07	<0.14	----	----
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg		----	50	<0.07	<0.07	<0.14	----	----
Chlordane	EP075-EM-SUM	0.03	mg/kg		----	16	<0.07	<0.07	<0.14	----	----
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg		----	50	<0.07	<0.07	<0.14	----	----
EP080/071: Total Petroleum Hydrocarbons											
C6 - C9 Fraction	EP074-UT	10	mg/kg		----	2600	<10	<10	<10	----	----
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg		----	40000	**140**	**920**	**670**	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category C: Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

				Client sample ID	Guideline	Guideline	**BH1_0.2**	**BH2_0.2**	**BH3_0.2**	**----**	**----**
				Sampling date/time			29-Mar-2018 13:00	29-Mar-2018 13:45	29-Mar-2018 14:20	----	----
Compound	*Method*	*LOR*	*Unit*		Lower Limit	Upper Limit	**EM1805503-010**	**EM1805503-013**	**EM1805503-016**	--------	--------
EA001: pH in soil using 0.01M CaCl extract											
pH (CaCl2)	EA001	0.1	pH Unit		4	9	**7.9**	**6.5**	**7.8**	**----**	**----**
EG005T: Total Metals by ICP-AES											
Arsenic	EG005T	5	mg/kg		----	500	<5	**12**	<5	**----**	**----**
Cadmium	EG005T	1	mg/kg		----	100	<1	<1	<1	**----**	**----**
Copper	EG005T	5	mg/kg		----	5000	**25**	**45**	**25**	**----**	**----**
Lead	EG005T	5	mg/kg		----	1500	**16**	**53**	**47**	**----**	**----**
Molybdenum	EG005T	2	mg/kg		----	1000	<2	<2	<2	**----**	**----**
Nickel	EG005T	2	mg/kg		----	3000	**41**	**14**	**39**	**----**	**----**
Selenium	EG005T	5	mg/kg		----	50	<5	<5	<5	**----**	**----**
Silver	EG005T	2	mg/kg		----	180	<2	<2	<2	**----**	**----**
Tin	EG005T	5	mg/kg		----	500	<5	<5	<5	**----**	**----**
Zinc	EG005T	5	mg/kg		----	35000	**37**	**245**	**82**	**----**	**----**
EG035T: Total Recoverable Mercury by FIMS											
Mercury	EG035T	0.1	mg/kg		----	75	<0.1	<0.1	<0.1	**----**	**----**
EG048: Hexavalent Chromium (Alkaline Digest)											
Hexavalent Chromium	EG048G	0.5	mg/kg		----	500	<0.5	<0.5	<0.5	**----**	**----**
EK026SF: Total CN by Segmented Flow Analyser											
Total Cyanide	EK026SF	1	mg/kg		----	2500	<1	**4**	<1	**----**	**----**
EK040T: Fluoride Total											
Fluoride	EK040T	40	mg/kg		----	10000	**150**	**160**	**130**	**----**	**----**
EP074A: Monocyclic Aromatic Hydrocarbons											
Benzene	EP074-UT	0.2	mg/kg		----	4	<0.2	<0.2	<0.2	**----**	**----**
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg		----	70	<0.2	**4.9**	<0.2	**----**	**----**
EP074I: Volatile Halogenated Compounds											
Vinyl chloride	EP074-UT	0.02	mg/kg		----	1.2	<0.02	<0.02	<0.02	**----**	**----**
Hexachlorobutadiene	EP074-UT	0.02	mg/kg		----	2.8	<0.02	<0.02	<0.02	**----**	**----**
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg		----	10	<0.01	<0.01	<0.01	**----**	**----**
EP075A: Phenolic Compounds (Halogenated)											
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg		----	10	<0.07	<0.07	<0.14	**----**	**----**
EP075A: Phenolic Compounds (Non-halogenated)											
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg		----	560	<1	<1	<1	**----**	**----**
EP075B: Polynuclear Aromatic Hydrocarbons											
Benzo(a)pyrene	EP075-EM	0.5	mg/kg		----	5	<0.5	<0.5	<0.5	**----**	**----**

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Category C: Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	*Client sample ID* / *Sampling date/time* / Guideline Lower Limit	Guideline Upper Limit	**BH1_0.2** 29-Mar-2018 13:00 **EM1805503-010**	**BH2_0.2** 29-Mar-2018 13:45 **EM1805503-013**	**BH3_0.2** 29-Mar-2018 14:20 **EM1805503-016**	**----** ---- --------	**----** ---- --------
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	100	<0.5	<0.5	<0.5	----	----
EP075I: Organochlorine Pesticides										
Heptachlor	EP075-EM	0.03	mg/kg	----	1.2	<0.07	<0.07	<0.14	----	----
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	1.2	<0.07	<0.07	<0.14	----	----
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50	<0.07	<0.07	<0.14	----	----
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	4	<0.07	<0.07	<0.14	----	----
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	10	<0.07	<0.07	<0.14	----	----
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	650	<10	<10	<10	----	----
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	10000	**140**	**920**	**670**	----	----

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material: Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

				Client sample ID	Guideline	Guideline	**BH1_0.2**	**BH2_0.2**	**BH3_0.2**	**----**	**----**
				Sampling date/time			29-Mar-2018 13:00	29-Mar-2018 13:45	29-Mar-2018 14:20	----	----
Compound	*Method*	*LOR*	*Unit*		Lower Limit	Upper Limit	**EM1805503-010**	**EM1805503-013**	**EM1805503-016**	--------	--------
EA001: pH in soil using 0.01M CaCl extract											
pH (CaCl2)	EA001	0.1	pH Unit		4	9	**7.9**	**6.5**	**7.8**	**----**	**----**
EG005T: Total Metals by ICP-AES											
Arsenic	EG005T	5	mg/kg		----	20	<5	**12**	<5	**----**	**----**
Cadmium	EG005T	1	mg/kg		----	3	<1	<1	<1	**----**	**----**
Copper	EG005T	5	mg/kg		----	100	**25**	**45**	**25**	**----**	**----**
Lead	EG005T	5	mg/kg		----	300	**16**	**53**	**47**	**----**	**----**
Molybdenum	EG005T	2	mg/kg		----	40	<2	<2	<2	**----**	**----**
Nickel	EG005T	2	mg/kg		----	60	**41**	**14**	**39**	**----**	**----**
Selenium	EG005T	5	mg/kg		----	10	<5	<5	<5	**----**	**----**
Silver	EG005T	2	mg/kg		----	10	<2	<2	<2	**----**	**----**
Tin	EG005T	5	mg/kg		----	50	<5	<5	<5	**----**	**----**
Zinc	EG005T	5	mg/kg		----	200	**37**	**245**	**82**	**----**	**----**
EG035T: Total Recoverable Mercury by FIMS											
Mercury	EG035T	0.1	mg/kg		----	1	<0.1	<0.1	<0.1	**----**	**----**
EG048: Hexavalent Chromium (Alkaline Digest)											
Hexavalent Chromium	EG048G	0.5	mg/kg		----	1	<0.5	<0.5	<0.5	**----**	**----**
EK026SF: Total CN by Segmented Flow Analyser											
Total Cyanide	EK026SF	1	mg/kg		----	50	<1	**4**	<1	**----**	**----**
EK040T: Fluoride Total											
Fluoride	EK040T	40	mg/kg		----	450	**150**	**160**	**130**	**----**	**----**
EP066: Polychlorinated Biphenyls (PCB)											
Total Polychlorinated biphenyls	EP066-EM	0.1	mg/kg		----	2	<0.2	<0.2	<0.4	**----**	**----**
EP074A: Monocyclic Aromatic Hydrocarbons											
Benzene	EP074-UT	0.2	mg/kg		----	1	<0.2	<0.2	<0.2	**----**	**----**
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg		----	7	<0.2	**4.9**	<0.2	**----**	**----**
EP074I: Volatile Halogenated Compounds											
Sum of volatile chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg		----	1	<0.01	<0.01	<0.01	**----**	**----**
EP075A: Phenolic Compounds (Halogenated)											
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg		----	1	<0.07	<0.07	<0.14	**----**	**----**
EP075A: Phenolic Compounds (Non-halogenated)											
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg		----	60	<1	<1	<1	**----**	**----**
EP075B: Polynuclear Aromatic Hydrocarbons											
Benzo(a)pyrene	EP075-EM	0.5	mg/kg		----	1	<0.5	<0.5	<0.5	**----**	**----**

Soil Hazard Categorisation and Management

Table 2: Soil Hazard Categorisation Thresholds : Fill Material: Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SOIL**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	*Client sample ID* **BH1_0.2**	**BH2_0.2**	**BH3_0.2**	**----**	**----**
						Sampling date/time 29-Mar-2018 13:00	29-Mar-2018 13:45	29-Mar-2018 14:20	----	----
						EM1805503-010	**EM1805503-013**	**EM1805503-016**	--------	--------
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	20	<0.5	<0.5	<0.5	**----**	**----**
EP075I: Organochlorine Pesticides										
Sum of organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	1	<0.07	<0.07	<0.14	**----**	**----**
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	EP074-UT	10	mg/kg	----	100	<10	<10	<10	**----**	**----**
C10 - C36 Fraction (sum)	EP071-EM	50	mg/kg	----	1000	**140**	**920**	**670**	**----**	**----**

Note: Red shading is applied where the result is equal to or greater than the guideline upper limit and/or equal to or lower than the guideline lower limit.

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EM1805503**	Page	: 1 of 17
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: OLFA NAZARIO	Contact	: Graeme Jablonskas
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9609
Project	: 2135645A	Date Samples Received	: 29-Mar-2018
Order number	:	Date Analysis Commenced	: 29-Mar-2018
C-O-C number	: 94475-94477	Issue Date	: 10-Apr-2018
Sampler	: SA		
Site	: Dingley		
Quote number	: ME-525-16		
No. of samples received	: 28		
No. of samples analysed	: 20		

ilac-MRA NATA
Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Franco Lentini		Sydney Organics, Smithfield, NSW
Nancy Wang	2IC Organic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA001: pH in soil using 0.01M CaCl extract (QC Lot: 1541413)									
EM1805473-015	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	8.7	8.7	0.00	0% - 20%
EM1805538-014	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	6.5	6.5	0.00	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1541448)									
EM1805503-010	BH1_0.2	EA055: Moisture Content	----	0.1	%	6.0	6.2	4.38	No Limit
EM1805545-001	Anonymous	EA055: Moisture Content	----	0.1	%	6.5	6.0	7.44	No Limit
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1542929)									
EM1805471-003	Anonymous	EA055: Moisture Content	----	0.1	%	11.3	12.6	10.8	0% - 50%
EM1805529-004	Anonymous	EA055: Moisture Content	----	0.1	%	12.1	11.7	3.76	0% - 50%
EG005T: Total Metals by ICP-AES (QC Lot: 1545941)									
EM1805503-010	BH1_0.2	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	41	37	11.0	0% - 20%
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	25	26	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	16	15	9.73	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Tin	7440-31-5	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	37	40	6.91	No Limit
EM1805523-021	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	61	60	1.68	0% - 20%
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG005T: Total Metals by ICP-AES (QC Lot: 1545941) - continued									
EM1805523-021	Anonymous	EG005T: Copper	7440-50-8	5	mg/kg	16	20	20.4	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	11	12	0.00	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Tin	7440-31-5	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	27	34	22.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1545940)									
EM1805503-010	BH1_0.2	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EM1805523-021	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EG048: Hexavalent Chromium (Alkaline Digest) (QC Lot: 1547899)									
EM1805503-010	BH1_0.2	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1805598-006	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EK026SF: Total CN by Segmented Flow Analyser (QC Lot: 1548654)									
EM1804151-001	Anonymous	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.00	No Limit
EM1805735-001	Anonymous	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.00	No Limit
EK040T: Fluoride Total (QC Lot: 1539662)									
EM1805503-010	BH1_0.2	EK040T: Fluoride	16984-48-8	40	mg/kg	150	130	13.8	No Limit
EM1805581-005	Anonymous	EK040T: Fluoride	16984-48-8	40	mg/kg	1310	1350	3.00	0% - 20%
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 1541315)									
EM1805503-010	BH1_0.2	EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.2	<0.2	0.00	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 1541200)									
EM1805503-010	BH1_0.2	EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1805593-003	Anonymous	EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074H: Naphthalene (QC Lot: 1541200)									
EM1805503-010	BH1_0.2	EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EM1805593-003	Anonymous	EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EP074I: Volatile Halogenated Compounds (QC Lot: 1541200)									
EM1805503-010	BH1_0.2	EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	<0.01	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074I: Volatile Halogenated Compounds (QC Lot: 1541200) - continued									
EM1805503-010	BH1_0.2	EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	<0.04	0.00	No Limit
		EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	<0.4	0.00	No Limit
EM1805593-003	Anonymous	EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	<0.01	0.00	No Limit
		EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	<0.04	0.00	No Limit
		EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	<0.4	0.00	No Limit
EP075A: Phenolic Compounds (Halogenated) (QC Lot: 1541313)									
EM1805503-010	BH1_0.2	EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.07	<0.07	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075A: Phenolic Compounds (Halogenated) (QC Lot: 1541313) - continued									
EM1805503-010	BH1_0.2	EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg	<0.14	<0.14	0.00	No Limit
		EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP075A: Phenolic Compounds (Non-halogenated) (QC Lot: 1541313)									
EM1805503-010	BH1_0.2	EP075-EM: Phenol	108-95-2	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	0.00	No Limit
		EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<6	<6	0.00	No Limit
		EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	<5	0.00	No Limit
		EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	0.00	No Limit
EP075B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1541313)									
EM1805503-010	BH1_0.2	EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP075I: Organochlorine Pesticides (QC Lot: 1541313)									
EM1805503-010	BH1_0.2	EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.07	<0.07	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075I: Organochlorine Pesticides (QC Lot: 1541313) - continued									
EM1805503-010	BH1_0.2	EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.07	<0.07	0.00	No Limit
		EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.07	<0.07	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1541200)									
EM1805503-010	BH1_0.2	EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EM1805593-003	Anonymous	EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1541314)									
EM1805503-010	BH1_0.2	EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071-EM: C29 - C36 Fraction	----	100	mg/kg	140	200	38.2	No Limit
		EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1541200)									
EM1805503-010	BH1_0.2	EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
		EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	0.00	No Limit
EM1805593-003	Anonymous	EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
		EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1541314)									
EM1805503-010	BH1_0.2	EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	150	37.6	No Limit
		EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	180	270	37.2	No Limit
		EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 1545025)									
EM1805503-007	SED1/290318/1S	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0008	0.0007	0.00	No Limit
EM1805579-002	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	0.0002	0.0002	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 1545025) - continued									
EM1805579-002	Anonymous	EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0016	0.0021	26.8	0% - 50%
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 1545025)									
EM1805503-007	SED1/290318/1S	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.00	No Limit
EM1805579-002	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	0.0002	0.0003	43.5	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.0002	0.00	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.00	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 1545025)									
EM1805503-007	SED1/290318/1S	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
EM1805579-002	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 1544509)									
EM1805503-001	GW17-26-03/290318/1W	EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.02	0.02	0.00	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L	<0.02	<0.02	0.00	No Limit
ES1809472-001	Anonymous	EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.00	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L	<0.02	<0.02	0.00	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 1551880)									
EB1808076-004	Anonymous	EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	36.7	38.2	4.08	0% - 20%

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 1551880) - continued									
EB1808076-004	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	0.08	0.08	0.00	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L	1.18	1.30	9.95	0% - 20%
ES1809117-025	Anonymous	EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	2.55	2.56	0.00	0% - 20%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L	0.35	0.40	15.2	0% - 20%
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 1544509)									
EM1805503-001	GW17-26-03/290318/1W	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.02	0.02	0.00	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.00	No Limit
ES1809472-001	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.00	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.00	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 1551880)									
EB1808076-004	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.11	0.11	0.00	0% - 50%
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	0.09	0.09	0.00	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	0.26	0.28	5.92	0% - 50%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	0.02	0.02	0.00	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.00	No Limit
ES1809117-025	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.08	0.06	19.4	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	0.03	0.03	0.00	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.00	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 1544509)									
EM1805503-001	GW17-26-03/290318/1W	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.00	No Limit
ES1809472-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 1544509) - continued									
ES1809472-001	Anonymous	EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.00	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 1551880)									
EB1808076-004	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.00	No Limit
ES1809117-025	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 1545941)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	90.1	79	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	97.2	85	109
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	90.6	78	108
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	87.3	78	106
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	7.9 mg/kg	98.2	86	112
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	87.8	82	111
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	101	93	109
EG005T: Silver	7440-22-4	2	mg/kg	<2	2.1 mg/kg	93.2	80	108
EG005T: Tin	7440-31-5	5	mg/kg	<5	5.2 mg/kg	105	88	116
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	87.1	82	111
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1545940)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	81.3	77	104
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 1547899)								
EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	40 mg/kg	95.2	75	112
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 1548654)								
EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	20 mg/kg	96.2	80	110
EK040T: Fluoride Total (QCLot: 1539662)								
EK040T: Fluoride	16984-48-8	40	mg/kg	<40	400 mg/kg	99.8	77	106
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 1541315)								
EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	95.2	63	118
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 1541200)								
EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	2.1 mg/kg	84.5	74	118
EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	2.1 mg/kg	83.8	70	124
EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2.1 mg/kg	82.2	71	122
EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4.2 mg/kg	84.3	70	118
EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	2.1 mg/kg	90.1	76	116
EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2.1 mg/kg	87.0	74	114
EP074H: Naphthalene (QCLot: 1541200)								
EP074-UT: Naphthalene	91-20-3	1	mg/kg	<1	0.6 mg/kg	84.8	77	111
EP074I: Volatile Halogenated Compounds (QCLot: 1541200)								
EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	0.1 mg/kg	89.9	49	133
EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	0.1 mg/kg	75.9	62	127

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP074I: Volatile Halogenated Compounds (QCLot: 1541200) - continued								
EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	2.1 mg/kg	84.7	68	107
EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	0.1 mg/kg	81.6	68	124
EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	0.1 mg/kg	86.2	74	118
EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	0.1 mg/kg	84.1	72	118
EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	0.1 mg/kg	78.6	67	119
EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	0.1 mg/kg	75.3	65	119
EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	0.1 mg/kg	95.0	73	120
EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	0.1 mg/kg	81.9	72	124
EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	0.1 mg/kg	96.9	74	122
EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	0.1 mg/kg	83.4	64	124
EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	0.1 mg/kg	92.8	70	119
EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	0.1 mg/kg	95.4	71	125
EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	0.1 mg/kg	90.2	61	125
EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	0.1 mg/kg	86.9	73	117
EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	0.1 mg/kg	90.5	69	118
EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	0.1 mg/kg	92.2	75	114
EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	0.1 mg/kg	97.7	59	124
EP075A: Phenolic Compounds (Halogenated) (QCLot: 1541313)								
EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	2 mg/kg	98.2	54	122
EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	2 mg/kg	85.0	58	131
EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	2 mg/kg	100	55	118
EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	2 mg/kg	88.9	62	129
EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	2 mg/kg	96.4	53	121
EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	2 mg/kg	86.4	60	126
EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	2 mg/kg	97.1	56	118
EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/5 8-90-2	0.05	mg/kg	<0.05	4 mg/kg	96.7	54	125
EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	4 mg/kg	77.6	52	124
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 1541313)								
EP075-EM: Phenol	108-95-2	1	mg/kg	<1	2 mg/kg	92.8	56	120
EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	2 mg/kg	78.9	52	131
EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	4 mg/kg	90.3	59	132
EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	2 mg/kg	81.8	53	130
EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	2 mg/kg	94.5	43	120
EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	12 mg/kg	86.6	23	125
EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	12 mg/kg	97.9	59	133
EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	12 mg/kg	88.8	47	125
EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	12 mg/kg	101	51	123
EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	10 mg/kg	87.0	12	132

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 1541313)								
EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	2 mg/kg	101	58	121
EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	2 mg/kg	106	55	126
EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	2 mg/kg	99.9	59	120
EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	2 mg/kg	102	64	122
EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	2 mg/kg	109	70	128
EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	2 mg/kg	73.2	55	127
EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	2 mg/kg	110	68	134
EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	2 mg/kg	104	69	131
EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	2 mg/kg	110	65	133
EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	2 mg/kg	113	68	134
EP075-EM: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	4 mg/kg	114	64	134
EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	2 mg/kg	104	62	132
EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	2 mg/kg	108	55	137
EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	2 mg/kg	109	54	136
EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	2 mg/kg	105	55	137
EP075I: Organochlorine Pesticides (QCLot: 1541313)								
EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	2 mg/kg	96.8	68	122
EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	2 mg/kg	102	65	122
EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	2 mg/kg	98.9	62	133
EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	2 mg/kg	101	68	126
EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	2 mg/kg	108	68	133
EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	2 mg/kg	107	62	128
EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	2 mg/kg	107	66	128
EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	2 mg/kg	107	62	133
EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	2 mg/kg	109	62	132
EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	2 mg/kg	111	61	133
EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	2 mg/kg	106	63	136
EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	2 mg/kg	106	57	131
EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	2 mg/kg	108	65	137
EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	2 mg/kg	90.9	24	174
EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	2 mg/kg	136	55	148
EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	2 mg/kg	108	66	135
EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	2 mg/kg	110	66	134
EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	2 mg/kg	112	63	139
EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	2 mg/kg	106	59	134
EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	2 mg/kg	116	61	136
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1541200)								
EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	39.6 mg/kg	72.6	69	114

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1541314)								
EP071-EM: C10 - C14 Fraction	----	50	mg/kg	<50	806 mg/kg	96.3	73	134
EP071-EM: C15 - C28 Fraction	----	100	mg/kg	<100	3006 mg/kg	101	81	112
EP071-EM: C29 - C36 Fraction	----	100	mg/kg	<100	1584 mg/kg	92.8	77	116
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1541200)								
EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	48.9 mg/kg	71.4	69	112
EP074-UT: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1541314)								
EP071-EM: >C10 - C16 Fraction	----	50	mg/kg	<50	1160 mg/kg	98.8	77	127
EP071-EM: >C16 - C34 Fraction	----	100	mg/kg	<100	3978 mg/kg	99.8	79	113
EP071-EM: >C34 - C40 Fraction	----	100	mg/kg	<100	313 mg/kg	90.9	68	124
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 1545025)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.00125 mg/kg	62.4	57	121
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	64.0	52	126
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	63.2	55	127
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 1545025)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	62.5	52	128
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	70.8	54	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	74.0	58	127
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	66.0	57	128
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	69.6	60	134
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 1545025)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00125 mg/kg	64.8	54	130
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00125 mg/kg	72.0	61	130
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.00125 mg/kg	70.4	62	130
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.00125 mg/kg	66.8	60	130

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 1544509)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.5 µg/L	84.8	70	130
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L	<0.02	0.5 µg/L	85.4	70	130
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.5 µg/L	77.6	70	130
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 1551880)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.5 µg/L	83.2	70	130
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L	<0.02	0.5 µg/L	79.6	70	130
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.5 µg/L	81.8	70	130

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 1544509)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	2.5 µg/L	87.2	70	130
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.5 µg/L	95.2	70	130
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.5 µg/L	80.6	70	130
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.5 µg/L	98.6	70	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.5 µg/L	90.4	70	130
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 1551880)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	2.5 µg/L	79.0	70	130
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.5 µg/L	94.2	70	130
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.5 µg/L	112	70	130
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.5 µg/L	97.4	70	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.5 µg/L	89.2	70	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 1544509)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.5 µg/L	119	70	130
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.5 µg/L	96.8	70	130
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.5 µg/L	80.8	70	130
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.5 µg/L	86.0	70	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 1551880)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.5 µg/L	90.2	70	130
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.5 µg/L	93.6	70	130
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.5 µg/L	120	70	130
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.5 µg/L	91.4	70	130

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
				Concentration	MS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 1545941)							
EM1805503-013	BH2_0.2	EG005T: Arsenic	7440-38-2	50 mg/kg	105	78	124
		EG005T: Cadmium	7440-43-9	50 mg/kg	95.7	84	116
		EG005T: Copper	7440-50-8	50 mg/kg	104	82	124
		EG005T: Lead	7439-92-1	50 mg/kg	93.0	76	124
		EG005T: Molybdenum	7439-98-7	50 mg/kg	100	79	117
		EG005T: Nickel	7440-02-0	50 mg/kg	105	78	120
		EG005T: Selenium	7782-49-2	50 mg/kg	100	71	125
		EG005T: Zinc	7440-66-6	50 mg/kg	78.6	74	128

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1545940)							
EM1805503-013	BH2_0.2	EG035T: Mercury	7439-97-6	5 mg/kg	81.2	76	116
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 1547899)							
EM1805503-010	BH1_0.2	EG048G: Hexavalent Chromium	18540-29-9	40 mg/kg	96.2	58	114
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 1548654)							
EM1805503-010	BH1_0.2	EK026SF: Total Cyanide	57-12-5	20 mg/kg	93.6	77	113
EK040T: Fluoride Total (QCLot: 1539662)							
EM1805503-013	BH2_0.2	EK040T: Fluoride	16984-48-8	400 mg/kg	111	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 1541315)							
EM1805503-013	BH2_0.2	EP066-EM: Total Polychlorinated biphenyls	----	1 mg/kg	68.2	36	152
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 1541200)							
EM1805503-013	BH2_0.2	EP074-UT: Benzene	71-43-2	2 mg/kg	72.9	50	138
		EP074-UT: Toluene	108-88-3	2 mg/kg	78.2	56	134
EP074I: Volatile Halogenated Compounds (QCLot: 1541200)							
EM1805503-013	BH2_0.2	EP074-UT: 1.1-Dichloroethene	75-35-4	2 mg/kg	66.3	26	141
		EP074-UT: Trichloroethene	79-01-6	2 mg/kg	67.6	50	134
		EP074-UT: Chlorobenzene	108-90-7	2 mg/kg	79.2	28	134
EP075A: Phenolic Compounds (Halogenated) (QCLot: 1541313)							
EM1805503-016	BH3_0.2	EP075-EM: 2-Chlorophenol	95-57-8	1 mg/kg	107	34	118
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	1 mg/kg	84.8	41	139
		EP075-EM: Pentachlorophenol	87-86-5	1 mg/kg	34.5	10	144
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 1541313)							
EM1805503-016	BH3_0.2	EP075-EM: Phenol	108-95-2	1 mg/kg	92.0	32	134
		EP075-EM: 2-Nitrophenol	88-75-5	1 mg/kg	54.7	13	129
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 1541313)							
EM1805503-016	BH3_0.2	EP075-EM: Acenaphthene	83-32-9	1 mg/kg	110	46	138
		EP075-EM: Pyrene	129-00-0	1 mg/kg	116	27	169
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1541200)							
EM1805503-013	BH2_0.2	EP074-UT: C6 - C9 Fraction	----	28 mg/kg	65.5	43	111
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1541314)							
EM1805503-013	BH2_0.2	EP071-EM: C10 - C14 Fraction	----	806 mg/kg	87.6	53	123
		EP071-EM: C15 - C28 Fraction	----	3006 mg/kg	95.2	70	124
		EP071-EM: C29 - C36 Fraction	----	1584 mg/kg	90.5	64	118
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1541200)							
EM1805503-013	BH2_0.2	EP074-UT: C6 - C10 Fraction	C6_C10	33 mg/kg	64.4	42	106

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1541314)							
EM1805503-013	BH2_0.2	EP071-EM: >C10 - C16 Fraction	----	1160 mg/kg	90.6	65	123
		EP071-EM: >C16 - C34 Fraction	----	3978 mg/kg	93.7	67	121
		EP071-EM: >C34 - C40 Fraction	----	313 mg/kg	86.6	44	126
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 1545025)							
EM1805503-007	SED1/290318/1S	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.00125 mg/kg	67.6	50	130
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00125 mg/kg	96.4	50	130
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00125 mg/kg	84.0	50	130
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 1545025)							
EM1805503-007	SED1/290318/1S	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	61.0	30	130
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	93.2	50	130
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	85.2	50	130
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	84.4	50	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	86.4	50	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 1545025)							
EM1805503-007	SED1/290318/1S	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00125 mg/kg	63.6	50	130
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00125 mg/kg	91.2	50	130
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.00125 mg/kg	97.6	50	130
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.00125 mg/kg	50.8	50	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 1544509)							
EM1805503-001	GW17-26-03/290318/1W	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.5 µg/L	65.4	50	130
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.5 µg/L	83.0	50	130
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.5 µg/L	80.6	50	130
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 1551880)							
EB1808076-004	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.5 µg/L	81.8	50	130
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.5 µg/L	106	50	130
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.5 µg/L	# Not Determined	50	130
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 1544509)							
EM1805503-001	GW17-26-03/290318/1W	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	2.5 µg/L	70.6	50	130
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.5 µg/L	86.8	50	130
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.5 µg/L	76.4	50	130
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.5 µg/L	85.4	50	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.5 µg/L	89.8	50	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 1551880)							
EB1808076-004	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	2.5 µg/L	87.4	50	130
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.5 µg/L	86.4	50	130
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.5 µg/L	118	50	130
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.5 µg/L	90.2	50	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.5 µg/L	101	50	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 1544509)							
EM1805503-001	GW17-26-03/290318/1W	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.5 µg/L	91.6	50	130
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.5 µg/L	77.2	50	130
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.5 µg/L	74.8	50	130
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.5 µg/L	60.4	50	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 1551880)							
EB1808076-004	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.5 µg/L	89.8	50	130
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.5 µg/L	90.2	50	130
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.5 µg/L	117	50	130
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.5 µg/L	82.4	50	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM1805503**	Page	: 1 of 10
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: OLFA NAZARIO	Telephone	: +61-3-8549 9609
Project	: 2135645A	Date Samples Received	: 29-Mar-2018
Site	: Dingley	Issue Date	: 10-Apr-2018
Sampler	: SA	No. of samples received	: 28
Order number	:	No. of samples analysed	: 20

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **Surrogate recovery outliers exist for all regular sample matrices - please see following pages for full details.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EP231A: Perfluoroalkyl Sulfonic Acids	EB1808076--004	Anonymous	**Perfluorooctane sulfonic acid (PFOS)**	1763-23-1	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Regular Sample Surrogates

Sub-Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Samples Submitted							
EP075T: Base/Neutral Extractable Surrogates	EM1805503-016	BH3_0.2	**Nitrobenzene-D5**	4165-60-0	126 %	29-125 %	**Recovery greater than upper data quality objective**
EP075T: Base/Neutral Extractable Surrogates	EM1805503-016	BH3_0.2	**1.2-Dichlorobenzene-D4**	2199-69-1	121 %	31-117 %	**Recovery greater than upper data quality objective**
EP231S: PFAS Surrogate	EM1805503-010	BH1_0.2	**13C4-PFOS**	----	19.5 %	60-130 %	**Recovery less than lower data quality objective**
EP231S: PFAS Surrogate	EM1805503-016	BH3_0.2	**13C4-PFOS**	----	18.0 %	60-130 %	**Recovery less than lower data quality objective**
EP231S: PFAS Surrogate	EM1805503-021	BH5_0.2/290318	**13C4-PFOS**	----	18.0 %	60-130 %	**Recovery less than lower data quality objective**
EP231S: PFAS Surrogate	EM1805503-010	BH1_0.2	**13C8-PFOA**	----	27.5 %	60-130 %	**Recovery less than lower data quality objective**
EP231S: PFAS Surrogate	EM1805503-016	BH3_0.2	**13C8-PFOA**	----	29.5 %	60-130 %	**Recovery less than lower data quality objective**
EP231S: PFAS Surrogate	EM1805503-021	BH5_0.2/290318	**13C8-PFOA**	----	33.5 %	60-130 %	**Recovery less than lower data quality objective**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA001: pH in soil using 0.01M CaCl extract							
HDPE Soil Jar (EA001)							
BH1_0.2, BH2_0.2, BH3_0.2	**29-Mar-2018**	**05-Apr-2018**	05-Apr-2018	✓	**05-Apr-2018**	05-Apr-2018	✓
EA055: Moisture Content (Dried @ 105-110°C)							
HDPE Soil Jar (EA055)							
SED1/290318/1S, SED2/290318/2S, BH1_0.2, BH2_0.2, BH3_0.2, BH4_0.2/290318, DUPC/290318, BH5_0.2/290318, BH6_0.2/290318	**29-Mar-2018**	**----**	----	----	**04-Apr-2018**	12-Apr-2018	✓
Soil Glass Jar - Unpreserved (EA055)							
TRIP BLANK	**29-Mar-2018**	**----**	----	----	**04-Apr-2018**	12-Apr-2018	✓
EG005T: Total Metals by ICP-AES							
HDPE Soil Jar (EG005T)							
BH1_0.2, BH2_0.2, BH3_0.2	**29-Mar-2018**	**06-Apr-2018**	25-Sep-2018	✓	**06-Apr-2018**	25-Sep-2018	✓
EG035T: Total Recoverable Mercury by FIMS							
HDPE Soil Jar (EG035T)							
BH1_0.2, BH2_0.2, BH3_0.2	**29-Mar-2018**	**06-Apr-2018**	26-Apr-2018	✓	**09-Apr-2018**	26-Apr-2018	✓
EG048: Hexavalent Chromium (Alkaline Digest)							
HDPE Soil Jar (EG048G)							
BH1_0.2, BH2_0.2, BH3_0.2	**29-Mar-2018**	**06-Apr-2018**	26-Apr-2018	✓	**06-Apr-2018**	13-Apr-2018	✓
EK026SF: Total CN by Segmented Flow Analyser							
HDPE Soil Jar (EK026SF)							
BH1_0.2, BH2_0.2, BH3_0.2	**29-Mar-2018**	**06-Apr-2018**	12-Apr-2018	✓	**09-Apr-2018**	20-Apr-2018	✓
EK040T: Fluoride Total							
HDPE Soil Jar (EK040T)							
BH1_0.2, BH2_0.2, BH3_0.2	**29-Mar-2018**	**03-Apr-2018**	26-Apr-2018	✓	**05-Apr-2018**	26-Apr-2018	✓
EN60: ASLP Leaching Procedure							
Non-Volatile Leach: 180 day HT (e.g. metals ex.Hg) (EN60a)							
BH1_0.2, BH2_0.2, BH3_0.2	**29-Mar-2018**	**04-Apr-2018**	25-Sep-2018	✓	**----**	----	----
EP066: Polychlorinated Biphenyls (PCB)							
HDPE Soil Jar (EP066-EM)							
BH1_0.2, BH2_0.2, BH3_0.2	**29-Mar-2018**	**04-Apr-2018**	12-Apr-2018	✓	**04-Apr-2018**	14-May-2018	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074A: Monocyclic Aromatic Hydrocarbons							
HDPE Soil Jar (EP074-UT) BH1_0.2, BH2_0.2, BH3_0.2	**29-Mar-2018**	**29-Mar-2018**	05-Apr-2018	✓	**29-Mar-2018**	05-Apr-2018	✓
EP074H: Naphthalene							
HDPE Soil Jar (EP074-UT) BH1_0.2, BH2_0.2, BH3_0.2	**29-Mar-2018**	**29-Mar-2018**	05-Apr-2018	✓	**29-Mar-2018**	05-Apr-2018	✓
EP074I: Volatile Halogenated Compounds							
HDPE Soil Jar (EP074-UT) BH1_0.2, BH2_0.2, BH3_0.2	**29-Mar-2018**	**29-Mar-2018**	05-Apr-2018	✓	**29-Mar-2018**	05-Apr-2018	✓
EP075A: Phenolic Compounds (Halogenated)							
HDPE Soil Jar (EP075-EM) BH1_0.2, BH2_0.2, BH3_0.2	**29-Mar-2018**	**04-Apr-2018**	12-Apr-2018	✓	**04-Apr-2018**	14-May-2018	✓
EP075A: Phenolic Compounds (Non-halogenated)							
HDPE Soil Jar (EP075-EM) BH1_0.2, BH2_0.2, BH3_0.2	**29-Mar-2018**	**04-Apr-2018**	12-Apr-2018	✓	**04-Apr-2018**	14-May-2018	✓
EP075B: Polynuclear Aromatic Hydrocarbons							
HDPE Soil Jar (EP075-EM) BH1_0.2, BH2_0.2, BH3_0.2	**29-Mar-2018**	**04-Apr-2018**	12-Apr-2018	✓	**04-Apr-2018**	14-May-2018	✓
EP075I: Organochlorine Pesticides							
HDPE Soil Jar (EP075-EM) BH1_0.2, BH2_0.2, BH3_0.2	**29-Mar-2018**	**04-Apr-2018**	12-Apr-2018	✓	**04-Apr-2018**	14-May-2018	✓
EP080/071: Total Petroleum Hydrocarbons							
HDPE Soil Jar (EP071-EM) BH1_0.2, BH2_0.2, BH3_0.2	**29-Mar-2018**	**04-Apr-2018**	12-Apr-2018	✓	**04-Apr-2018**	14-May-2018	✓
HDPE Soil Jar (EP074-UT) BH1_0.2, BH2_0.2, BH3_0.2	**29-Mar-2018**	**29-Mar-2018**	05-Apr-2018	✓	**29-Mar-2018**	05-Apr-2018	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
HDPE Soil Jar (EP071-EM) BH1_0.2, BH2_0.2, BH3_0.2	**29-Mar-2018**	**04-Apr-2018**	12-Apr-2018	✓	**04-Apr-2018**	14-May-2018	✓
HDPE Soil Jar (EP074-UT) BH1_0.2, BH2_0.2, BH3_0.2	**29-Mar-2018**	**29-Mar-2018**	05-Apr-2018	✓	**29-Mar-2018**	05-Apr-2018	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE Soil Jar (EP231X)							
SED1/290318/1S, SED2/290318/2S, BH1_0.2, BH2_0.2, BH3_0.2, BH4_0.2/290318, DUPC/290318, BH5_0.2/290318, BH6_0.2/290318	**29-Mar-2018**	**05-Apr-2018**	25-Sep-2018	✓	**06-Apr-2018**	15-May-2018	✓
Soil Glass Jar - Unpreserved (EP231X)							
TRIP BLANK	**29-Mar-2018**	**05-Apr-2018**	25-Sep-2018	✓	**06-Apr-2018**	15-May-2018	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE Soil Jar (EP231X)							
SED1/290318/1S, SED2/290318/2S, BH1_0.2, BH2_0.2, BH3_0.2, BH4_0.2/290318, DUPC/290318, BH5_0.2/290318, BH6_0.2/290318	**29-Mar-2018**	**05-Apr-2018**	25-Sep-2018	✓	**06-Apr-2018**	15-May-2018	✓
Soil Glass Jar - Unpreserved (EP231X)							
TRIP BLANK	**29-Mar-2018**	**05-Apr-2018**	25-Sep-2018	✓	**06-Apr-2018**	15-May-2018	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE Soil Jar (EP231X)							
SED1/290318/1S, SED2/290318/2S, BH1_0.2, BH2_0.2, BH3_0.2, BH4_0.2/290318, DUPC/290318, BH5_0.2/290318, BH6_0.2/290318	**29-Mar-2018**	**05-Apr-2018**	25-Sep-2018	✓	**06-Apr-2018**	15-May-2018	✓
Soil Glass Jar - Unpreserved (EP231X)							
TRIP BLANK	**29-Mar-2018**	**05-Apr-2018**	25-Sep-2018	✓	**06-Apr-2018**	15-May-2018	✓
EP231P: PFAS Sums							
HDPE Soil Jar (EP231X)							
SED1/290318/1S, SED2/290318/2S, BH1_0.2, BH2_0.2, BH3_0.2, BH4_0.2/290318, DUPC/290318, BH5_0.2/290318, BH6_0.2/290318	**29-Mar-2018**	**05-Apr-2018**	25-Sep-2018	✓	**06-Apr-2018**	15-May-2018	✓
Soil Glass Jar - Unpreserved (EP231X)							
TRIP BLANK	**29-Mar-2018**	**05-Apr-2018**	25-Sep-2018	✓	**06-Apr-2018**	15-May-2018	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE (no PTFE) (EP231X)								
BH1_0.2, BH3_0.2	BH2_0.2,	**04-Apr-2018**	**----**	----	----	**09-Apr-2018**	01-Oct-2018	✓
HDPE (no PTFE) (EP231X)								
GW17-26-03/290318/1W, LW17-26-01/290318/3W, GW17-26-01/290318/4W, SW2/290318/6W, RB/290318,	GW17-26-02/290318/2W, DUPA/290318, SW1/290318/5W, TRIP BLANK, RB2/290318	**29-Mar-2018**	**----**	----	----	**05-Apr-2018**	25-Sep-2018	✓
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE (no PTFE) (EP231X)								
BH1_0.2, BH3_0.2	BH2_0.2,	**04-Apr-2018**	**----**	----	----	**09-Apr-2018**	01-Oct-2018	✓
HDPE (no PTFE) (EP231X)								
GW17-26-03/290318/1W, LW17-26-01/290318/3W, GW17-26-01/290318/4W, SW2/290318/6W, RB/290318,	GW17-26-02/290318/2W, DUPA/290318, SW1/290318/5W, TRIP BLANK, RB2/290318	**29-Mar-2018**	**----**	----	----	**05-Apr-2018**	25-Sep-2018	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE (no PTFE) (EP231X)								
BH1_0.2, BH3_0.2	BH2_0.2,	**04-Apr-2018**	**----**	----	----	**09-Apr-2018**	01-Oct-2018	✓
HDPE (no PTFE) (EP231X)								
GW17-26-03/290318/1W, LW17-26-01/290318/3W, GW17-26-01/290318/4W, SW2/290318/6W, RB/290318,	GW17-26-02/290318/2W, DUPA/290318, SW1/290318/5W, TRIP BLANK, RB2/290318	**29-Mar-2018**	**----**	----	----	**05-Apr-2018**	25-Sep-2018	✓
EP231P: PFAS Sums								
HDPE (no PTFE) (EP231X)								
BH1_0.2, BH3_0.2	BH2_0.2,	**04-Apr-2018**	**----**	----	----	**09-Apr-2018**	01-Oct-2018	✓
HDPE (no PTFE) (EP231X)								
GW17-26-03/290318/1W, LW17-26-01/290318/3W, GW17-26-01/290318/4W, SW2/290318/6W, RB/290318,	GW17-26-02/290318/2W, DUPA/290318, SW1/290318/5W, TRIP BLANK, RB2/290318	**29-Mar-2018**	**----**	----	----	**05-Apr-2018**	25-Sep-2018	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	3	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	3	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	2	10	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	3	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PCB - VIC EPA 448.3 Screen	EP066-EM	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Matrix Spikes (MS) - Continued							
PCB - VIC EPA 448.3 Screen	EP066-EM	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071-EM	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH in soil using a 0.01M CaCl2 extract	EA001	SOIL	In house: Referenced to Rayment and Lyons (2011) 4B3 (mod.) or 4B4 (mod.) 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM (2013) Schedule B(3)
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	SOIL	In house: Referenced to USEPA SW846, Method 3060A. Hexavalent chromium is extracted by alkaline digestion. The digest is determined by photometrically by automatic discrete analyser, following pH adjustment. The instrument uses colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Cyanide by Segmented Flow Analyser	EK026SF	SOIL	In house: Referenced to APHA 4500-CN C / ASTM D7511. Caustic leachates of soil samples are introduced into an automated segmented flow analyser. Complex bound cyanide is decomposed in a continuously flowing stream, at a pH of 3.8, by the effect of UV light. A UV-B lamp (312 nm) and a decomposition spiral of borosilicate glass are used to filter out UV light with a wavelength of less than 290 nm thus preventing the conversion of thiocyanate into cyanide. The hydrogen cyanide present at a pH of 3.8 is separated by gas dialysis. The hydrogen cyanide is then determined photometrically, based on the reaction of cyanide with chloramine-T to form cyanogen chloride. This then reacts with 4-pyridine carboxylic acid and 1,3-dimethylbarbituric acid to give a red colour which is measured at 600 nm. This method is compliant with NEPM (2013) Schedule B(3)
Total Fluoride	EK040T	SOIL	(In-house) Total fluoride is determined by ion specific electrode (ISE) in a solution obtained after a Sodium Carbonate / Potassium Carbonate fusion dissolution.
PCB - VIC EPA 448.3 Screen	EP066-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
TRH - Semivolatile Fraction	EP071-EM	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40.
Volatile Organic Compounds - Ultra-trace	EP074-UT	SOIL	In house: Referenced to USEPA SW 846 - 8260B Extracts are analysed by Purge and Trap, Capillary GC/MS in partial SIM/Scan mode. Quantification is by comparison against an established multi-point calibration curves. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)

Analytical Methods	Method	Matrix	Method Descriptions
Volatile Organic Compounds - Ultra-trace - Summations	EP074-UT-SUM	SOIL	Summation of MAHs and VHCs
Semivolatile Organic Compounds - Waste Classification	EP075-EM	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (2013) Schedule B(3) (Method 502)
SVOC - Waste Classification (Sums)	EP075-EM-SUM	SOIL	Summations for EP075 (EM variation)
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-House. A portion of soil is extracted with MTBE. The extract is taken to dryness, made up in mobile phase. Analysis is by LC/MSMS, ESI Negative Mode using MRM. Where commercially available, isotopically labelled analogues of the target analytes are used as internal standards for quantification. Where a labelled analogue is not commercially available, the internal standard with similar chemistry and the closest retention time to the target is used for quantification. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. This method complies with the quality control definitions as stated in QSM 5.1. Data is reviewed in line with the DQOs as stated in QSM5.1
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In house: Direct injection analysis of fresh waters after dilution (1:1) with methanol. Analysis by LC-Electrospray-MS-MS, Negative Mode using MRM. Where commercially available, isotopically labelled analogues of the target analytes are used as internal standards for quantification. Where a labelled analogue is not commercially available, the internal standard with similar chemistry and the closest retention time to the target is used for quantification. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. This method complies with the quality control definitions as stated in QSM 5.1. Data is reviewed in line with the DQOs as stated in QSM5.1

Preparation Methods	Method	Matrix	Method Descriptions
NaOH leach for CN in Soils	CN-PR	SOIL	In house: APHA 4500 CN. Samples are extracted by end-over-end tumbling with NaOH.
pH in soil using a 0.01M CaCl2 extract	EA001-PR	SOIL	In house: Referenced to Rayment and Higginson 4B1, 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Alkaline digestion for Hexavalent Chromium	EG048PR	SOIL	In house: Referenced to USEPA SW846, Method 3060A.
Total Fluoride	EK040T-PR	SOIL	In house: Samples are fused with Sodium Carbonate / Potassium Carbonate flux.
ASLP for Non & Semivolatile Analytes	EN60a	SOIL	In house QWI-EN/60 referenced to AS4439.3 Preparation of Leachates
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Sample Extraction for PFAS	EP231-PR	SOIL	In house
Methanolic Extraction of Soils - Ultra-trace.	ORG16-UT	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids - VIC EPA Screen	ORG17-EM	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EM1805503**

Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Melbourne
Contact	: OLFA NAZARIO	Contact	: Graeme Jablonskas
Address	: Level 15, 28 Freshwater Place SOUTHBANK VIC, AUSTRALIA 3006	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: olfa.nazario@wsp.com	E-mail	: graeme.jablonskas@alsglobal.com
Telephone	: +61 03 9861 1111	Telephone	: +61-3-8549 9609
Facsimile	: +61 03 9861 1144	Facsimile	: +61-3-8549 9626
Project	: 2135645A	Page	: 1 of 4
Order number	:	Quote number	: EM2016PARBRIVIC0006 (ME-525-16)
C-O-C number	: 94475-94477	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Dingley		
Sampler	: SA		

Dates

Date Samples Received	: 29-Mar-2018 17:50	Issue Date	: 03-Apr-2018
Client Requested Due Date	: 10-Apr-2018	Scheduled Reporting Date	: **10-Apr-2018**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 2	Temperature	: 14.8°C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 28 / 20

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **Analytical work for this work order will be conducted at ALS Springvale and ALS Sydney.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

Method / Client sample ID	Sample Container Received	Preferred Sample Container for Analysis
Hexavalent Chromium by Alkaline Digestion and DA Finish : EG048G		
BH1_0.2	- HDPE Soil Jar	- Soil Glass Jar - Unpreserved
BH2_0.2	- HDPE Soil Jar	- Soil Glass Jar - Unpreserved
BH3_0.2	- HDPE Soil Jar	- Soil Glass Jar - Unpreserved
PCB - VIC EPA 448.3 Screen : EP066-EM		
BH1_0.2	- HDPE Soil Jar	- Soil Glass Jar - Unpreserved
BH2_0.2	- HDPE Soil Jar	- Soil Glass Jar - Unpreserved
BH3_0.2	- HDPE Soil Jar	- Soil Glass Jar - Unpreserved
pH in soil using a 0.01M CaCl2 extract : EA001		
BH1_0.2	- HDPE Soil Jar	- Soil Glass Jar - Unpreserved
BH2_0.2	- HDPE Soil Jar	- Soil Glass Jar - Unpreserved
BH3_0.2	- HDPE Soil Jar	- Soil Glass Jar - Unpreserved
Semivolatile Organic Compounds - Waste Classification : EP075-EM		
BH1_0.2	- HDPE Soil Jar	- Soil Glass Jar - Unpreserved
BH2_0.2	- HDPE Soil Jar	- Soil Glass Jar - Unpreserved
BH3_0.2	- HDPE Soil Jar	- Soil Glass Jar - Unpreserved
Total Cyanide by Segmented Flow Analyser : EK026SF		
BH1_0.2	- HDPE Soil Jar	- Soil Glass Jar - Unpreserved
BH2_0.2	- HDPE Soil Jar	- Soil Glass Jar - Unpreserved
BH3_0.2	- HDPE Soil Jar	- Soil Glass Jar - Unpreserved
Total Fluoride : EK040T		
BH1_0.2	- HDPE Soil Jar	- Pulp Bag
BH2_0.2	- HDPE Soil Jar	- Pulp Bag
BH3_0.2	- HDPE Soil Jar	- Pulp Bag
Total Mercury by FIMS : EG035T		
BH1_0.2	- HDPE Soil Jar	- Soil Glass Jar - Unpreserved
BH2_0.2	- HDPE Soil Jar	- Soil Glass Jar - Unpreserved
BH3_0.2	- HDPE Soil Jar	- Soil Glass Jar - Unpreserved
TRH - Semivolatile Fraction : EP071-EM		
BH1_0.2	- HDPE Soil Jar	- Soil Glass Jar - Unpreserved
BH2_0.2	- HDPE Soil Jar	- Soil Glass Jar - Unpreserved
BH3_0.2	- HDPE Soil Jar	- Soil Glass Jar - Unpreserved
Volatile Organic Compounds - Ultra-trace : EP074-UT		
BH1_0.2	- HDPE Soil Jar	- Soil Glass Jar - Unpreserved
BH2_0.2	- HDPE Soil Jar	- Soil Glass Jar - Unpreserved
BH3_0.2	- HDPE Soil Jar	- Soil Glass Jar - Unpreserved

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

EM1805503-001 : [29-Mar-2018] : GW17-26-03/290318/1W
EM1805503-002 : [29-Mar-2018] : GW17-26-02/290318/2W
EM1805503-003 : [29-Mar-2018] : LW17-26-01/290318/3W
EM1805503-005 : [29-Mar-2018] : GW17-26-01/290318/4W

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	*Client sampling date / time*	*Client sample ID*	(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - EN60a ASLP Leachate Procedure	SOIL - EP231 (solids) PFAS - Short Suite (12 analytes)	SOIL - EP231 PFAS - Short Suite (12 analytes)	SOIL - P-16 IWRG 621
EM1805503-007	29-Mar-2018 00:00	SED1/290318/1S		✓		✓		
EM1805503-009	29-Mar-2018 00:00	SED2/290318/2S		✓		✓		
EM1805503-010	29-Mar-2018 00:00	BH1_0.2		✓	✓	✓	✓	✓
EM1805503-011	29-Mar-2018 00:00	BH1_0.5	✓					
EM1805503-012	29-Mar-2018 00:00	BH1_0.9	✓					
EM1805503-013	29-Mar-2018 00:00	BH2_0.2		✓	✓	✓	✓	✓
EM1805503-014	29-Mar-2018 00:00	BH2_0.5	✓					
EM1805503-015	29-Mar-2018 00:00	BH2_1.0	✓					
EM1805503-016	29-Mar-2018 00:00	BH3_0.2		✓	✓	✓	✓	✓
EM1805503-017	29-Mar-2018 00:00	BH4_0.2/290318		✓		✓		
EM1805503-018	29-Mar-2018 00:00	BH4_0.5/290318	✓					
EM1805503-019	29-Mar-2018 00:00	BH4_1.0/290318	✓					
EM1805503-020	29-Mar-2018 00:00	DUPC/290318		✓		✓		
EM1805503-021	29-Mar-2018 00:00	BH5_0.2/290318		✓		✓		
EM1805503-022	29-Mar-2018 00:00	BH5_0.5/290318	✓					
EM1805503-023	29-Mar-2018 00:00	BH5_1.0/290318	✓					
EM1805503-024	29-Mar-2018 00:00	BH6_0.2/290318		✓		✓		
EM1805503-026	29-Mar-2018 00:00	TRIP BLANK		✓		✓		

Matrix: **WATER**

Laboratory sample ID	*Client sampling date / time*	*Client sample ID*	WATER - EP231 PFAS - Short Suite (12 analytes)
EM1805503-001	29-Mar-2018 00:00	GW17-26-03/290318/1W	✓
EM1805503-002	29-Mar-2018 00:00	GW17-26-02/290318/2W	✓
EM1805503-003	29-Mar-2018 00:00	LW17-26-01/290318/3W	✓
EM1805503-004	29-Mar-2018 00:00	DUPA/290318	✓
EM1805503-005	29-Mar-2018 00:00	GW17-26-01/290318/4W	✓
EM1805503-006	29-Mar-2018 00:00	SW1/290318/5W	✓
EM1805503-008	29-Mar-2018 00:00	SW2/290318/6W	✓
EM1805503-025	29-Mar-2018 00:00	TRIP BLANK	✓
EM1805503-027	29-Mar-2018 00:00	RB/290318	✓
EM1805503-028	29-Mar-2018 00:00	RB2/290318	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ALL INVOICES

- A4 - AU Tax Invoice (INV)	Email	AU.AccountsPayable@wsp.com

OLFA NAZARIO

- *AU Certificate of Analysis - NATA (COA)	Email	olfa.nazario@wsp.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	olfa.nazario@wsp.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	olfa.nazario@wsp.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	olfa.nazario@wsp.com
- Chain of Custody (CoC) (COC)	Email	olfa.nazario@wsp.com
- EDI Format - ENMRG (ENMRG)	Email	olfa.nazario@wsp.com
- EDI Format - ESDAT (ESDAT)	Email	olfa.nazario@wsp.com
- EPA Waste Classification & Categorisation Guideline Report (COA_GL_EPA_WASTE)	Email	olfa.nazario@wsp.com

wsp

White Page - Laboratory Copy
Yellow Page - Project File Copy
Pink Page - Remains in Book

ABN 80 078 004 798

Adelaide Level 1, 1 King William Street, GPO Box 398, Adelaide SA 5001 Tel: (08) 8405 4300 Fax: (08) 8405 4301

Brisbane Level 3, Northbank Plaza 69 Ann Street, GPO Box 2907, Brisbane QLD 4001 Tel: (07) 3854 6200 Fax: (07) 3854 6500

Melbourne Level 15, 28 Freshwater Place, Tel: (03) 9861 1111 Fax: (03) 9861 1144

Sydney Level 27, 680 George Street, GP Box 5394, Sydney NSW 2001 Tel: (02) 9272 5100 Fax: (02) 9272 5101

Perth Level 5, 503 Murray Street, PO Box 7181, Cloisters Square WA 6850 Tel: (08) 9489 9700 Fax: (08) 9489 9777

Singleton 188 John Street, PO Box 115, Singleton NSW 2330 Tel: (02) 6572 3377 Fax: (02) 6572 4080

Newcastle Level 3, 51-55 Bolton Street, Suite 1 PO Box 1162, Newcastle NSW 2300 Tel: (02) 4929 8300 Fax: (02) 4929 8382

Chain of Custody

Order No: 94475

Job Title: MB - VICRoads

WSP Job Number: 213264SA

Job Location: Dingley

Laboratory Name: ALS Environmental

Address: 2-4 Westall Rd Springvale

Terms of Business: WSP ✓ Other: WSP Checked:

Fax Number:

Phone Number:

Contact Name:

Delivery Method:

Quote Number:

Project Manager: Olfa Nagaio

Results Expected by/on: Std.

Fax Results to: Olfa.Nagaio@wsp.com

Fax Number: -

Phone Number:

Spreadsheet of Results Required: (Y) / N

Format: ESDAT

Turnaround Time Required: Std

Invoice to: Olfa Nagaio

Comments: 1 of 3

Date Sampled	Time	Sample I.D.	Container Size	Container No.	Sample Location	Medium*	Preservative Type	Filtered (X)	TPH	BTEX	PAH's	OC/OP/PCB's	Metals**	PFAS	PFAS ASLP	PFAS Lwrkh 621	Initials	Comments/Additional Information and/or Analysis Required
29/3/18	8:30	GW17-26-03/290318/GW	1xPFAS	1	Lwr Dandenong Rd	W	ICE							X			SA	
	9:40	DW17-26-02/290318/GW	"	2		W	ICE							X			SA	
	10:15	LW17-26-01/290318/GW	"	3	Duplicate	W	ICE							X			SA	SA 3/4.
	10:16	DUPA/290318	"	4	"	W	ICE							X			SA	
	10:17	DUPB/290318 → large PFAS	"	5	"	W	"							X			SA	→ Please FWD to MGT for PFAS
	10:23	GW17-26-04/290318/GW	1xPFAS	6	"	W	"							X			SA	
	11:00	SW1/290318/SW	"	7	MG	W	"							X			SA	
	11:05	SED1/290318/1S	1xPFAS Tub	7	"	S	"							X			SA	
	11:10	SW2/290318/GW	1xPFAS	8	"	W	"							X			SA	
	11:15	SED2/290318/2S	1xJar	9	"	S	"							X			SA	
	13:00	BH1.0.2	3xJar	10	"	S	"							X	X	X	SA	Organics
	13:00	BH1_0.5	"	11	"	S	"											HOLD 29-3 TL

Relinquished by:	Relinquished by:	Relinquish
Date & Time: 29/3/18 17:30	Date & Time:	Date & Tin
Company: WSP	Company:	Company:
Signature:	Signature:	Signature:
Received in Good Order & Condition by (Name): Hana	Received in Good Order & Condition by (Name):	Received i & Conditio
Date & Time: 29/3 17:50	Date & Time:	Date & Tin
Company:	Company:	Company:
Signature:	Signature:	Signature:

Environmental Division Melbourne

Work Order Reference

EM1805503

Telephone : +61-3-8549 9600

Medium* S = Soil, W = Water, V = Vapour

Legend**: (circle the following to be tested)

Metals Al As Be Cd Co Cr Cu Fe Hg Li Mg Mn Ni Pb Se Sn V Zn

Samples on Ice: ☐ Yes ☐ No

Please fax back a signed copy when samples are received at the laboratory

wsp

White Page - Laboratory Copy
Yellow Page - Project File Copy
Pink Page - Remains in Book

ABN 80 078 004 798

Adelaide Level 1, 1 King William Street, GPO Box 398, Adelaide SA 5001 Tel: (08) 8405 4300 Fax: (08) 8405 4301
Brisbane Level 3, Northbank Plaza 69 Ann Street, GPO Box 2907, Brisbane QLD 4001 Tel: (07) 3854 6200 Fax: (07) 3854 6500
Melbourne Level 15, 28 Freshwater Place, Tel: (03) 9861 1111 Fax: (03) 9861 1144
Sydney Level 27, 680 George Street, GP Box 5394, Sydney NSW 2001 Tel: (02) 9272 5100 Fax: (02) 9272 5101
Perth Level 5, 503 Murray Street, PO Box 7181, Cloisters Square WA 6850 Tel: (08) 9489 9700 Fax: (08) 9489 9777
Singleton 188 John Street, PO Box 115, Singleton NSW 2330 Tel: (02) 6572 3377 Fax: (02) 6572 4080
Newcastle Level 3, 51-55 Bolton Street, Suite 1 PO Box 1162, Newcastle NSW 2300 Tel: (02) 4929 8300 Fax: (02) 4929 8382

Chain of Custody

Order No: 94476

Job Title: MB – VICROADS

WSP Job Number: 21356455A

Job Location:

Laboratory Name: ALS ENVIRONMENTAL

Address:

Fax Number:

Phone Number:

Contact Name:

Delivery Method:

Quote Number:

Terms of Business	WSP	Other	Checked
WSP	✓		

Project Manager: Olga Nagorio

Results Expected by/on: Std

Fax Results to: Olga.Nagorio@WSP.com

Fax Number:

Phone Number:

Spreadsheet of Results Required: ~~Y~~ / N

Format: ESDAT

Turnaround Time Required: Std

Invoice to: Olga Nagorio

Comments: 2 of 3

Date Sampled	Time	Sample I.D. (Lab ID)	Container Size	Sample Location	Medium*	Preservative Type	Filtered (X)	TPH	BTEX	PAH's	OC/OP/PCB's	Metals**	PFAS	PFAS ASLP	WR2462	Initials	Comments/Additional Information and/or Analysis Required
29/3/18	13:00	BH1_0.9 (1)	3x Jar	Environmix	S	Ice							~~X~~	~~X~~	X	SA	Hold
	13:45	BH2_0.2 (2)		13									X	X	X	SA	
	13:45	BH2_0.5 (3)		14												SA	Hold
	13:45	BH2_1.0 (4)		15												SA	Hold
	14:20	BH3_0.2 (5)		16									X	X	X	SA	
	15:15	BH4_0.2/290318 (6)		Ziplock									X			SA	
	15:15	BH4_0.5/290318 (7)		18												SA	Hold
	15:15	BH4_1.0/290318 (8)		19												SA	Hold
	15:15	DUPC/290318 (9)		20									X			SA	
	15:15	DUPD/290318 (10)											X			SA	Please forward to Eurofins MET for PFAS
	15:43	BH5_0.2/290318 (11)		21									X			SA	
	15:43	BH5_0.5/290318 (12)		22												A	Hold

Relinquished by:	SA	Relinquished by:	Relinqu
Date & Time:	29/3/18 17:30	Date & Time:	Date &
Company:	WSP	Company:	Compa
Signature:		Signature:	Signatu
Received in Good Order & Condition by (Name):		Received in Good Order & Condition by (Name):	Receiv & Cond
Date & Time:		Date & Time: 29/3 17:50	Date &
Company:		Company:	Comp
Signature:		Signature:	Signa

Medium* S = Soil, W = Water, V = Vapour

Legend**: (circle the following to be tested)

Metals Al As Be Cd Co Cr Cu Fe Hg Li Mg Mn Ni Pb Se Sn V Zn

Samples on Ice: ☐ Yes ☐ No

Please fax back a signed copy when samples are received at the laboratory

WSP

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Newcastle Level 3, 51-55 Bolton Street, Suite 1 PO Box 1162, Newcastle NSW 2300 Tel: (02) 4929 8300 Fax: (02) 4929 8382

Chain of Custody

Order No: 94477

Job Title: MCLOAS - QMS

WSP Job Number: 21350455A

Job Location:

Laboratory Name: AES (Envirolab Nort)

Address:

Fax Number:

Phone Number:

Contact Name:

Delivery Method:

Quote Number:

Terms of Business	WSP	Other	Checked
WSP	✓		

Project Manager: Olga Nazario

Results Expected by/on: 4/4

Fax Results to:

Fax Number:

Phone Number: as previous

Spreadsheet of Results Required: Y / N

Format:

Turnaround Time Required:

Invoice to:

Comments: 3 of 3

Date Sampled	Time	Sample I.D.	Container Size	Sample Location	Medium*	Preservative Type	Filtered (X)	TPH	BTEX	PAH's	OC/OP/PCB's	Metals**	PFAS	Initials	Comments/Additional Information and/or Analysis Required
29/3/18	15:43	BH5_10/240318	1 x Jar	23	S									SA	Hold
"	16:23	BH6_02/290318	1 x Jar	24	S								X	SA	
"		TRIP BLANK	1 x PFAS	25	W								X	SA	
"		TRIP BLANK	1 x Jar	26	S								X	SA	
"	10:15	RB1/240318	1 x PFAS	27	W								X	SA	
"	13:20	RB2/240318	"	28	W								X	SA	

Relinquished by: S. Aldous	Relinquished by:	Relinquished by:
Date & Time: 29/3/18 17:30	Date & Time:	Date & Time:
Company: WSP	Company:	Company:
Signature: SA	Signature:	Signature:
Received in Good Order & Condition by (Name):	Received in Good Order & Condition by (Name):	Received in Good Order & Condition by (Name):
Date & Time: 29/3 17:00	Date & Time:	Date & Time:
Company: AES	Company:	Company:
Signature:	Signature:	Signature:

Medium* S = Soil, W = Water, V = Vapour

Legend**: (circle the following to be tested)

Metals Al As Be Cd Co Cr Cu Fe Hg Li Mg Mn Ni Pb Se Sn V Zn

Samples on Ice: ☐ Yes ☐ No

Please fax back a signed copy when samples are received at the laboratory

Certificate of Analysis

WSP Australia P/L MELB
Lvl 15, 28 FreshwaterPlace
Southbank
VIC 3006

Attention: **Olfa Nazario**

Report **592381-S**
Project name MB_VICROADS
Project ID 213564SA
Received Date Apr 04, 2018

Client Sample ID			**DUPD/290318**
Sample Matrix			**Soil**
Eurofins | mgt Sample No.			**M18-Ap03224**
Date Sampled			**Mar 29, 2018**
Test/Reference	LOR	Unit	
Perfluoroalkyl carboxylic acids (PFCAs)			
Perfluorobutanoic acid (PFBA)[N11]	5	ug/kg	< 5
Perfluoropentanoic acid (PFPeA)[N11]	5	ug/kg	< 5
Perfluorohexanoic acid (PFHxA)[N11]	5	ug/kg	< 5
Perfluoroheptanoic acid (PFHpA)[N11]	5	ug/kg	< 5
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	< 5
Perfluorononanoic acid (PFNA)[N11]	5	ug/kg	< 5
Perfluorodecanoic acid (PFDA)[N11]	5	ug/kg	< 5
Perfluoroundecanoic acid (PFUnDA)[N11]	5	ug/kg	< 5
Perfluorododecanoic acid (PFDoDA)[N11]	5	ug/kg	< 5
Perfluorotridecanoic acid (PFTrDA)[N15]	5	ug/kg	< 5
Perfluorotetradecanoic acid (PFTeDA)[N11]	5	ug/kg	< 5
13C4-PFBA (surr.)	1	%	106
13C5-PFPeA (surr.)	1	%	97
13C5-PFHxA (surr.)	1	%	108
13C4-PFHpA (surr.)	1	%	106
13C8-PFOA (surr.)	1	%	96
13C5-PFNA (surr.)	1	%	105
13C6-PFDA (surr.)	1	%	116
13C2-PFUnDA (surr.)	1	%	111
13C2-PFDoDA (surr.)	1	%	111
13C2-PFTeDA (surr.)	1	%	115
Perfluoroalkane sulfonamido substances			
Perfluorooctane sulfonamide (FOSA)[N11]	5	ug/kg	< 5
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	5	ug/kg	< 5
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	5	ug/kg	< 5
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)[N11]	5	ug/kg	< 5
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)[N11]	5	ug/kg	< 5
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	10	ug/kg	< 10
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	10	ug/kg	< 10
13C8-FOSA (surr.)	1	%	97
D3-N-MeFOSA (surr.)	1	%	94
D5-N-EtFOSA (surr.)	1	%	109

Client Sample ID			DUPD/290318
Sample Matrix			**Soil**
Eurofins | mgt Sample No.			**M18-Ap03224**
Date Sampled			**Mar 29, 2018**
Test/Reference	LOR	Unit	
Perfluoroalkane sulfonamido substances			
D7-N-MeFOSE (surr.)	1	%	87
D9-N-EtFOSE (surr.)	1	%	87
D5-N-EtFOSAA (surr.)	1	%	125
D3-N-MeFOSAA (surr.)	1	%	130
Perfluoroalkane sulfonic acids (PFSAs)			
Perfluorobutanesulfonic acid (PFBS)[N11]	5	ug/kg	< 5
Perfluoropentanesulfonic acid (PFPeS)[N15]	5	ug/kg	< 5
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	< 5
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	< 5
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	< 5
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	< 5
13C3-PFBS (surr.)	1	%	110
18O2-PFHxS (surr.)	1	%	107
13C8-PFOS (surr.)	1	%	111
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)[N11]	5	ug/kg	< 5
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)[N11]	10	ug/kg	< 10
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)[N11]	5	ug/kg	< 5
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)[N15]	5	ug/kg	< 5
13C2-4:2 FTSA (surr.)	1	%	128
13C2-6:2 FTSA (surr.)	1	%	105
13C2-8:2 FTSA (surr.)	1	%	118
PFASs Summations			
Sum (PFHxS + PFOS)*	5	ug/kg	< 5
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	< 5
Sum of WA DER PFAS (n=10)*	10	ug/kg	< 10
Sum of PFASs (n=28)*	50	ug/kg	< 50
% Moisture	1	%	2.6

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Per- and Polyfluorinated Alkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs)	Brisbane	Apr 11, 2018	180 Day
- Method: LTM-ORG-2100 Per- and Polyfluoro Alkyl Substances (PFAS)			
Perfluoroalkane sulfonamido substances	Brisbane	Apr 11, 2018	180 Day
- Method: LTM-ORG-2100 Per- and Polyfluoro Alkyl Substances (PFAS)			
Perfluoroalkane sulfonic acids (PFSAs)	Brisbane	Apr 11, 2018	180 Day
- Method: LTM-ORG-2100 Per- and Polyfluoro Alkyl Substances (PFAS)			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)	Brisbane	Apr 11, 2018	180 Day
- Method: LTM-ORG-2100 Per- and Polyfluoro Alkyl Substances (PFAS)			
% Moisture	Brisbane	Apr 04, 2018	14 Day
- Method: LTM-GEN-7080 Moisture			

ABN– 50 005 085 521
e.mail : EnviroSales@eurofins.com
web : www.eurofins.com.au

Melbourne
2-5 Kingston Town Close
Oakleigh VIC 3166
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name: WSP Australia P/L MELB
Address: Lvl 15, 28 FreshwaterPlace
Southbank
VIC 3006

Project Name: MB_VICROADS
Project ID: 213564SA

Order No.:
Report #: 592381
Phone: 9861 1111
Fax: 9861 1144

Received: Apr 4, 2018 3:37 PM
Due: Apr 11, 2018
Priority: 5 Day
Contact Name: Olfa Nazario

Eurofins | mgt Analytical Services Manager : Mary Makarios

Sample Detail						Moisture Set	Per- and Polyfluorinated Alkyl Substances (PFASs)
Melbourne Laboratory - NATA Site # 1254 & 14271							
Sydney Laboratory - NATA Site # 18217							
Brisbane Laboratory - NATA Site # 20794						X	X
Perth Laboratory - NATA Site # 23736							
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	DUPB/290318	Mar 29, 2018	10:17AM	Water	M18-Ap03223		X
2	DUPD/290318	Mar 29, 2018	3:15PM	Soil	M18-Ap03224	X	X
Test Counts						1	2

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	Quality Systems Manual ver 5.1 US Department of Defense
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.1 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	ug/kg	< 5			5	Pass	
Perfluoropentanoic acid (PFPeA)	ug/kg	< 5			5	Pass	
Perfluorohexanoic acid (PFHxA)	ug/kg	< 5			5	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/kg	< 5			5	Pass	
Perfluorooctanoic acid (PFOA)	ug/kg	< 5			5	Pass	
Perfluorononanoic acid (PFNA)	ug/kg	< 5			5	Pass	
Perfluorodecanoic acid (PFDA)	ug/kg	< 5			5	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/kg	< 5			5	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/kg	< 5			5	Pass	
Perfluorotridecanoic acid (PFTrDA)	ug/kg	< 5			5	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/kg	< 5			5	Pass	
Method Blank							
Perfluoroalkane sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	ug/kg	< 5			5	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/kg	< 5			5	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/kg	< 5			5	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	ug/kg	< 5			5	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	ug/kg	< 5			5	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/kg	< 10			10	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/kg	< 10			10	Pass	
Method Blank							
Perfluoroalkane sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	ug/kg	< 5			5	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/kg	< 5			5	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/kg	< 5			5	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/kg	< 5			5	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/kg	< 5			5	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/kg	< 5			5	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/kg	< 5			5	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	ug/kg	< 10			10	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/kg	< 5			5	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/kg	< 5			5	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	97			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	99			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	103			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	101			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	106			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	101			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	101			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	102			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	100			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	90			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	94			50-150	Pass	
LCS - % Recovery							
Perfluoroalkane sulfonamido substances							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorooctane sulfonamide (FOSA)	%	98			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	98			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	96			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	%	107			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	%	95			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	94			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	91			50-150	Pass	
LCS - % Recovery							
Perfluoroalkane sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	%	101			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	95			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	93			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	104			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	99			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	96			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	114			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	%	121			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	99			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	135			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1					
Perfluorobutanoic acid (PFBA)	B18-Ap08186	NCP	%	101			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	B18-Ap08186	NCP	%	106			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	B18-Ap08186	NCP	%	109			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	B18-Ap08186	NCP	%	103			50-150	Pass	
Perfluorooctanoic acid (PFOA)	B18-Ap08186	NCP	%	107			50-150	Pass	
Perfluorononanoic acid (PFNA)	B18-Ap08186	NCP	%	101			50-150	Pass	
Perfluorodecanoic acid (PFDA)	B18-Ap08186	NCP	%	103			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	B18-Ap08186	NCP	%	104			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	B18-Ap08186	NCP	%	106			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	B18-Ap08186	NCP	%	97			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	B18-Ap08186	NCP	%	102			50-150	Pass	
Spike - % Recovery									
Perfluoroalkane sulfonamido substances				Result 1					
Perfluorooctane sulfonamide (FOSA)	B18-Ap08186	NCP	%	103			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B18-Ap08186	NCP	%	106			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B18-Ap08186	NCP	%	100			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	B18-Ap08186	NCP	%	104			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	B18-Ap08186	NCP	%	98			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B18-Ap08186	NCP	%	101			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B18-Ap08186	NCP	%	99			50-150	Pass	
Spike - % Recovery									

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluoroalkane sulfonic acids (PFSAs)				Result 1					
Perfluorobutanesulfonic acid (PFBS)	B18-Ap08186	NCP	%	104			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	B18-Ap08186	NCP	%	93			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	B18-Ap08186	NCP	%	98			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	B18-Ap08186	NCP	%	107			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	B18-Ap08186	NCP	%	100			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	B18-Ap08186	NCP	%	101			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B18-Ap08186	NCP	%	118			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	B18-Ap08186	NCP	%	101			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B18-Ap08186	NCP	%	97			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B18-Ap08186	NCP	%	124			50-150	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	M18-Ap03224	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanoic acid (PFPeA)	M18-Ap03224	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanoic acid (PFHxA)	M18-Ap03224	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	M18-Ap03224	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	M18-Ap03224	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorononanoic acid (PFNA)	M18-Ap03224	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorodecanoic acid (PFDA)	M18-Ap03224	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroundecanoic acid (PFUnDA)	M18-Ap03224	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorododecanoic acid (PFDoDA)	M18-Ap03224	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotridecanoic acid (PFTrDA)	M18-Ap03224	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotetradecanoic acid (PFTeDA)	M18-Ap03224	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
Perfluoroalkane sulfonamido substances				Result 1	Result 2	RPD			
Perfluorooctane sulfonamide (FOSA)	M18-Ap03224	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	M18-Ap03224	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	M18-Ap03224	CP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	M18-Ap03224	CP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	M18-Ap03224	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	M18-Ap03224	CP	ug/kg	< 10	< 10	<1	30%	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	M18-Ap03224	CP	ug/kg	< 10	< 10	<1	30%	Pass	

Duplicate									
Perfluoroalkane sulfonic acids (PFSAs)				Result 1	Result 2	RPD			
Perfluorobutanesulfonic acid (PFBS)	M18-Ap03224	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanesulfonic acid (PFPeS)	M18-Ap03224	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	M18-Ap03224	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	M18-Ap03224	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanesulfonic acid (PFOS)	M18-Ap03224	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorodecanesulfonic acid (PFDS)	M18-Ap03224	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)				Result 1	Result 2	RPD			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	M18-Ap03224	CP	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	M18-Ap03224	CP	ug/kg	< 10	< 10	<1	30%	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	M18-Ap03224	CP	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	M18-Ap03224	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	B18-Ma31922	NCP	%	24	24	<1	30%	Pass	

Quality Control Analyte Summary Compliance

The table below is the actual occurrence of QC performed on the batch of samples within this report and as defined below

Analysis	Samples Analysed	Laboratory Duplicates Reported	Laboratory Matrix Spikes Reported	Method Blanks Reported	Laboratory Control Samples Reported
Perfluoroalkyl carboxylic acids (PFCAs)	1	1	1	1	1
Perfluoroalkane sulfonamido substances	1	1	1	1	1
Perfluoroalkane sulfonic acids (PFSAs)	1	1	1	1	1
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)	1	1	1	1	1
% Moisture	1	1	NA	NA	NA

Quality Control Parameter Frequency Compliance follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure April 2011, Schedule B3, Guideline on Laboratory Analysis of Potentially Contaminated Soils and US EPA SW-846 Chapter 1: 'Quality Control'.

It comprises the following when a laboratory process batch is deemed to consist of up to 20 samples that are similar in terms of matrix and test procedure, and are processed as one unit for QC purposes. If more than 20 samples are being processed, they are considered as more than one batch.

Method blank

One method blank per process batch.

Laboratory duplicate

There should be at least one duplicate per process batch, or two duplicates if the process batch exceeds 10 samples.

Laboratory control sample (LCS)

There should be at least one LCS per process batch.

Matrix spikes

There should be one matrix spike per matrix type per process batch.

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N11	Isotope dilution is used for calibration of each native compound for which an exact labelled analogue is available (Isotope Dilution Quantitation). The isotopically labelled analogues allow identification and recovery correction of the concentration of the associated native PFAS compounds.
N15	Where the native PFAS compound does not have labelled analogue then the quantification is made using the Extracted Internal Standard Analyte with the closest retention time to the analyte and no recovery correction has been made (Internal Standard Quantitation).

Authorised By

Mary Makarios	Analytical Services Manager
Jonathon Angell	Senior Analyst-Organic (QLD)
Myles Clark	Senior Analyst-Metal (QLD)

Glenn Jackson
National Operations Manager

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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Certificate of Analysis

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Lvl 15, 28 FreshwaterPlace
Southbank
VIC 3006

NATA Accredited
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Site Number 1254

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Attention: **Olfa Nazario**

Report **592381-W**
Project name MB_VICROADS
Project ID 213564SA
Received Date Apr 04, 2018

Client Sample ID			**DUPB/290318**
Sample Matrix			**Water**
Eurofins | mgt Sample No.			**M18-Ap03223**
Date Sampled			**Mar 29, 2018**
Test/Reference	LOR	Unit	
Perfluoroalkyl carboxylic acids (PFCAs)			
Perfluorobutanoic acid (PFBA)[N11]	0.05	ug/L	0.29
Perfluoropentanoic acid (PFPeA)[N11]	0.01	ug/L	0.04
Perfluorohexanoic acid (PFHxA)[N11]	0.01	ug/L	[N09]0.11
Perfluoroheptanoic acid (PFHpA)[N11]	0.01	ug/L	[N09]0.05
Perfluorooctanoic acid (PFOA)[N11]	0.01	ug/L	[N09]0.26
Perfluorononanoic acid (PFNA)[N11]	0.01	ug/L	< 0.01
Perfluorodecanoic acid (PFDA)[N11]	0.01	ug/L	< 0.01
Perfluoroundecanoic acid (PFUnDA)[N11]	0.01	ug/L	< 0.01
Perfluorododecanoic acid (PFDoDA)[N11]	0.01	ug/L	< 0.01
Perfluorotridecanoic acid (PFTrDA)[N15]	0.01	ug/L	< 0.01
Perfluorotetradecanoic acid (PFTeDA)[N11]	0.01	ug/L	< 0.01
13C4-PFBA (surr.)	1	%	43
13C5-PFPeA (surr.)	1	%	76
13C5-PFHxA (surr.)	1	%	72
13C4-PFHpA (surr.)	1	%	87
13C8-PFOA (surr.)	1	%	83
13C5-PFNA (surr.)	1	%	79
13C6-PFDA (surr.)	1	%	90
13C2-PFUnDA (surr.)	1	%	85
13C2-PFDoDA (surr.)	1	%	98
13C2-PFTeDA (surr.)	1	%	89
Perfluoroalkane sulfonamido substances			
Perfluorooctane sulfonamide (FOSA)[N11]	0.05	ug/L	< 0.05
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	0.05	ug/L	< 0.05
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	0.05	ug/L	< 0.05
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)[N11]	0.05	ug/L	< 0.05
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)[N11]	0.05	ug/L	< 0.05
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	0.05	ug/L	< 0.05
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	0.05	ug/L	< 0.05
13C8-FOSA (surr.)	1	%	56
D3-N-MeFOSA (surr.)	1	%	87
D5-N-EtFOSA (surr.)	1	%	65

Client Sample ID			DUPB/290318
Sample Matrix			Water
Eurofins | mgt Sample No.			M18-Ap03223
Date Sampled			Mar 29, 2018
Test/Reference	LOR	Unit	
Perfluoroalkane sulfonamido substances			
D7-N-MeFOSE (surr.)	1	%	51
D9-N-EtFOSE (surr.)	1	%	47
D5-N-EtFOSAA (surr.)	1	%	162
D3-N-MeFOSAA (surr.)	1	%	126
Perfluoroalkane sulfonic acids (PFSAs)			
Perfluorobutanesulfonic acid (PFBS)[N11]	0.01	ug/L	< 0.01
Perfluoropentanesulfonic acid (PFPeS)[N15]	0.01	ug/L	0.03
Perfluorohexanesulfonic acid (PFHxS)[N11]	0.01	ug/L	[N09]0.11
Perfluoroheptanesulfonic acid (PFHpS)[N15]	0.01	ug/L	< 0.01
Perfluorooctanesulfonic acid (PFOS)[N11]	0.01	ug/L	[N09]0.26
Perfluorodecanesulfonic acid (PFDS)[N15]	0.01	ug/L	< 0.01
13C3-PFBS (surr.)	1	%	72
18O2-PFHxS (surr.)	1	%	68
13C8-PFOS (surr.)	1	%	84
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)[N11]	0.01	ug/L	< 0.01
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)[N11]	0.05	ug/L	< 0.05
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)[N11]	0.01	ug/L	< 0.01
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)[N15]	0.01	ug/L	< 0.01
13C2-4:2 FTSA (surr.)	1	%	119
13C2-6:2 FTSA (surr.)	1	%	INT
13C2-8:2 FTSA (surr.)	1	%	INT
PFASs Summations			
Sum (PFHxS + PFOS)*	0.01	ug/L	0.37
Sum of US EPA PFAS (PFOS + PFOA)*	0.01	ug/L	0.52
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	0.63
Sum of WA DER PFAS (n=10)*	0.05	ug/L	1.12
Sum of PFASs (n=28)*	0.1	ug/L	1.15

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Per- and Polyfluorinated Alkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs)	Brisbane	Apr 09, 2018	14 Day
- Method: LTM-ORG-2100 Per- and Polyfluoro Alkyl Substances (PFAS)			
Perfluoroalkane sulfonamido substances	Brisbane	Apr 09, 2018	14 Day
- Method: LTM-ORG-2100 Per- and Polyfluoro Alkyl Substances (PFAS)			
Perfluoroalkane sulfonic acids (PFSAs)	Brisbane	Apr 09, 2018	14 Day
- Method: LTM-ORG-2100 Per- and Polyfluoro Alkyl Substances (PFAS)			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)	Brisbane	Apr 09, 2018	14 Day
- Method: LTM-ORG-2100 Per- and Polyfluoro Alkyl Substances (PFAS)			

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NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name:	WSP Australia P/L MELB	**Order No.:**		**Received:**	Apr 4, 2018 3:37 PM
Address:	Lvl 15, 28 FreshwaterPlace Southbank VIC 3006	**Report #:**	592381	**Due:**	Apr 11, 2018
		Phone:	9861 1111	**Priority:**	5 Day
		Fax:	9861 1144	**Contact Name:**	Olfa Nazario
Project Name:	MB_VICROADS				
Project ID:	213564SA				

Eurofins | mgt Analytical Services Manager : Mary Makarios

Sample Detail						Moisture Set	Per- and Polyfluorinated Alkyl Substances (PFASs)
Melbourne Laboratory - NATA Site # 1254 & 14271							
Sydney Laboratory - NATA Site # 18217							
Brisbane Laboratory - NATA Site # 20794						X	X
Perth Laboratory - NATA Site # 23736							
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	DUPB/290318	Mar 29, 2018	10:17AM	Water	M18-Ap03223		X
2	DUPD/290318	Mar 29, 2018	3:15PM	Soil	M18-Ap03224	X	X
Test Counts						1	2

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	Quality Systems Manual ver 5.1 US Department of Defense
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.1 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.05			0.05	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.01			0.01	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.01			0.01	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.01			0.01	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.01			0.01	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.01			0.01	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.01			0.01	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.01			0.01	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.01			0.01	Pass	
Perfluorotridecanoic acid (PFTrDA)	ug/L	< 0.01			0.01	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.01			0.01	Pass	
Method Blank							
Perfluoroalkane sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.05			0.05	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.05			0.05	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.05			0.05	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	ug/L	< 0.05			0.05	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	ug/L	< 0.05			0.05	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.05			0.05	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.05			0.05	Pass	
Method Blank							
Perfluoroalkane sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.01			0.01	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.01			0.01	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.01			0.01	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.01			0.01	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.01			0.01	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.01			0.01	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.01			0.01	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	ug/L	< 0.05			0.05	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.01			0.01	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.01			0.01	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	98			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	104			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	120			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	108			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	114			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	108			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	100			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	98			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	106			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	86			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	98			50-150	Pass	
LCS - % Recovery							
Perfluoroalkane sulfonamido substances							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorooctane sulfonamide (FOSA)	%	102			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	92			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	92			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	%	96			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	%	112			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	102			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	114			50-150	Pass	
LCS - % Recovery							
Perfluoroalkane sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	%	108			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	108			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	100			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	114			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	98			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	114			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	104			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	%	96			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	96			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	106			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1					
Perfluorobutanoic acid (PFBA)	B18-Ap03752	NCP	%	93			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	B18-Ap03752	NCP	%	95			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	B18-Ap03752	NCP	%	118			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	B18-Ap03752	NCP	%	104			50-150	Pass	
Perfluorooctanoic acid (PFOA)	B18-Ap03752	NCP	%	112			50-150	Pass	
Perfluorononanoic acid (PFNA)	B18-Ap03752	NCP	%	110			50-150	Pass	
Perfluorodecanoic acid (PFDA)	B18-Ap03752	NCP	%	99			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	B18-Ap03752	NCP	%	98			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	B18-Ap03752	NCP	%	103			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	B18-Ap03752	NCP	%	82			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	B18-Ap03752	NCP	%	84			50-150	Pass	
Spike - % Recovery									
Perfluoroalkane sulfonamido substances				Result 1					
Perfluorooctane sulfonamide (FOSA)	B18-Ap03752	NCP	%	108			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B18-Ap03752	NCP	%	84			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B18-Ap03752	NCP	%	82			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	B18-Ap03752	NCP	%	97			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	B18-Ap03752	NCP	%	106			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B18-Ap03752	NCP	%	106			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B18-Ap03752	NCP	%	105			50-150	Pass	
Spike - % Recovery									

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluoroalkane sulfonic acids (PFSAs)				Result 1					
Perfluorobutanesulfonic acid (PFBS)	B18-Ap03752	NCP	%	110			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	B18-Ap03752	NCP	%	103			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	B18-Ap03752	NCP	%	105			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	B18-Ap03752	NCP	%	106			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	B18-Ap03752	NCP	%	99			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	B18-Ap03752	NCP	%	108			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B18-Ap03752	NCP	%	103			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	B18-Ap03752	NCP	%	104			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B18-Ap03752	NCP	%	95			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B18-Ap03752	NCP	%	102			50-150	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	B18-Ap03751	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
Perfluoropentanoic acid (PFPeA)	B18-Ap03751	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorohexanoic acid (PFHxA)	B18-Ap03751	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	B18-Ap03751	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	B18-Ap03751	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorononanoic acid (PFNA)	B18-Ap03751	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorodecanoic acid (PFDA)	B18-Ap03751	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluoroundecanoic acid (PFUnDA)	B18-Ap03751	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorododecanoic acid (PFDoDA)	B18-Ap03751	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorotridecanoic acid (PFTrDA)	B18-Ap03751	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorotetradecanoic acid (PFTeDA)	B18-Ap03751	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Duplicate									
Perfluoroalkane sulfonamido substances				Result 1	Result 2	RPD			
Perfluorooctane sulfonamide (FOSA)	B18-Ap03751	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B18-Ap03751	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B18-Ap03751	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	B18-Ap03751	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	B18-Ap03751	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B18-Ap03751	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B18-Ap03751	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	

Duplicate									
Perfluoroalkane sulfonic acids (PFSAs)				Result 1	Result 2	RPD			
Perfluorobutanesulfonic acid (PFBS)	B18-Ap03751	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluoropentanesulfonic acid (PFPeS)	B18-Ap03751	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	B18-Ap03751	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	B18-Ap03751	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorooctanesulfonic acid (PFOS)	B18-Ap03751	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorodecanesulfonic acid (PFDS)	B18-Ap03751	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Duplicate									
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)				Result 1	Result 2	RPD			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B18-Ap03751	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	B18-Ap03751	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B18-Ap03751	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B18-Ap03751	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	

Quality Control Analyte Summary Compliance

The table below is the actual occurrence of QC performed on the batch of samples within this report and as defined below

Analysis	Samples Analysed	Laboratory Duplicates Reported	Laboratory Matrix Spikes Reported	Method Blanks Reported	Laboratory Control Samples Reported
Perfluoroalkyl carboxylic acids (PFCAs)	1	1	1	1	1
Perfluoroalkane sulfonamido substances	1	1	1	1	1
Perfluoroalkane sulfonic acids (PFSAs)	1	1	1	1	1
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)	1	1	1	1	1

Quality Control Parameter Frequency Compliance follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure April 2011, Schedule B3, Guideline on Laboratory Analysis of Potentially Contaminated Soils and US EPA SW-846 Chapter 1: 'Quality Control'.

It comprises the following when a laboratory process batch is deemed to consist of up to 20 samples that are similar in terms of matrix and test procedure, and are processed as one unit for QC purposes. If more than 20 samples are being processed, they are considered as more than one batch.

Method blank

One method blank per process batch.

Laboratory duplicate

There should be at least one duplicate per process batch, or two duplicates if the process batch exceeds 10 samples.

Laboratory control sample (LCS)

There should be at least one LCS per process batch.

Matrix spikes

There should be one matrix spike per matrix type per process batch.

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N09	Quantification of linear and branched isomers has been conducted as a single total response using the relative response factor for the corresponding linear/branched standard.
N11	Isotope dilution is used for calibration of each native compound for which an exact labelled analogue is available (Isotope Dilution Quantitation). The isotopically labelled analogues allow identification and recovery correction of the concentration of the associated native PFAS compounds.
N15	Where the native PFAS compound does not have labelled analogue then the quantification is made using the Extracted Internal Standard Analyte with the closest retention time to the analyte and no recovery correction has been made (Internal Standard Quantitation).

Authorised By

Mary Makarios	Analytical Services Manager
Jonathon Angell	Senior Analyst-Organic (QLD)



Glenn Jackson
National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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ABN 80 078 004 798

Level 1, 1 King William Street, GPO Box 398, Adelaide SA 5001 Tel: (08) 8405 4300 Fax: (08) 8405 4301
Perth: Level 5, 503 Murray Street, PO Box 7181, Cloisters Square WA 6850 Tel: (08) 9489 9700 Fax: (08) 9489 9777
Level 3, Northbank Plaza 69 Ann Street, GPO Box 2907, Brisbane QLD 4001 Tel: (07) 3854 6200 Fax: (07) 3854 6500
Singleton: 188 John Street, PO Box 115, Singleton NSW 2330 Tel: (02) 6572 3377 Fax: (02) 6572 4080
Level 15, 28 Freshwater Place, Tel: (03) 9861 1111 Fax: (03) 9861 1144
Newcastle: Level 3, 51-55 Bolton Street, Suite 1 PO Box 1162, Newcastle NSW 2300 Tel: (02) 4929 8300 Fax: (02) 4929 8382
Level 27, 680 George Street, GP Box 5394, Sydney NSW 2001 Tel: (02) 9272 5100 Fax: (02) 9272 5101

Chain of Custody

Order No: 94476

Job Title: MB - VICROADS

WSP Job Number: 21356455A

Job Location:

Laboratory Name: ALS ENVIRONMENTAL

Address:

Fax Number:

Phone Number:

Contact Name:

Delivery Method:

Quote Number:

Terms of Business	WSP	Other	Checked
WSP	✓		

Project Manager: Olga Negrello

Results Expected by/on: Std

Fax Results to: Olga.Negrello@WSP.com

Fax Number:

Phone Number:

Spreadsheet of Results Required: Y / N

Format: ESDAT

Turnaround Time Required: Std

Invoice to: Olga Negrello

Comments: 2 of 3

Date Sampled	Time	Sample I.D.	Lab. ID	Container Size	Sample Location	Medium*	Preservative Type	Filtered (X)	TPH	BTEX	PAH's	OC/OP/PCB's	Metals**	PFAS	PFAS ASLP	HVP 462	Initials	Comments/Additional Information and/or Analysis Required
29/3/18	13:00	BH1_0.9	1	3x 250ml	Environmix	S	ICE							X	X		SA	Hold
	13:45	BH2_0.2	2	13									X	X	X		SA	
	13:45	BH2_0.5	3	14													SA	Hold
	13:45	BH2_1.0	4	15													SA	Hold
	14:20	BH3_0.2	5	16									X	X	X		SA	
	15:15	BH4_0.2/290318	6	17	Dinghy								X				SA	
	15:15	BH4_0.5/290318	7	18													SA	Hold
	15:15	BH4_1.0/290318	8	19													SA	Hold
	15:15	DUPC/290318	9	20									X				SA	
	15:15	DUPD/290318	10	21									X				SA	Please forward to Eurofins MET for PFAS
	15:43	BH5_0.2/290318	11	22									X				SA	
	15:43	BH5_0.5/290318	12														A	Hold

Relinquished by:	SA	Relinquished by:	Nicolee
Date & Time:	29/3/18 19:30	Date & Time:	4/04/18 1200pm
Company:	WSP	Company:	ALS
Signature:		Signature:	
Received in Good Order & Condition by (Name):	Amy	Received in Good Order & Condition by (Name):	
Date & Time:	4/4/18 15:37	Date & Time:	29/3 17:50
Company:	EF/MGT 592381	Company:	
Signature:		Signature:	

Medium* S = Soil, W = Water, V = Vapour

Legend**: (circle the following to be tested)

Metals Al As Be Cd Co Cr Cu Fe Hg Li Mg Mn Ni Pb Se Sn V Zn

Samples on Ice: ☑ Yes ☐ No

Please fax back a signed copy when samples are received at the laboratory

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ABN 80 078 004 798

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Newcastle: Level 3, 51-55 Bolton Street, Suite 1 PO Box 1162, Newcastle NSW 2300 Tel: (02) 4929 8300 Fax: (02) 4929 8382

Chain of Custody

Order No: 94475

(3)

Job Title: MB-UICRoads
WSP Job Number: 213564SA
Job Location: Dingley

Project Manager: Olfa Najario
Results Expected by/on: Std
Fax Results to: Olfa.Najario@wsp.com
Fax Number:
Phone Number:
Spreadsheet of Results Required: (Y) / N
Format: ESDAT
Turnaround Time Required: Std
Invoice to: Olfa Najario
Comments: 1 of 3

Laboratory Name: ALS Environmental
Address: 2-4 Westall Rd SPRINGVALE
Fax Number:
Phone Number:
Contact Name:
Delivery Method:
Quote Number:

Terms of Business	WSP	Other	Checked
WSP	✓		

Date Sampled	Time	Sample I.D.	Container Size	Lot No.	Sample Location	Medium*	Preservative Type	Filtered (X)	TPH	BTEX	PAH's	OC/OP/PCB's	Metals**	PFAS	PFAS AJKP	PFAS Work 621	Initials	Comments/Additional Information and/or Analysis Required
29/3/18	8:30	GW17-26-03/290318/GW	1×PFAS	1	Lwr Dandenong Rd	W	ICE							X			SA	
"	9:40	GW17-26-02/290318/GW	"	2	"	W	ICE							X			SA	
	10:15	LWPF-26-01/290318/GW	"	3	Duplicate	W	ICE							X			SA	
	10:16	DUPA/290318	"	4	"	W	ICE							X			SA	
	10:17	DUPB/290318 → Image PFAS	"	5	"	W	"							X			SA	Please TWD to MGT two fms for PFAS
	10:23	GW17-26-01/290318/GW	"	6	"	W	"							X			SA	
	11:00	SW1/290318/SW	"	7	"	W	"							X			SA	
	11:05	SED1/290318/1S	1×PFAS Pack	8	"	S	"							X			SA	
	11:10	SW2/290318/GW	1×PFAS	9	"	W	"							X			SA	
	11:15	SED2/290318/2S	1×Jar	10	"	S	"							X			SA	
	13:00	BH1_0.2	3×Jar	11	"	S	"							X	X	X	SA	Organics
	13:00	BH1_0.5	"	12	"	S	"											Hold 29-3 TL

Relinquished by:	Relinquished by:	Relinquish
Date & Time: 29/3/18 17:30	Date & Time: 4/04/18 12:00pm	Date & Tin
Company: WSP	Company: ALS	Company:
Signature:	Signature:	Signature:
Received in Good Order & Condition by (Name):	Received in Good Order & Condition by (Name): Amy	Received i & Conditio
Date & Time: 29/3 17:30	Date & Time: 4/4/18 15:37	Date & Tin
Company:	Company: EPMENT 592381	Company:
Signature:	Signature:	Signature:

Environmental Division
Melbourne
Work Order Reference
EM1805503

Telephone : +61-3-8549 9600

Medium* S = Soil, W = Water, V = Vapour

Legend**: (circle the following to be tested)

Metals Al As Be Cd Co Cr Cu Fe Hg Li Mg Mn Ni Pb Se Sn V Zn

Samples on Ice: ☐ Yes ☐ No

Please fax back a signed copy when samples are received at the laboratory

eurofins | mgt

Melbourne
3-5 Kingston Town Close
Oakleigh Vic 3166
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261 Site # 23736

ABN – 50 005 085 521 e.mail : EnviroSales@eurofins.com web : www.eurofins.com.au

Sample Receipt Advice

Company name:	**WSP Australia P/L MELB**
Contact name:	Olfa Nazario
Project name:	MB_VICROADS
Project ID:	213564SA
COC number:	Not provided
Turn around time:	5 Day
Date/Time received:	Apr 4, 2018 3:37 PM
Eurofins | mgt reference:	**592381**

Sample information

☑ A detailed list of analytes logged into our LIMS, is included in the attached summary table.

☑ All samples have been received as described on the above COC.

☑ COC has been completed correctly.

☑ Attempt to chill was evident.

☑ Appropriately preserved sample containers have been used.

☑ All samples were received in good condition.

☑ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.

☑ Appropriate sample containers have been used.

☑ Sample containers for volatile analysis received with zero headspace.

☒ Split sample sent to requested external lab.

☒ Some samples have been subcontracted.

N/A Custody Seals intact (if used).

Contact notes

If you have any questions with respect to these samples please contact:

Mary Makarios on Phone : +61 3 8564 5000 or by e.mail: MaryMakarios@eurofins.com

Results will be delivered electronically via e.mail to Olfa Nazario - Olfa.Nazario@wsp.com.

APPENDIX L

EIL CALCULATION SPREADSHEET

Inputs
Select contaminant from list below
As
Below needed to calculate fresh and aged ACLs
Below needed to calculate fresh and aged ABCs
or for fresh ABCs only
or for aged ABCs only

Outputs		
Land use	Arsenic generic EILs (mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	20	40
Urban residential and open public spaces	50	100
Commercial and industrial	80	160

Inputs
Select contaminant from list below
Cr_III
Below needed to calculate fresh and aged ACLs
Enter % clay (values from 0 to 100%)
10
Below needed to calculate fresh and aged ABCs
Measured background concentration (mg/kg). Leave blank if no measured value
or for fresh ABCs only
Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration
7
or for aged ABCs only
Enter State (or closest State)
VIC
Enter traffic volume (high or low)
low

Outputs		
Land use	Cr III soil-specific EILs (mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	130	140
Urban residential and open public spaces	230	410
Commercial and industrial	340	670

Inputs
Select contaminant from list below
Cu
Below needed to calculate fresh and aged ACLs
Enter cation exchange capacity (silver thiourea method) (values from 0 to 100 cmolc/kg dwt)
21
Enter soil pH (calcium chloride method) (values from 1 to 14)
6.9
Enter organic carbon content (%OC) (values from 0 to 50%)
1
Below needed to calculate fresh and aged ABCs
Measured background concentration (mg/kg). Leave blank if no measured value
or for fresh ABCs only
Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration
7
or for aged ABCs only
Enter State (or closest State)
VIC
Enter traffic volume (high or low)
low

Outputs		
Land use	Cu soil-specific EILs (mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	75	80
Urban residential and open public spaces	130	220
Commercial and industrial	180	320

Inputs
Select contaminant from list below
Ni
Below needed to calculate fresh and aged ACLs
Enter cation exchange capacity (silver thiourea method) (values from 0 to 100 cmolc/kg dwt)
21
Below needed to calculate fresh and aged ABCs
Measured background concentration (mg/kg). Leave blank if no measured value
or for fresh ABCs only
Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration
7
or for aged ABCs only
Enter State (or closest State)
VIC
Enter traffic volume (high or low)
low

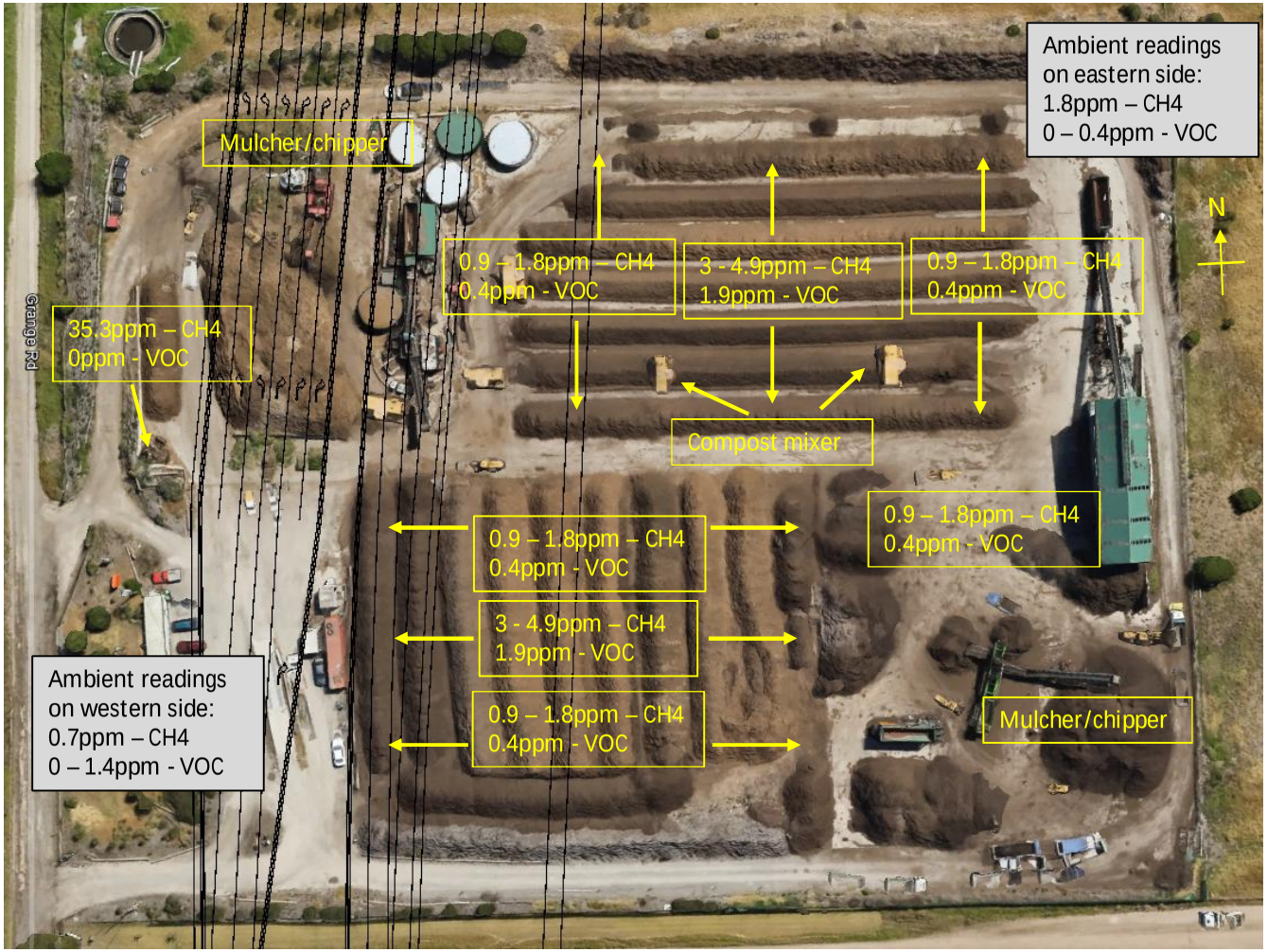
Outputs		
Land use	Ni soil-specific EILs (mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	40	50
Urban residential and open public spaces	110	280
Commercial and industrial	200	480

Inputs
Select contaminant from list below
Zn
Below needed to calculate fresh and aged ACLs
Enter cation exchange capacity (silver thiourea method) (values from 0 to 100 cmolc/kg dwt)
21
Enter soil pH (calcium chloride method) (values from 1 to 14)
6.9
Below needed to calculate fresh and aged ABCs
Measured background concentration (mg/kg). Leave blank if no measured value
or for fresh ABCs only
Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration
7
or for aged ABCs only
Enter State (or closest State)
VIC
Enter traffic volume (high or low)
low

Outputs		
Land use	Zn soil-specific EILs (mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	100	200
Urban residential and open public spaces	310	760
Commercial and industrial	470	1200

APPENDIX M

PHOTOGRAPHS AND SURFACE MONITORING DATA



Photograph 1. Average Methane and VOC concentrations across the Site



Photograph 2. Average Methane and VOC concentrations across the Site



Photograph 3. Open plot of land south of the nursery



Photograph 4. SB09 looking towards SB10 (South)



Photograph 5. Open grassed areas dominant within northern portion of Site



Photograph 6. Grasses within the vicinity of SB16 and SB17



Photograph 7. Common Reed in vicinity of SB16 and SB17



Photograph 8. Mordialloc Creek – Common Reed present at waters edge



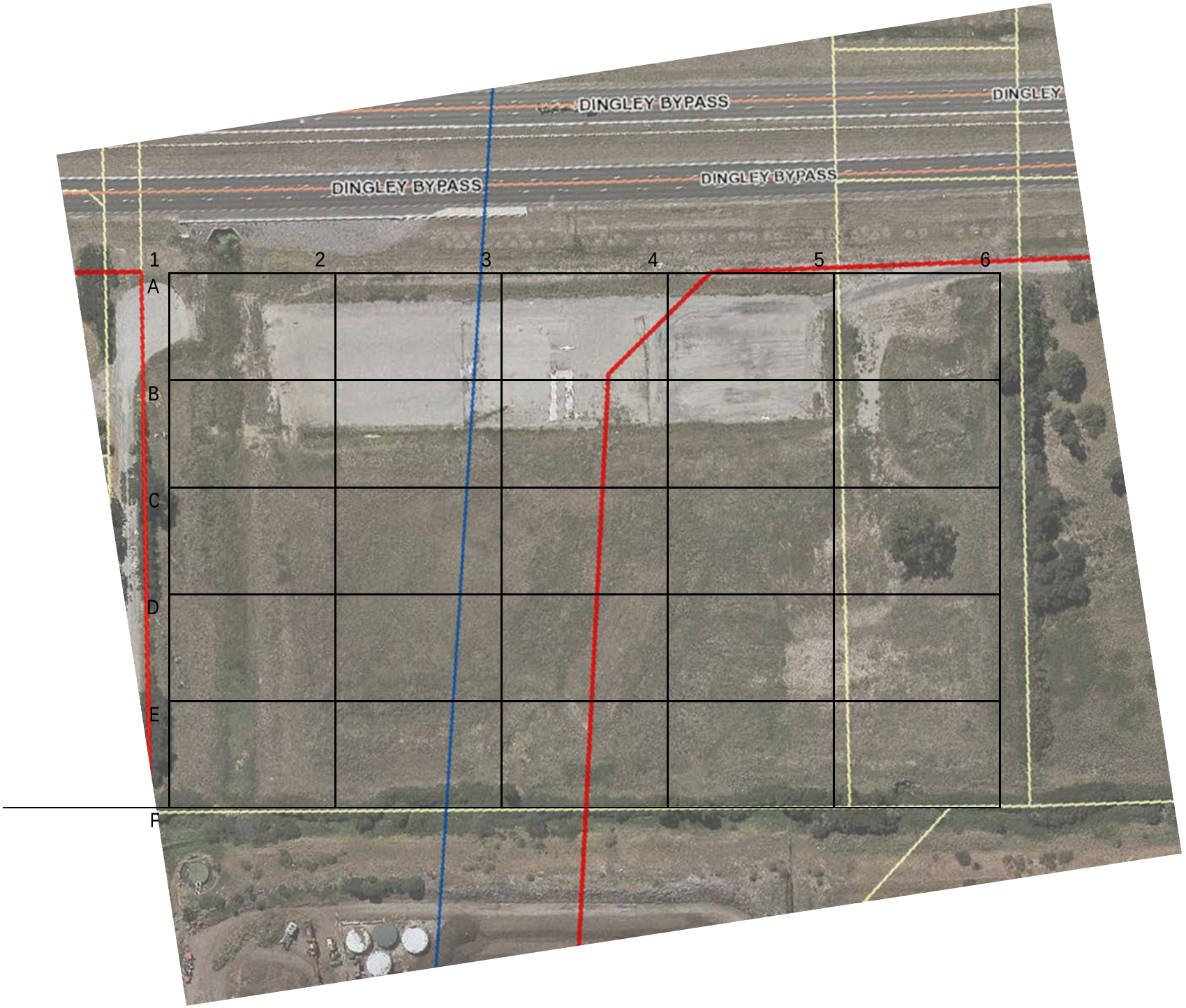
Photograph 9. Waterways – Facing SB24



Photograph 10. Open grassed areas dominant within southern portion of Site (DB4 looking towards DB5)



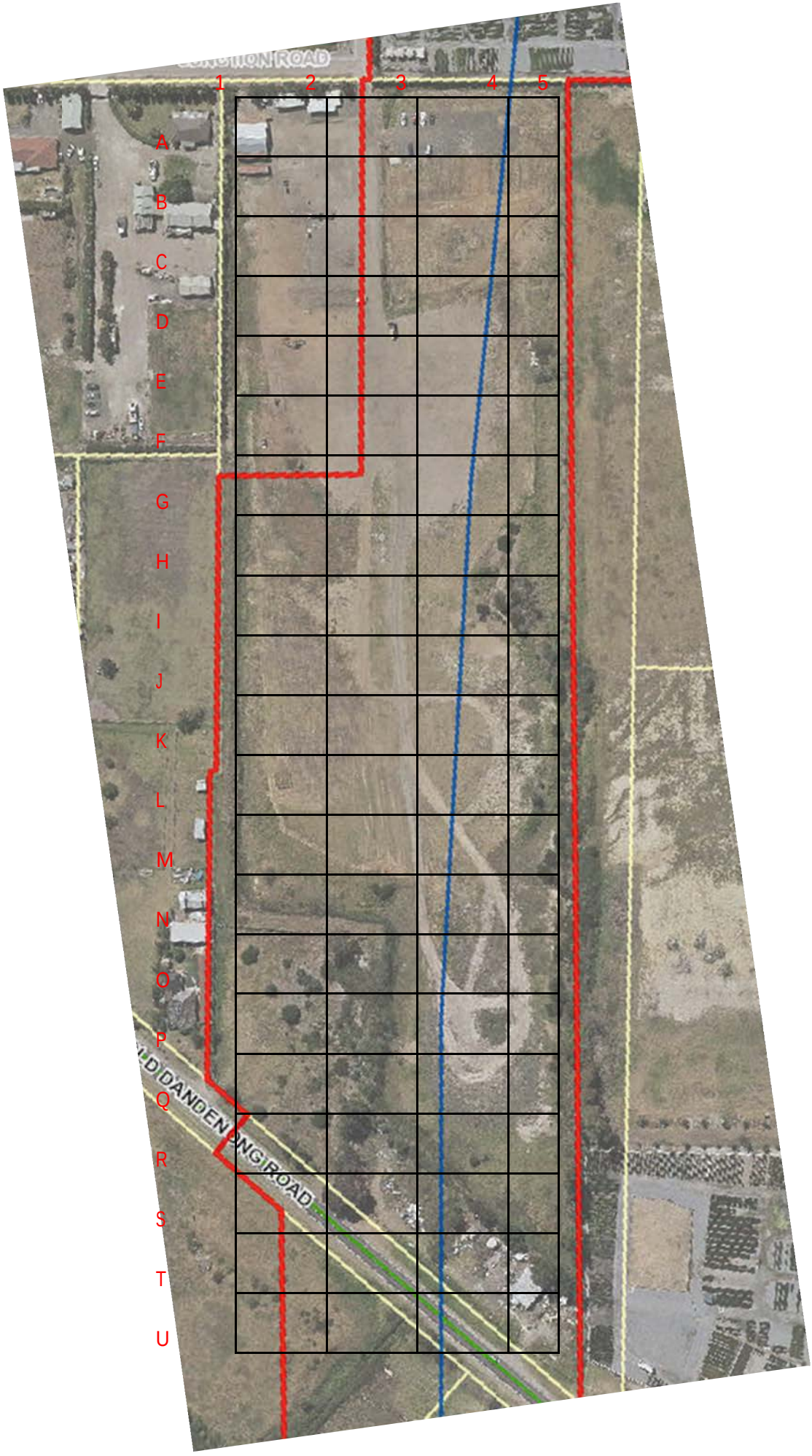
Photograph 11. Southern most section of Site (SB38 looking towards SB37)


DINGLEY BYPASS
DINGLEY BYPASS
DINGLEY BYPASS
DINGLEY
1
2
3
4
5
6
A
B
C
D
E
F

North of Enviromix

FID readings. All concentrations in ppm.

	1	2	3	4	5	6
A	4.6	4.5	4.6	7.6	9.3	7.6
B	5.2	6.5	9.4	10.1	8.6	7.7
C	5	6	7.2	9	8.6	7.8
D	5.1	4.8	6.2	8.4	7.8	6.8
E	5.2	5	5.2	5.7	6.8	5.9
F	5.3	4	4.5	4.7	4.6	6.6

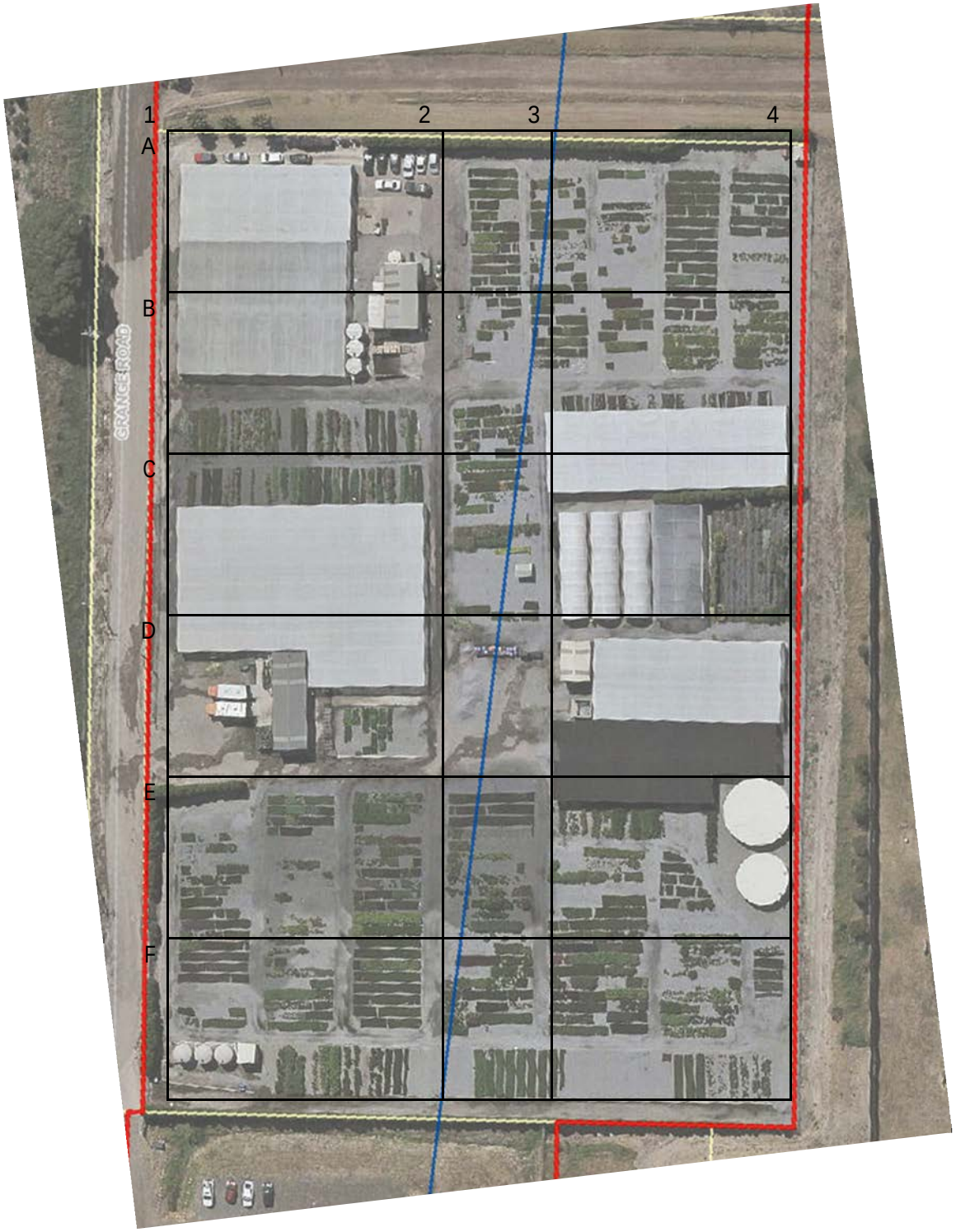

1
2
3
4
5
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
R
S
T
U
DANDENONG ROAD

WEST of DIN SAN LANDFILL

FID readings south of the nursery (west of Din San Landfill). All concentrations in ppm.

	1	2	3	4	5
A	**89.1**	**86.8**	2.3	2.6	3.2
B	2.5	3.1	2.3	2.5	3.1
C	2.4	3.2	2.4	2.6	3
D	2	2.7	2.4	2.6	2.9
E	2.4	3.3	2.3	2.6	2.4
F	2.2	2.5	2.3	2.6	2.5
G	2.2	2.6	2.3	2.4	2.8
H	2.4	2.6	2.1	2.4	2.6
I	2.4	2.4	2.1	2.5	2.4
J	2.2	2.2	2.3	2.7	2.4
K	2.2	2.6	2.3	2.3	2.6
L	2.4	2.5	2.5	2.4	2.6
M	2.4	2.2	2.1	2.4	2.5
N	2.5	N/A	2.3	2.1	2.2
O	2.3	2.4	2.1	2.3	2.5
P	2.3	2	2.2	2.2	2.4
Q	2.1	2.2	2.2	2.4	2.1
R	N/A	2.1	N/A	2	2.1
S	N/A	N/A	2.5	N/A	2
T	N/A	N/A	N/A	2.4	2.4
U	N/A	N/A	N/A	N/A	2.5

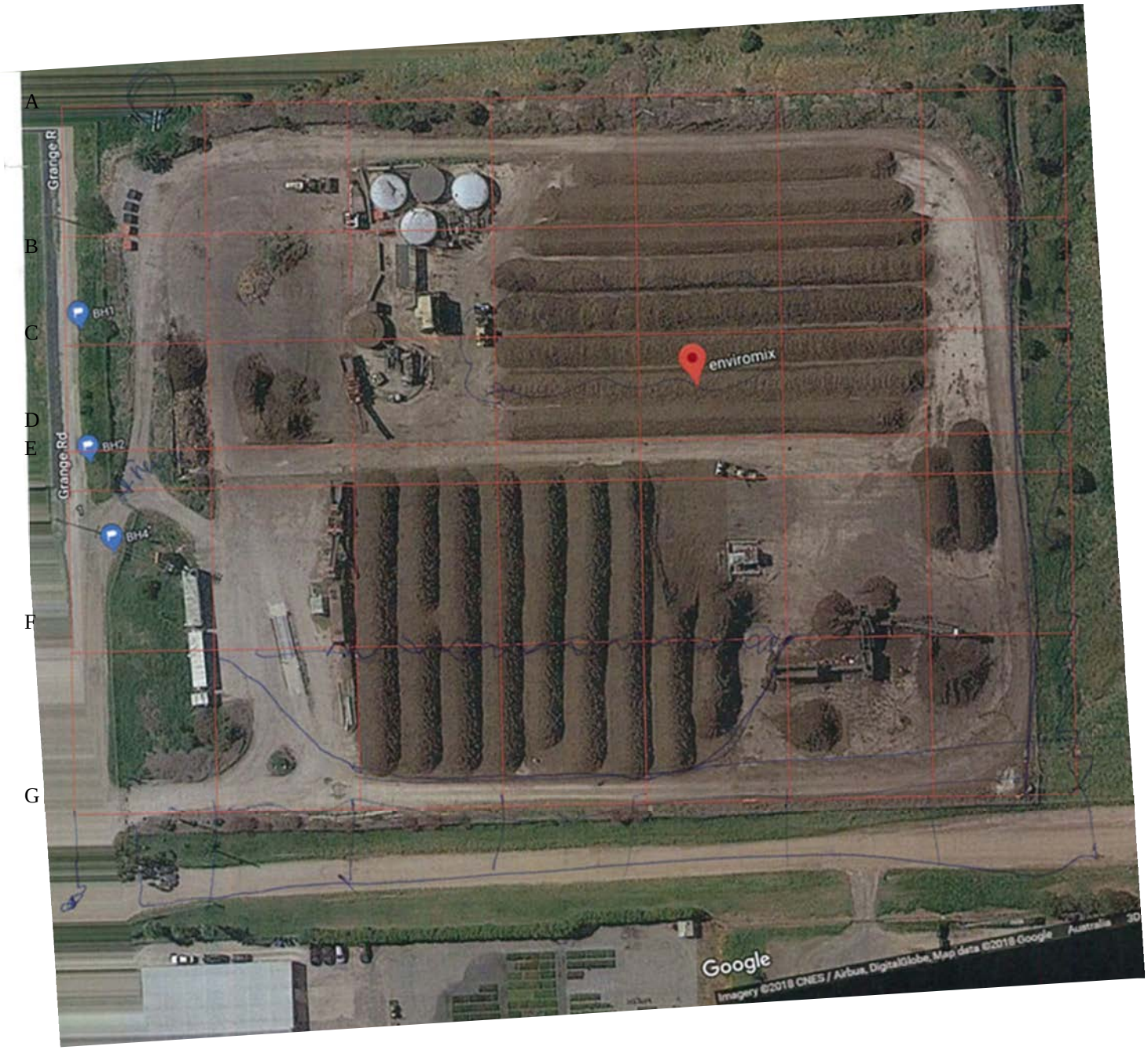
NURSERY AREA



	1	2	3	4
A	4.1	5.2	5	5
B	4.4	4.8	4.6	4.7
C	4.7	4.5	4.3	4.5
D	5.4	4.3	3.8	4.4
E	4.3	4.2	4	4.5
F	4.8	3.9	3.9	4.4

FID Readings in the nursery area (all concentrations in ppm)

ENVIROMIX



FID Readings (all concentrations in ppm)

	Conc		Conc		Conc		Conc		Conc		Conc		Conc		Conc
A1	3.1	A2	6.8	A3	3.3	A4	3.2	A5	4	A6	4.5	A7	4.7	A8	5.1
B1	3.4	B2	4	B3	33.2	B4	4.4	B5	4	B6	3.3	B7	5.3	B8	7.9
C1	3.2	C2	6.9	C3	3.6	C4	NA	C5	n/a	C6	3.1	C7	3.6	C8	3.4
D1	3.4	D2	4.3	D3	3.2	D4	3.2	D5	3.7	D6	3.2	D7	3.4	D8	3.5
E1	3	E2	5	E3	3.3	E4	3.3	E5	3.8	E6	3.2	E7	3.4	E8	3.6
F1	3.2	F2	104	F3	29.6	F4	5.3	F5	3.7	F6	3.9	F7	3.6	F8	4
G1	3.1	G2	3	G3	4	G4	4.6	G5	4	G6	4.2	G7	4.6	G8	4.1

APPENDIX N

BOM DATA

Australian Government
Bureau of Meteorology

Moorabbin, Victoria
October 2017 Daily Weather Observations

Date	Day	Temps		Rain	Evap	Sun	Max wind gust			9 am						3 pm					
		Min	Max				Dir	Spd	Time	Temp	RH	Cld	Dir	Spd	MSLP	Temp	RH	Cld	Dir	Spd	MSLP
		°C	°C	mm	mm	hours		km/h	local	°C	%	8th		km/h	hPa	°C	%	8th		km/h	hPa
1	Su	9.2	16.9	0.2			W	33	12:47	11.8	71	8	NW	17	1022.9	16.1	60	8	W	19	1022.1
2	Mo	7.9	15.6	0			WSW	28	12:15	11.8	83	8	WNW	11	1025.0	14.8	59		SW	17	1023.4
3	Tu	5.8	20.5	0			NW	35	10:30	12.2	83		N	15	1022.2	18.7	47		SSW	20	1020.3
4	We	6.5	23.3	0			SSE	26	17:02	12.3	86		N	17	1020.9	22.2	52		SSW	17	1017.3
5	Th	12.2	18.9	0			WSW	54	15:59	18.6	48	8	N	17	1013.0	17.5	64	1	WSW	30	1013.3
6	Fr	9.9	15.2	4.8			WSW	54	23:32	11.6	70	8	SSW	26	1022.6	13.8	72	6	SW	24	1023.5
7	Sa	5.7	23.0	0			N	31	15:18	9.8	90	8	NE	11	1021.7	21.3	43	8	NE	13	1017.6
8	Su	9.7	26.5	0			N	63	13:10	20.9	41	8	NNE	35	1010.2	25.2	43	4	NNW	37	1007.5
9	Mo	13.1	17.7	3.0			WSW	46	09:43	13.8	76	8	W	24	1010.9	16.3	60	2	SW	19	1012.8
10	Tu	7.1	20.5	0			SSW	28	11:01	12.4	70		NW	7	1017.8	16.3	49		SSW	20	1016.6
11	We	6.2	25.1	0			N	69	18:22	20.5	37	7	N	26	1009.9	23.1	34	8	N	35	1003.3
12	Th	10.2	17.7	11.2			W	46	23:54	12.3	69	4	WNW	26	1013.2	16.9	49	7	WNW	20	1014.4
13	Fr	12.3	16.9	0			SSW	39	14:34	14.0	69	8	NW	17	1019.0	14.9	66	7	SSW	28	1020.4
14	Sa	8.1	16.4	0			SSW	35	13:46	12.3	68	5	SSW	13	1025.7	15.2	60		SW	26	1024.4
15	Su	4.8	19.6	0			SW	33	14:17	12.7	78		ENE	6	1026.2	16.6	68		SSW	24	1024.4
16	Mo	9.6	27.0	0			SE	30	18:05	12.4	96	8	N	9	1025.9	24.3	53		SW	15	1022.3
17	Tu	10.8	30.7	0			N	37	09:12	22.5	47		N	22	1023.0	30.1	23		NNW	15	1020.7
18	We	13.9	31.8	0			NNE	46	08:35	23.7	39		N	31	1021.8	30.6	28		NNW	28	1017.9
19	Th	23.1	25.1	0			N	57	05:30	23.8	48	8	NNW	28	1015.4	22.0	76	8	SW	11	1015.2
20	Fr	11.5	16.9	4.4			SSW	46	11:19	14.2	49	1	S	22	1026.9	15.0	54	3	SSW	31	1027.8
21	Sa	11.3	15.6	0			SSW	37	11:52	11.9	75	8	SW	17	1025.9	14.3	63	6	SW	20	1023.2
22	Su	11.2	17.0	0.4			SW	37	12:03	13.0	79	8	WSW	20	1018.5	16.0	72	8	SW	24	1017.5
23	Mo	11.8	18.3	0.4			SSW	37	16:10	13.3	78	8	NW	9	1019.2	17.4	62		SSW	20	1017.2
24	Tu	10.8	20.3	0			SE	30	17:20	15.8	68	8	NE	6	1017.6	19.0	58	8	SSW	20	1014.9
25	We	13.0	18.6	13.4			SSE	30	17:25	14.3	96	8	SSE	13	1014.4	17.1	71	8	SW	17	1011.6
26	Th	11.3	17.8	0			SSW	41	13:43	13.6	83	8	SSE	19	1010.1	16.4	68	7	SSW	26	1009.0
27	Fr	8.1	27.2	0			N	54	14:17	14.6	85	7	N	19	1010.3	25.7	38		N	35	1005.3
28	Sa	14.5	20.5	0			NNE	41	23:50	16.1	66	8	W	22	1008.5	17.7	56	8	S	17	1007.4
29	Su	9.3	28.5	0.2			N	78	15:50	19.4	60		N	26	1004.0	27.7	24		NNW	43	998.4
30	Mo	8.4	15.9	5.8			WNW	46	11:40	12.4	66		NW	22	1005.7	15.0	59	8	WNW	17	1009.4
31	Tu	9.3	16.0	4.6			SSW	31	14:03	11.7	72	7	W	20	1020.6	15.7	51		SW	20	1019.8
Statistics for October 2017																					
Mean		10.2	20.7							14.8	69	7		18	1017.7	19.1	54	6		22	1016.1
Lowest		4.8	15.2	0						9.8	37	1	#	6	1004.0	13.8	23	1	SW	11	998.4
Highest		23.1	31.8	13.4			N	78		23.8	96	8	NNE	35	1026.9	30.6	76	8	NNW	43	1027.8
Total				48.4																	

IDCJDW3052.201710 Prepared at 16:03 GMT on Saturday 2 December 2017

Source of data

Observations were drawn from Moorabbin Airport {station 086077}.

Some cloud observations are from automated equipment; these are somewhat different to those made by a human observer and may not appear every day.

You should read the **important information** in these notes.

Other formats

To **print** this page, get the PDF version (one page, 45 kb).

To use this page in a **spreadsheet**, get the plain text version (4 kb).

Other times and other places

The **last 14 months** of Daily Weather Observations for Moorabbin, Victoria are also here on this web site:

Dec 17 Nov 17 Oct 17 Sep 17 Aug 17 Jul 17 Jun 17 May 17
Apr 17 Mar 17 Feb 17 Jan 17 Dec 16 Nov 16

Daily Weather Observations are also routinely prepared for hundreds of **other locations** in Victoria and across Australia. To get other months or places not on this web site, contact us.

Climate statistics

If you are after **long-term averages** relevant to Moorabbin, Victoria, look at the tables for Moorabbin Airport or Melbourne Regional Office.

Maps and tables of average conditions for locations across Australia are also available.

More information

If you are using these pages, you are deemed to have understood the **important information** in these notes. They cover how the data are obtained, how they are processed, and what each column means.

If you have **any questions** about this product, or you want any other weather or climate information, please contact us.

This page was created at on

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Metreorological data – Moorabbin Airport, 2 May 2017 (Wednesday)

Date/Time EST	Temp °C	App Temp °C	Dew Point °C	Rel Hum %	Delta-T °C	Wind					Press QNH hPa	Press MSL hPa	Rain since 9am mm
						Dir	Spd km/h	Gust km/h	Spd kts	Gust kts			
02/11:30pm	17.4	13.1	7.2	51	5.1	NNE	19	24	10	13	1012.7	1012.7	0.0
02/11:00pm	16.8	13.3	7.2	53	4.8	NNE	15	19	8	10	1013.1	1013.1	0.0
02/10:30pm	13.7	10.7	6.1	60	3.6	NE	11	15	6	8	1013.2	1013.2	0.0
02/10:00pm	15.4	12.5	6.7	56	4.2	NE	11	11	6	6	1013.4	1013.4	0.0
02/09:30pm	15.6	13.0	6.3	54	4.5	NE	9	11	5	6	1013.6	1013.6	0.0
02/09:00pm	17.3	14.5	7.1	51	5.1	NNE	11	13	6	7	1013.5	1013.5	0.0
02/08:30pm	18.1	14.5	6.9	48	5.6	NNE	15	17	8	9	1013.4	1013.4	0.0
02/08:00pm	18.4	14.8	6.9	47	5.8	NNE	15	20	8	11	1013.4	1013.4	0.0
02/07:30pm	19.0	15.4	6.8	45	6.1	NE	15	19	8	10	1013.4	1013.4	0.0
02/07:00pm	19.3	15.7	6.8	44	6.3	NNE	15	19	8	10	1013.6	1013.6	0.0
02/06:30pm	20.3	16.8	7.0	42	6.8	NNE	15	20	8	11	1013.4	1013.4	0.0
02/06:00pm	19.9	16.8	7.3	44	6.4	NNE	13	15	7	8	1013.4	1013.4	0.0
02/05:30pm	21.5	18.2	6.6	38	7.6	N	13	20	7	11	1013.4	1013.4	0.0
02/05:00pm	22.6	18.5	6.4	35	8.3	N	17	20	9	11	1013.4	1013.4	0.0
02/04:30pm	22.8	19.5	6.6	35	8.3	N	13	22	7	12	1013.4	1013.4	0.0
02/04:00pm	22.8	18.4	6.6	35	8.3	N	19	26	10	14	1013.4	1013.4	0.0
02/03:30pm	22.9	18.2	6.2	34	8.5	N	20	30	11	16	1013.3	1013.3	0.0
02/03:00pm	22.9	17.8	6.2	34	8.5	N	22	30	12	16	1013.6	1013.6	0.0
02/02:30pm	23.0	18.9	6.3	34	8.5	N	17	24	9	13	1013.7	1013.7	0.0
02/02:00pm	23.1	18.5	6.4	34	8.5	N	20	33	11	18	1014.1	1014.1	0.0
02/01:30pm	22.6	18.2	6.4	35	8.3	N	19	28	10	15	1014.5	1014.5	0.0
02/01:00pm	22.0	17.9	6.3	36	8.0	NNW	17	24	9	13	1014.9	1014.9	0.0
02/12:30pm	21.9	17.2	6.2	36	7.9	NNW	20	28	11	15	1015.5	1015.5	0.0
02/12:00pm	21.6	16.2	6.3	37	7.7	N	24	33	13	18	1016.2	1016.2	0.0
02/11:30am	21.1	15.2	5.9	37	7.6	N	26	33	14	18	1016.5	1016.5	0.0
02/11:00am	20.4	15.7	6.0	39	7.2	N	20	28	11	15	1016.9	1016.9	0.0
02/10:30am	20.1	15.5	5.7	39	7.1	N	19	24	10	13	1017.3	1017.3	0.0
02/10:00am	19.2	15.7	5.6	41	6.7	NNW	13	19	7	10	1017.5	1017.5	0.0
02/09:30am	17.8	15.1	5.7	45	5.9	NNW	9	13	5	7	1017.6	1017.6	0.0
02/09:00am	17.0	13.8	5.3	46	5.6	N	11	13	6	7	1017.8	1017.8	0.0
02/08:30am	16.1	12.5	4.8	47	5.3	N	13	17	7	9	1017.8	1017.8	0.0
02/08:00am	15.2	11.5	4.6	49	4.9	NNW	13	15	7	8	1017.7	1017.7	0.0
02/07:30am	14.8	10.7	4.5	50	4.8	N	15	17	8	9	1017.2	1017.2	0.0
02/07:00am	14.9	12.0	4.6	50	4.8	NNW	9	13	5	7	1017.0	1017.0	0.0
02/06:30am	13.8	11.8	4.4	53	4.3	NW	4	6	2	3	1016.9	1016.9	0.0
02/06:00am	15.2	12.2	4.0	47	5.2	NW	9	15	5	8	1017.0	1017.0	0.0
02/05:30am	16.2	12.1	4.3	45	5.6	N	15	17	8	9	1016.9	1016.9	0.0
02/05:00am	16.3	13.3	4.0	44	5.7	NNW	9	15	5	8	1016.8	1016.8	0.0
02/04:30am	16.4	13.7	3.5	42	5.9	NNW	7	9	4	5	1017.0	1017.0	0.0
02/04:00am	17.0	12.3	3.3	40	6.3	N	17	22	9	12	1017.1	1017.1	0.0
02/03:30am	17.0	11.9	3.3	40	6.3	N	19	20	10	11	1017.1	1017.1	0.0
02/03:00am	16.3	11.6	3.4	42	5.9	N	17	22	9	12	1017.5	1017.5	0.0
02/02:50am	15.9	11.7	3.7	44	5.6	N	15	20	8	11	1017.5	1017.5	0.0
02/02:30am	10.9	8.4	4.8	66	2.8	N	7	11	4	6	1017.8	1017.8	0.0
02/02:00am	11.1	10.0	5.0	66	2.8	CALM	0	0	0	0	1018.2	1018.2	0.0
02/01:30am	11.8	9.6	5.4	65	3.0	NNE	6	7	3	4	1018.6	1018.6	0.0
02/01:00am	11.9	10.8	4.9	62	3.2	CALM	0	2	0	1	1019.0	1019.0	0.0
02/12:30am	12.0	10.8	4.7	61	3.3	CALM	0	0	0	0	1019.3	1019.3	0.0
02/12:00am	11.5	10.2	4.3	61	3.2	CALM	0	0	0	0	1019.9	1019.9	0.0

Source: http://www.bom.gov.au/products/IDV60901/IDV60901.94870.shtml

APPENDIX O

CALIBRATION RECORDS

Equipment Calibration Form

GA5000

Enqip #: 5483

Company: WSP Australia Pty Limited

Consultant: Olivia Henderson

PO #: 2135645A

Certificate #: 6933

INSTRUMENT IDENTIFICATION

Model Number: GA5KA0F-100

Serial Number: G502985

Instrument Type: GTI - GA5000

INSPECTION RECORD

Date & Time: PASS

Flow Rate: 609 mL/min

CALIBRATION DETAILS

Sensor	Span Gas	Value	Reading
H_2S	Hydrogen Sulphide	25.00 ppm	25.00 ppm
O_2	Fresh Air	20.90 %	20.90 %
O_2	Oxygen	18.00 %	18.00 %
CO	Carbon Monoxide	100.00 ppm	100.00 ppm
CH_4	Methane	60.00 %	60.00 %
CH_4	Methane	2.50 %	2.50 %
CO_2	Carbon Dioxide	40.00 %	40.00 %
CO_2	Carbon Dioxide	5.00 %	5.00 %

Calibration Successful: YES

Calibrated By: Andrea Hill **Test Date:** 28/09/2017

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Equipment Calibration Form

GA5000

Enqip #: 5483

Company: WSP Australia Pty Limited

Consultant: Olivia Henderson

PO #: 2135645A

Certificate #: 7023

INSTRUMENT IDENTIFICATION

Model Number: GA5KA0F-100

Serial Number: GA500129

Instrument Type: GTI - GA5000

INSPECTION RECORD

Date & Time: PASS

Flow Rate: 660 mL/min

CALIBRATION DETAILS

Sensor	Span Gas	Value	Reading
H_2S	Hydrogen Sulphide	25.00 ppm	25.00 ppm
O_2	Fresh Air	20.90 %	20.90 %
O_2	Oxygen	18.00 %	18.00 %
CO	Carbon Monoxide	100.00 ppm	100.00 ppm
CH_4	Methane	60.00 %	60.00 %
CH_4	Methane	2.50 %	2.50 %
CO_2	Carbon Dioxide	40.00 %	40.00 %
CO_2	Carbon Dioxide	5.00 %	5.00 %

Calibration Successful: YES

Calibrated By: Darrin Arthur **Test Date:** 11/10/2017

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Equipment Calibration Form

MiniRAE 3000 PID

Enqip #: 5483

Company: WSP Australia Pty Limited

Consultant: Olivia Henderson

PO #: 2135645A

Certificate #: 6931

INSTRUMENT IDENTIFICATION

Model Number: PGM 7320

Serial Number: 592-915850

INSPECTION RECORD

Flow Rate: PASS

Buzzer: PASS

Date & Time: PASS

CALIBRATION DETAILS

Parameters	Standard	Result
Air	0 ppm	0.00 ppm
Isobutylene	100 ppm	100.10 ppm

Alarm Limits: **High** 100 **Low** 50

Calibration Successful: YES

Calibrated By: Andrea Hill **Test Date:** 28/09/2017

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Equipment Calibration Form

QRAE II

Enqip #: 5483

Company: WSP Australia Pty Limited

Consultant: Olivia Henderson

PO #: 2135645A

Certificate #: 6932

INSTRUMENT IDENTIFICATION

Model Number: PGM-2400P

Serial Number: 181-145623

INSPECTION RECORD

Flow Rate:	PASS
Buzzer:	PASS
Date & Time:	PASS

CALIBRATION DETAILS

Sensor	Span Gas	Value	Reading
O_2	Air	20.9 %	20.90 %
	O_2	18.0 %	18.00 %
LEL	Methane 2.5 %	50 %	50.00 %

Correction Factor: 1

Calibration Successful: YES

Calibrated By: Andrea Hill **Test Date:** 28/09/2017

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Instrument Quality Report
Interface Meter

Enqip #: 5498

Company: WSP Australia Pty Limited

Consultant: Olfa Nazario

PO #: 2135645A

Certificate #: 6940

INSTRUMENT IDENTIFICATION

Instrument Type: Solinst Interface Meter

Model Number: 122

Serial Number: IM-1525

INSPECTION RECORD

Battery:	PASS	**Water Tone:**	PASS
Tape Condition:	PASS	**Hydrocarbon Tone:**	PASS

Tested By: Darrin Arthur

Test Date: 28/09/2017

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Equipment Calibration Form

YSI ProPlus

Enqip #: 5498

Company: WSP Australia Pty Limited

Consultant: Olfa Nazario

PO #: 2135645A

Certificate #: 6939

INSTRUMENT IDENTIFICATION

Model Number: 6050000

Serial Number: 14E101059

Instrument Type: YSI ProPlus

INSPECTION RECORD

Batteries Checked:	PASS	**Date & Time:**	PASS
Electrodes Cleaned/Checked:	PASS	**Temperature:**	PASS

CALIBRATION DETAILS

Sensor	Cal Solution	Value	Reading
pH	Buffer 4.01	4.01 pH	3.99 pH
	Buffer 7.00	7.00 pH	7.00 pH
Redox	Standard ORP	235 mV @ 20.00 °C	235 mV
O_2	Zero Dissolved Oxygen	0 %	0 %
	Air	100 %	100 %
Conductivity	Standard Conductivity	2.76 mS/cm	2.76 mS/cm

Calibration Successful: YES

Calibrated By: Andrea Hill **Test Date:** 28/09/2017

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Equipment Calibration Form

GA5000

Enqip #: 5520

Company: WSP Australia Pty Limited

Consultant: Olfa Nazario

PO #: 2135645A

Certificate #: 6968

INSTRUMENT IDENTIFICATION

Model Number: GA5KA0F-100

Serial Number: GA500852

Instrument Type: GTI - GA5000

INSPECTION RECORD

Date & Time: PASS

Flow Rate: 676 mL/min

CALIBRATION DETAILS

Sensor	Span Gas	Value	Reading
H_2S	Hydrogen Sulphide	25.00 ppm	25.00 ppm
O_2	Fresh Air	20.90 %	20.90 %
O_2	Oxygen	18.00 %	18.00 %
CO	Carbon Monoxide	100.00 ppm	100.00 ppm
CH_4	Methane	60.00 %	60.00 %
CH_4	Methane	2.50 %	2.50 %
CO_2	Carbon Dioxide	40.00 %	40.00 %
CO_2	Carbon Dioxide	5.00 %	5.00 %

Calibration Successful: YES

Calibrated By: Andrea Hill **Test Date:** 5/10/2017

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Instrument Quality Report
Interface Meter

Enqip #: 5520

Company: WSP Australia Pty Limited

Consultant: Olfa Nazario

PO #: 2135645A

Certificate #: 6970

INSTRUMENT IDENTIFICATION

Instrument Type: Solinst Interface Meter

Model Number: 122

Serial Number: IM-8015

INSPECTION RECORD

Battery:	PASS	**Water Tone:**	PASS
Tape Condition:	PASS	**Hydrocarbon Tone:**	PASS

Tested By: Darrin Arthur

Test Date: 6/10/2017

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Equipment Calibration Check
Inspectra Laser

Enqip #: 5520

Company: WSP Australia Pty Limited

Consultant: Olfa Nazario

PO #: 2135645A

Certificate #: 6967

UNIT IDENTIFICATION

Model Number: Inspectra Laser

Serial Number: CH48921215

Unit Type: Methane Analyser

INSPECTION RECORD/CONDITION REPORT

Flow Rate: PASS

Alarms: PASS

CALIBRATION DETAILS

Sensor	Span Gas	Value	Reading
Infrared Laser	Nitrogen UHP	0 ppm	0.00 ppm
	Methane	100 ppm	93.70 ppm
	Methane	2.5 %	2.50 %

Calibration Successful: YES

Calibrated By: Andrea Hill

Test Date: 5/10/2017

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Equipment Calibration Form

MiniRAE 3000 PID

Enqip #: 5520

Company: WSP Australia Pty Limited

Consultant: Olfa Nazario

PO #: 2135645A

Certificate #: 6969

INSTRUMENT IDENTIFICATION

Model Number: PGM 7320

Serial Number: 592-906681

INSPECTION RECORD

Flow Rate: PASS

Buzzer: PASS

Date & Time: PASS

CALIBRATION DETAILS

Parameters	Standard	Result
Air	0 ppm	0.00 ppm
Isobutylene	100 ppm	100.10 ppm

Alarm Limits: **High** 100 **Low** 50

Calibration Successful: YES

Calibrated By: Andrea Hill **Test Date:** 5/10/2017

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Equipment Calibration Form

GA5000

Enqip #: 5592

Company: WSP Australia Pty Limited

Consultant: Olfa Nazario

PO #: 2135645A

Certificate #: 7081

INSTRUMENT IDENTIFICATION

Model Number: GA5KA0F-100

Serial Number: GA500129

Instrument Type: GTI - GA5000

INSPECTION RECORD

Date & Time: PASS

Flow Rate: 607 mL/min

CALIBRATION DETAILS

Sensor	Span Gas	Value	Reading
H_2S	Hydrogen Sulphide	25.00 ppm	25.00 ppm
O_2	Fresh Air	20.90 %	20.90 %
O_2	Oxygen	18.00 %	18.00 %
CO	Carbon Monoxide	100.00 ppm	100.00 ppm
CH_4	Methane	60.00 %	60.00 %
CH_4	Methane	2.50 %	2.50 %
CO_2	Carbon Dioxide	40.00 %	40.00 %
CO_2	Carbon Dioxide	5.00 %	5.00 %

Calibration Successful: YES

Calibrated By: Andrea Hill **Test Date:** 19/10/2017

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Equipment Calibration Check
Inspectra Laser

Enqip #: 5592

Company: WSP Australia Pty Limited

Consultant: Olfa Nazario

PO #: 2135645A

Certificate #: 7082

UNIT IDENTIFICATION

Model Number: Inspectra Laser

Serial Number: CH46031014

Unit Type: Methane Analyser

INSPECTION RECORD/CONDITION REPORT

Flow Rate: PASS

Alarms: PASS

CALIBRATION DETAILS

Sensor	Span Gas	Value	Reading
Infrared Laser	Nitrogen UHP	0 ppm	0.00 ppm
	Methane	100 ppm	94.10 ppm
	Methane	2.5 %	2.50 %

Calibration Successful: YES

Calibrated By: Andrea Hill

Test Date: 19/10/2017

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Equipment Calibration Form

MiniRAE 3000 PID

Enqip #: 5592

Company: WSP Australia Pty Limited

Consultant: Olfa Nazario

PO #: 2135645A

Certificate #: 7078

INSTRUMENT IDENTIFICATION

Model Number: PGM 7320

Serial Number: 592-905506

INSPECTION RECORD

Flow Rate: PASS

Buzzer: PASS

Date & Time: PASS

CALIBRATION DETAILS

Parameters	Standard	Result
Air	0 ppm	0.00 ppm
Isobutylene	100 ppm	100.00 ppm

Alarm Limits: **High** 100 **Low** 50

Calibration Successful: YES

Calibrated By: Darrin Arthur **Test Date:** 19/10/2017

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Equipment Calibration Form
YSI ProPlus

Enqip #: 6588
Company: WSP Australia Pty Limited
Consultant: Olfa Nazario
PO #: 2135645A/1219
Certificate #: 8518

INSTRUMENT IDENTIFICATION

Model Number: 6050000
Serial Number: 12D101327
Instrument Type: YSI ProPlus

INSPECTION RECORD

Batteries Checked:	PASS	**Date & Time:**	PASS
Electrodes Cleaned/Checked:	PASS	**Temperature:**	PASS

CALIBRATION DETAILS

Sensor	Cal Solution	Value	Reading
pH	Buffer 4.00	4.00 pH	4.00 pH
	Buffer 7.00	7.00 pH	7.00 pH
Redox	Standard ORP	234.5 mV @ 20 °C	234.5 mV
O_2	Zero Dissolved Oxygen	0.0 %	0.0 %
	Air	100.0 %	100.0 %
Conductivity	Standard Conductivity	2.76 mS/cm	2.76 mS/cm

Calibration Successful: YES

Calibrated By: Mitch O'Grady **Test Date:** 2/05/2018

Equipment Calibration Form
GA5000

Enqip #: 6588
Company: WSP Australia Pty Limited
Consultant: Olfa Nazario
PO #: TBA
Certificate #: 8504

INSTRUMENT IDENTIFICATION

Model Number: GA5KA0F-100
Serial Number: GA500852
Instrument Type: GTI - GA5000

INSPECTION RECORD

Date & Time: PASS
Flow Rate: 718 mL/min

CALIBRATION DETAILS

Sensor	Span Gas	Value	Reading
H_2S	Hydrogen Sulphide	25 ppm	25 ppm
O_2	Fresh Air	20.9 %	20.9 %
O_2	Oxygen	18.0 %	18.0 %
CO	Carbon Monoxide	100 ppm	100 ppm
CH_4	Methane	60.0 %	60.0 %
CH_4	Methane	2.5 %	2.5 %
CO_2	Carbon Dioxide	40.0 %	40.0 %
CO_2	Carbon Dioxide	5.0 %	5.0 %

Calibration Successful: YES

Calibrated By: Mitch O'Grady **Test Date:** 1/05/2018

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Instrument Quality Report
Interface Meter

Enqip #: 6588
Company: WSP Australia Pty Limited
Consultant: Olfa Nazario
PO #: TBA
Certificate #: 8505

INSTRUMENT IDENTIFICATION

Instrument Type: Solinst Interface Meter
Model Number: 122
Serial Number: IM-8015

INSPECTION RECORD

Battery:	PASS	**Water Tone:**	PASS
Tape Condition:	PASS	**Hydrocarbon Tone:**	PASS

Tested By: Darrin Arthur **Test Date:** 1/05/2018

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RENTALS

Equipment Report – Inspectra Laser Gas Detector

This Inspectra Analyser has been performance checked as follows:

Calibration PID	Actual Value	Reading	Pass?		
Zero – fresh air	0.0 ppm	2.5 ppm	☑		
Span – Methane	100 ppm	97.1 ppm	☑		
Operations Check					
☑	Performance Check (pump, lamp, sensor & battery voltage check)				
☑	Battery Charged	☑	Filters Check		
☑	Electrical Safety Tag attached (AS/NZS 3760)	Tag No: 000535		Valid to: 13/7/18	

Date: 1st May. 2018 Checked by: PETER

Signed: _____

Please check that the following items are received and that all items are cleaned and decontaminated before return. A minimum $20 cleaning / service / repair charge may be applied to any unclean or damaged items. Items not returned will be billed for at the full replacement cost.

Sent	Returned	Item
☑	☐	Laser Inspectra Operational Check, plus Battery Voltage @ ____ V
☑	☐	Telescopic Rod and Suction Cup
☑	☐	Rigid Rod
☑	☐	Connecting tube for bump checks
☑	☐	Spare water trap filter(s) 0.45um Qty 3
☑	☐	'D' size battery Qty 3
☑	☐	Charger 240v to 12v 500mA
☑	☐	Carry strap
☑	☐	Instruction Manual
☑	☐	Cigarette filters
☑	☐	Screw driver and pin wrench tool
☑	☐	Carry case
	☐	Plug Quick Coupler and O-rings
☐	☐	Check to confirm electrical safety (tag must be valid)
☐	☐	

Processors Signature/ Initials _____

Quote Reference	CM009616	Condition on return
Customer Ref		
Equipment ID	Inspectra TDL500-2	
Equipment serial no.		
Return Date	/ /	
Return Time		

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