Appendix E – Laboratory reports

Certificate of Analysis

GHD Pty Ltd WOLLONGONG
Level 3, 200 Crown St
Wollongong
NSW 2500

Attention: **Colee Quayle**

Report **612790-W-V2**
Project name CONTAMINATION ASSESSMENT- EAST COAST GAS PIPELINE PORT KEMBLA
Project ID 2127477-TASK 3J FOR CONTAMINATION
Received Date Aug 17, 2018

Client Sample ID			**BWS01**
Sample Matrix			**Water**
Eurofins | mgt Sample No.			**S18-Au21814**
Date Sampled			**Aug 13, 2018**
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
BTEX			
Benzene	0.001	mg/L	< 0.001
Toluene	0.001	mg/L	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002
o-Xylene	0.001	mg/L	< 0.001
Xylenes - Total	0.003	mg/L	< 0.003
4-Bromofluorobenzene (surr.)	1	%	132
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

Client Sample ID			BWS01
Sample Matrix			Water
Eurofins | mgt Sample No.			S18-Au21814
Date Sampled			Aug 13, 2018
Test/Reference	LOR	Unit	
Volatile Organics			
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	0.011
Bromoform	0.001	mg/L	< 0.001
Bromomethane	0.001	mg/L	< 0.001
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	0.017
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	0.005
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	0.017
Vic EPA IWRG 621 Other CHC (Total)*	0.005	mg/L	0.017
4-Bromofluorobenzene (surr.)	1	%	132
Toluene-d8 (surr.)	1	%	104
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene[N02]	0.01	mg/L	< 0.01
TRH C6-C10	0.02	mg/L	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	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
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1

Client Sample ID			BWS01
Sample Matrix			Water
Eurofins | mgt Sample No.			S18-Au21814
Date Sampled			Aug 13, 2018
Test/Reference	LOR	Unit	
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
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	%	58
p-Terphenyl-d14 (surr.)	1	%	80
Organochlorine Pesticides			
Chlordanes - Total	0.001	mg/L	< 0.001
4.4'-DDD	0.0001	mg/L	< 0.0001
4.4'-DDE	0.0001	mg/L	< 0.0001
4.4'-DDT	0.0001	mg/L	< 0.0001
a-BHC	0.0001	mg/L	< 0.0001
Aldrin	0.0001	mg/L	< 0.0001
b-BHC	0.0001	mg/L	< 0.0001
d-BHC	0.0001	mg/L	< 0.0001
Dieldrin	0.0001	mg/L	< 0.0001
Endosulfan I	0.0001	mg/L	< 0.0001
Endosulfan II	0.0001	mg/L	< 0.0001
Endosulfan sulphate	0.0001	mg/L	< 0.0001
Endrin	0.0001	mg/L	< 0.0001
Endrin aldehyde	0.0001	mg/L	< 0.0001
Endrin ketone	0.0001	mg/L	< 0.0001
g-BHC (Lindane)	0.0001	mg/L	< 0.0001
Heptachlor	0.0001	mg/L	< 0.0001
Heptachlor epoxide	0.0001	mg/L	< 0.0001
Hexachlorobenzene	0.0001	mg/L	< 0.0001
Methoxychlor	0.0001	mg/L	< 0.0001
Toxaphene	0.01	mg/L	< 0.01
Aldrin and Dieldrin (Total)*	0.0001	mg/L	< 0.0001
DDT + DDE + DDD (Total)*	0.0001	mg/L	< 0.0001
Vic EPA IWRG 621 OCP (Total)*	0.001	mg/L	< 0.001
Vic EPA IWRG 621 Other OCP (Total)*	0.001	mg/L	< 0.001
Dibutylchlorendate (surr.)	1	%	54
Tetrachloro-m-xylene (surr.)	1	%	59

Client Sample ID			BWS01
Sample Matrix			Water
Eurofins | mgt Sample No.			S18-Au21814
Date Sampled			Aug 13, 2018
Test/Reference	LOR	Unit	
Organophosphorus Pesticides			
Azinphos-methyl	0.002	mg/L	< 0.002
Bolstar	0.002	mg/L	< 0.002
Chlorfenvinphos	0.002	mg/L	< 0.002
Chlorpyrifos	0.02	mg/L	< 0.02
Chlorpyrifos-methyl	0.002	mg/L	< 0.002
Coumaphos	0.02	mg/L	< 0.02
Demeton-S	0.02	mg/L	< 0.02
Demeton-O	0.002	mg/L	< 0.002
Diazinon	0.002	mg/L	< 0.002
Dichlorvos	0.002	mg/L	< 0.002
Dimethoate	0.002	mg/L	< 0.002
Disulfoton	0.002	mg/L	< 0.002
EPN	0.002	mg/L	< 0.002
Ethion	0.002	mg/L	< 0.002
Ethoprop	0.002	mg/L	< 0.002
Ethyl parathion	0.002	mg/L	< 0.002
Fenitrothion	0.002	mg/L	< 0.002
Fensulfothion	0.002	mg/L	< 0.002
Fenthion	0.002	mg/L	< 0.002
Malathion	0.002	mg/L	< 0.002
Merphos	0.002	mg/L	< 0.002
Methyl parathion	0.002	mg/L	< 0.002
Mevinphos	0.002	mg/L	< 0.002
Monocrotophos	0.002	mg/L	< 0.002
Naled	0.002	mg/L	< 0.002
Omethoate	0.002	mg/L	< 0.002
Phorate	0.002	mg/L	< 0.002
Pirimiphos-methyl	0.02	mg/L	< 0.02
Pyrazophos	0.002	mg/L	< 0.002
Ronnel	0.002	mg/L	< 0.002
Terbufos	0.002	mg/L	< 0.002
Tetrachlorvinphos	0.002	mg/L	< 0.002
Tokuthion	0.002	mg/L	< 0.002
Trichloronate	0.002	mg/L	< 0.002
Triphenylphosphate (surr.)	1	%	80
Polychlorinated Biphenyls			
Aroclor-1016	0.001	mg/L	< 0.001
Aroclor-1221	0.001	mg/L	< 0.001
Aroclor-1232	0.001	mg/L	< 0.001
Aroclor-1242	0.001	mg/L	< 0.001
Aroclor-1248	0.001	mg/L	< 0.001
Aroclor-1254	0.001	mg/L	< 0.001
Aroclor-1260	0.001	mg/L	< 0.001
Total PCB*	0.001	mg/L	< 0.001
Dibutylchlorendate (surr.)	1	%	54
Tetrachloro-m-xylene (surr.)	1	%	59
pH (at 25°C)	0.1	pH Units	8.0

Client Sample ID			BWS01
Sample Matrix			**Water**
Eurofins | mgt Sample No.			**S18-Au21814**
Date Sampled			**Aug 13, 2018**
Test/Reference	LOR	Unit	
Heavy Metals			
Arsenic	0.001	mg/L	0.002
Cadmium	0.0002	mg/L	< 0.0002
Chromium	0.001	mg/L	0.005
Copper	0.001	mg/L	0.016
Lead	0.001	mg/L	0.003
Mercury	0.0001	mg/L	< 0.0001
Nickel	0.001	mg/L	0.005
Zinc	0.005	mg/L	0.024

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	Aug 22, 2018	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Melbourne	Aug 18, 2018	14 Day
- Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Aug 18, 2018	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Eurofins | mgt Suite B7			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Aug 22, 2018	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Polycyclic Aromatic Hydrocarbons	Melbourne	Aug 22, 2018	7 Day
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Metals M8	Melbourne	Aug 18, 2018	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Volatile Organics	Melbourne	Aug 18, 2018	7 Days
- Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices			
pH (at 25°C)	Melbourne	Aug 18, 2018	0 Hours
- Method: LTM-GEN-7090 pH in water by ISE			
Eurofins | mgt Suite B15			
Organochlorine Pesticides	Melbourne	Aug 22, 2018	7 Day
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Organophosphorus Pesticides	Melbourne	Aug 22, 2018	7 Day
- Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS			
Polychlorinated Biphenyls	Melbourne	Aug 22, 2018	7 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			

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Company Name:	GHD Pty Ltd WOLLONGONG	**Order No.:**		**Received:**	Aug 17, 2018 12:10 PM
Address:	Level 3, 200 Crown St Wollongong NSW 2500	**Report #:** **Phone:** **Fax:**	612790 02 4222 2300 02 4222 2301	**Due:** **Priority:** **Contact Name:**	Aug 24, 2018 5 Day Colee Quayle
Project Name:	CONTAMINATION ASSESSMENT- EAST COAST GAS PIPELINE PORT KEMBLA				
Project ID:	2127477-TASK 3J FOR CONTAMINATION				

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Ammonia (as N)	Asbestos - AS4964	CANCELLED	Cyanide (total)	pH (at 25°C)	Acid Sulfate Soils Field pH Test	BTEX	Eurofins | mgt Suite B15	Volatile Organics	Moisture Set	Eurofins | mgt Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271						X			X	X			X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X	X				X				X	X
Brisbane Laboratory - NATA Site # 20794											X						
Perth Laboratory - NATA Site # 23736																	
External Laboratory																	
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**												
1	BWS01	Aug 13, 2018		Water	S18-Au21814					X			X	X		X	
2	BH11 0.2-0.3	Aug 13, 2018		Soil	S18-Au21815		X										
3	BH11 1.5-2.0	Aug 13, 2018		Soil	S18-Au21816										X	X	
4	BH11 3.0-3.5	Aug 13, 2018		Soil	S18-Au21817						X						
5	BH11 4.5-5.0	Aug 13, 2018		Soil	S18-Au21818						X						
6	BH11 6.0-6.4	Aug 14, 2018		Soil	S18-Au21819						X						
7	BH11 7.6-8.0	Aug 14, 2018		Soil	S18-Au21820						X						
8	BH11 9.1-9.5	Aug 14, 2018		Soil	S18-Au21821	X			X		X				X	X	
9	BH11 12.0-12.25	Aug 14, 2018		Soil	S18-Au21822						X						

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NATA # 1261
Site # 23736

Company Name:	GHD Pty Ltd WOLLONGONG	**Order No.:**		**Received:**	Aug 17, 2018 12:10 PM
Address:	Level 3, 200 Crown St Wollongong NSW 2500	**Report #:** **Phone:** **Fax:**	612790 02 4222 2300 02 4222 2301	**Due:** **Priority:** **Contact Name:**	Aug 24, 2018 5 Day Colee Quayle
Project Name:	CONTAMINATION ASSESSMENT- EAST COAST GAS PIPELINE PORT KEMBLA				
Project ID:	2127477-TASK 3J FOR CONTAMINATION				

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Ammonia (as N)	Asbestos - AS4964	CANCELLED	Cyanide (total)	pH (at 25°C)	Acid Sulfate Soils Field pH Test	BTEX	Eurofins | mgt Suite B15	Volatile Organics	Moisture Set	Eurofins | mgt Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271						X			X	X			X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X	X				X				X	X
Brisbane Laboratory - NATA Site # 20794											X						
Perth Laboratory - NATA Site # 23736																	
10	BH11 13.65-14.0	Aug 14, 2018		Soil	S18-Au21823						X						
11	BH11 15-15.3	Aug 14, 2018		Soil	S18-Au21824						X						
12	TRIP SPIKE	Aug 14, 2018		Soil	S18-Au21825							X					
13	TRIP BLANK	Aug 14, 2018		Soil	S18-Au21826												X
14	BH11 1.0-1.2	Aug 13, 2018		Soil	S18-Au21838			X									
Test Counts						1	1	1	1	1	8	1	1	1	2	3	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/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.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

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							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total	mg/L	< 0.003			0.003	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	
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	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Dichlorodifluoromethane	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	
Methylene Chloride	mg/L	< 0.001			0.001	Pass	
Styrene	mg/L	< 0.001			0.001	Pass	
Tetrachloroethene	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	
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							
Organochlorine Pesticides							
Chlordanes - Total	mg/L	< 0.001			0.001	Pass	
4.4'-DDD	mg/L	< 0.0001			0.0001	Pass	
4.4'-DDE	mg/L	< 0.0001			0.0001	Pass	
4.4'-DDT	mg/L	< 0.0001			0.0001	Pass	
a-BHC	mg/L	< 0.0001			0.0001	Pass	
Aldrin	mg/L	< 0.0001			0.0001	Pass	
b-BHC	mg/L	< 0.0001			0.0001	Pass	
d-BHC	mg/L	< 0.0001			0.0001	Pass	
Dieldrin	mg/L	< 0.0001			0.0001	Pass	
Endosulfan I	mg/L	< 0.0001			0.0001	Pass	
Endosulfan II	mg/L	< 0.0001			0.0001	Pass	
Endosulfan sulphate	mg/L	< 0.0001			0.0001	Pass	
Endrin	mg/L	< 0.0001			0.0001	Pass	
Endrin aldehyde	mg/L	< 0.0001			0.0001	Pass	
Endrin ketone	mg/L	< 0.0001			0.0001	Pass	
g-BHC (Lindane)	mg/L	< 0.0001			0.0001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Heptachlor	mg/L	< 0.0001			0.0001	Pass	
Heptachlor epoxide	mg/L	< 0.0001			0.0001	Pass	
Hexachlorobenzene	mg/L	< 0.0001			0.0001	Pass	
Methoxychlor	mg/L	< 0.0001			0.0001	Pass	
Toxaphene	mg/L	< 0.01			0.01	Pass	
Method Blank							
Organophosphorus Pesticides							
Azinphos-methyl	mg/L	< 0.002			0.002	Pass	
Bolstar	mg/L	< 0.002			0.002	Pass	
Chlorfenvinphos	mg/L	< 0.002			0.002	Pass	
Chlorpyrifos	mg/L	< 0.02			0.02	Pass	
Chlorpyrifos-methyl	mg/L	< 0.002			0.002	Pass	
Coumaphos	mg/L	< 0.02			0.02	Pass	
Demeton-S	mg/L	< 0.02			0.02	Pass	
Demeton-O	mg/L	< 0.002			0.002	Pass	
Diazinon	mg/L	< 0.002			0.002	Pass	
Dichlorvos	mg/L	< 0.002			0.002	Pass	
Dimethoate	mg/L	< 0.002			0.002	Pass	
Disulfoton	mg/L	< 0.002			0.002	Pass	
EPN	mg/L	< 0.002			0.002	Pass	
Ethion	mg/L	< 0.002			0.002	Pass	
Ethoprop	mg/L	< 0.002			0.002	Pass	
Ethyl parathion	mg/L	< 0.002			0.002	Pass	
Fenitrothion	mg/L	< 0.002			0.002	Pass	
Fensulfothion	mg/L	< 0.002			0.002	Pass	
Fenthion	mg/L	< 0.002			0.002	Pass	
Malathion	mg/L	< 0.002			0.002	Pass	
Merphos	mg/L	< 0.002			0.002	Pass	
Methyl parathion	mg/L	< 0.002			0.002	Pass	
Mevinphos	mg/L	< 0.002			0.002	Pass	
Monocrotophos	mg/L	< 0.002			0.002	Pass	
Naled	mg/L	< 0.002			0.002	Pass	
Omethoate	mg/L	< 0.002			0.002	Pass	
Phorate	mg/L	< 0.002			0.002	Pass	
Pirimiphos-methyl	mg/L	< 0.02			0.02	Pass	
Pyrazophos	mg/L	< 0.002			0.002	Pass	
Ronnel	mg/L	< 0.002			0.002	Pass	
Terbufos	mg/L	< 0.002			0.002	Pass	
Tetrachlorvinphos	mg/L	< 0.002			0.002	Pass	
Tokuthion	mg/L	< 0.002			0.002	Pass	
Trichloronate	mg/L	< 0.002			0.002	Pass	
Method Blank							
Polychlorinated Biphenyls							
Aroclor-1016	mg/L	< 0.001			0.001	Pass	
Aroclor-1221	mg/L	< 0.001			0.001	Pass	
Aroclor-1232	mg/L	< 0.001			0.001	Pass	
Aroclor-1242	mg/L	< 0.001			0.001	Pass	
Aroclor-1248	mg/L	< 0.001			0.001	Pass	
Aroclor-1254	mg/L	< 0.001			0.001	Pass	
Aroclor-1260	mg/L	< 0.001			0.001	Pass	
Total PCB*	mg/L	< 0.001			0.001	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/L	< 0.001			0.001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Cadmium	mg/L	< 0.0002			0.0002	Pass	
Chromium	mg/L	< 0.001			0.001	Pass	
Copper	mg/L	< 0.001			0.001	Pass	
Lead	mg/L	< 0.001			0.001	Pass	
Mercury	mg/L	< 0.0001			0.0001	Pass	
Nickel	mg/L	< 0.001			0.001	Pass	
Zinc	mg/L	< 0.005			0.005	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	104			70-130	Pass	
TRH C10-C14	%	113			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	110			70-130	Pass	
Toluene	%	99			70-130	Pass	
Ethylbenzene	%	102			70-130	Pass	
m&p-Xylenes	%	99			70-130	Pass	
Xylenes - Total	%	101			70-130	Pass	
LCS - % Recovery							
Volatile Organics							
1.1-Dichloroethene	%	111			70-130	Pass	
1.1.1-Trichloroethane	%	98			70-130	Pass	
1.2-Dichlorobenzene	%	90			70-130	Pass	
1.2-Dichloroethane	%	119			70-130	Pass	
Trichloroethene	%	102			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	85			70-130	Pass	
TRH C6-C10	%	106			70-130	Pass	
TRH >C10-C16	%	108			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	89			70-130	Pass	
Acenaphthylene	%	87			70-130	Pass	
Anthracene	%	77			70-130	Pass	
Benz(a)anthracene	%	105			70-130	Pass	
Benzo(a)pyrene	%	95			70-130	Pass	
Benzo(b&j)fluoranthene	%	114			70-130	Pass	
Benzo(g.h.i)perylene	%	112			70-130	Pass	
Benzo(k)fluoranthene	%	112			70-130	Pass	
Chrysene	%	107			70-130	Pass	
Dibenz(a.h)anthracene	%	113			70-130	Pass	
Fluoranthene	%	100			70-130	Pass	
Fluorene	%	89			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	115			70-130	Pass	
Naphthalene	%	82			70-130	Pass	
Phenanthrene	%	91			70-130	Pass	
Pyrene	%	103			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	101			70-130	Pass	
4.4'-DDD	%	99			70-130	Pass	
4.4'-DDE	%	106			70-130	Pass	
4.4'-DDT	%	73			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
a-BHC	%	108			70-130	Pass	
Aldrin	%	103			70-130	Pass	
b-BHC	%	102			70-130	Pass	
d-BHC	%	87			70-130	Pass	
Dieldrin	%	110			70-130	Pass	
Endosulfan I	%	83			70-130	Pass	
Endosulfan II	%	98			70-130	Pass	
Endosulfan sulphate	%	83			70-130	Pass	
Endrin	%	76			70-130	Pass	
Endrin aldehyde	%	91			70-130	Pass	
Endrin ketone	%	75			70-130	Pass	
g-BHC (Lindane)	%	110			70-130	Pass	
Heptachlor	%	85			70-130	Pass	
Heptachlor epoxide	%	100			70-130	Pass	
Hexachlorobenzene	%	96			70-130	Pass	
Methoxychlor	%	87			70-130	Pass	
LCS - % Recovery							
Organophosphorus Pesticides							
Diazinon	%	111			70-130	Pass	
Dimethoate	%	92			70-130	Pass	
Ethion	%	107			70-130	Pass	
Fenitrothion	%	77			70-130	Pass	
Methyl parathion	%	76			70-130	Pass	
Mevinphos	%	89			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	97			80-120	Pass	
Cadmium	%	100			80-120	Pass	
Chromium	%	100			80-120	Pass	
Copper	%	98			80-120	Pass	
Lead	%	109			80-120	Pass	
Mercury	%	101			75-125	Pass	
Nickel	%	98			80-120	Pass	
Zinc	%	102			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	M18-Au25124	NCP	%	94			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	M18-Au25124	NCP	%	87			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	M18-Au10506	NCP	%	101			70-130	Pass	
Acenaphthylene	M18-Au10506	NCP	%	100			70-130	Pass	
Anthracene	M18-Au10506	NCP	%	112			70-130	Pass	
Benz(a)anthracene	M18-Au10506	NCP	%	120			70-130	Pass	
Benzo(a)pyrene	M18-Au10506	NCP	%	117			70-130	Pass	
Benzo(b&j)fluoranthene	M18-Au10506	NCP	%	119			70-130	Pass	
Benzo(g.h.i)perylene	M18-Au10506	NCP	%	107			70-130	Pass	
Benzo(k)fluoranthene	M18-Au10506	NCP	%	120			70-130	Pass	
Chrysene	M18-Au10506	NCP	%	120			70-130	Pass	
Dibenz(a.h)anthracene	M18-Au10506	NCP	%	107			70-130	Pass	
Fluoranthene	M18-Au10506	NCP	%	115			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Fluorene	M18-Au10506	NCP	%	105			70-130	Pass	
Indeno(1.2.3-cd)pyrene	M18-Au10506	NCP	%	110			70-130	Pass	
Naphthalene	M18-Au10506	NCP	%	90			70-130	Pass	
Phenanthrene	M18-Au10506	NCP	%	109			70-130	Pass	
Pyrene	M18-Au10506	NCP	%	118			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	M18-Au22564	NCP	%	98			70-130	Pass	
4.4'-DDD	M18-Au22564	NCP	%	82			70-130	Pass	
4.4'-DDE	M18-Au22564	NCP	%	96			70-130	Pass	
4.4'-DDT	M18-Au22564	NCP	%	84			70-130	Pass	
a-BHC	M18-Au22564	NCP	%	92			70-130	Pass	
Aldrin	M18-Au22564	NCP	%	85			70-130	Pass	
b-BHC	M18-Au22564	NCP	%	92			70-130	Pass	
d-BHC	M18-Au22564	NCP	%	92			70-130	Pass	
Dieldrin	M18-Au22564	NCP	%	104			70-130	Pass	
Endosulfan I	M18-Au22564	NCP	%	88			70-130	Pass	
Endosulfan II	M18-Au22564	NCP	%	98			70-130	Pass	
Endosulfan sulphate	M18-Au22564	NCP	%	75			70-130	Pass	
Endrin	M18-Au22564	NCP	%	88			70-130	Pass	
Endrin aldehyde	M18-Au22564	NCP	%	88			70-130	Pass	
Endrin ketone	M18-Au22564	NCP	%	93			70-130	Pass	
g-BHC (Lindane)	M18-Au22564	NCP	%	98			70-130	Pass	
Heptachlor	M18-Au22564	NCP	%	74			70-130	Pass	
Heptachlor epoxide	M18-Au22564	NCP	%	91			70-130	Pass	
Hexachlorobenzene	M18-Au22564	NCP	%	91			70-130	Pass	
Methoxychlor	M18-Au22564	NCP	%	129			70-130	Pass	
Spike - % Recovery									
Organophosphorus Pesticides				Result 1					
Diazinon	M18-Au11671	NCP	%	109			70-130	Pass	
Dimethoate	M18-Au11671	NCP	%	82			70-130	Pass	
Ethion	M18-Au11671	NCP	%	110			70-130	Pass	
Fenitrothion	M18-Au11671	NCP	%	90			70-130	Pass	
Methyl parathion	M18-Au11671	NCP	%	83			70-130	Pass	
Mevinphos	M18-Au11671	NCP	%	81			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	P18-Au22162	NCP	%	90			75-125	Pass	
Cadmium	P18-Au22162	NCP	%	91			75-125	Pass	
Chromium	P18-Au22162	NCP	%	91			75-125	Pass	
Copper	P18-Au22162	NCP	%	89			75-125	Pass	
Lead	P18-Au22162	NCP	%	98			75-125	Pass	
Mercury	P18-Au22162	NCP	%	94			70-130	Pass	
Nickel	P18-Au22162	NCP	%	88			75-125	Pass	
Zinc	P18-Au22162	NCP	%	94			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 C10-C14	M18-Au25123	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH C15-C28	M18-Au25123	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36	M18-Au25123	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	

Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	M18-Au25123	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH >C16-C34	M18-Au25123	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH >C34-C40	M18-Au25123	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S18-Au14877	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Acenaphthylene	S18-Au14877	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Anthracene	S18-Au14877	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benz(a)anthracene	S18-Au14877	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(a)pyrene	S18-Au14877	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(b&j)fluoranthene	S18-Au14877	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(g.h.i)perylene	S18-Au14877	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(k)fluoranthene	S18-Au14877	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Chrysene	S18-Au14877	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Dibenz(a.h)anthracene	S18-Au14877	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluoranthene	S18-Au14877	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluorene	S18-Au14877	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S18-Au14877	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Naphthalene	S18-Au14877	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Phenanthrene	S18-Au14877	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Pyrene	S18-Au14877	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	S18-Au14877	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
4.4'-DDD	S18-Au14877	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
4.4'-DDE	S18-Au14877	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
4.4'-DDT	S18-Au14877	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
a-BHC	S18-Au14877	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Aldrin	S18-Au14877	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
b-BHC	S18-Au14877	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
d-BHC	S18-Au14877	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Dieldrin	S18-Au14877	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endosulfan I	S18-Au14877	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endosulfan II	S18-Au14877	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endosulfan sulphate	S18-Au14877	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endrin	S18-Au14877	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endrin aldehyde	S18-Au14877	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endrin ketone	S18-Au14877	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
g-BHC (Lindane)	S18-Au14877	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Heptachlor	S18-Au14877	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Heptachlor epoxide	S18-Au14877	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Hexachlorobenzene	S18-Au14877	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Methoxychlor	S18-Au14877	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Azinphos-methyl	S18-Au14877	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Bolstar	S18-Au14877	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Chlorfenvinphos	S18-Au14877	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Chlorpyrifos	S18-Au14877	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Chlorpyrifos-methyl	S18-Au14877	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Coumaphos	S18-Au14877	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Demeton-S	S18-Au14877	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Demeton-O	S18-Au14877	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Diazinon	S18-Au14877	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	

Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Dichlorvos	S18-Au14877	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Dimethoate	S18-Au14877	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Disulfoton	S18-Au14877	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
EPN	S18-Au14877	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ethion	S18-Au14877	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ethoprop	S18-Au14877	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ethyl parathion	S18-Au14877	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Fenitrothion	S18-Au14877	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Fensulfothion	S18-Au14877	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Fenthion	S18-Au14877	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Malathion	S18-Au14877	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Merphos	S18-Au14877	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Methyl parathion	S18-Au14877	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Mevinphos	S18-Au14877	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Monocrotophos	S18-Au14877	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Naled	S18-Au14877	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Omethoate	S18-Au14877	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Phorate	S18-Au14877	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Pirimiphos-methyl	S18-Au14877	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Pyrazophos	S18-Au14877	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ronnel	S18-Au14877	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Terbufos	S18-Au14877	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Tetrachlorvinphos	S18-Au14877	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Tokuthion	S18-Au14877	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Trichloronate	S18-Au14877	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
pH (at 25°C)	M18-Au22445	NCP	pH Units	6.7	6.7	pass	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	P18-Au22162	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cadmium	P18-Au22162	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium	P18-Au22162	NCP	mg/L	0.001	0.001	1.0	30%	Pass	
Copper	P18-Au22162	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Lead	P18-Au22162	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Mercury	P18-Au22162	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel	P18-Au22162	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Zinc	P18-Au22162	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	

Comments

This report has been revised (V2) to include additional QC results for Ammonia.

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

Nibha Vaidya	Analytical Services Manager
Chris Bennett	Senior Analyst-Metal (VIC)
Harry Bacalis	Senior Analyst-Volatile (VIC)
Joseph Edouard	Senior Analyst-Organic (VIC)
Julie Kay	Senior Analyst-Inorganic (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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NATA # 1261 Site # 23736

ABN – 50 005 085 521 e.mail : EnviroSales@eurofins.com web : www.eurofins.com.au

Sample Receipt Advice

Company name:	**GHD Pty Ltd WOLLONGONG**
Contact name:	Colee Quayle
Project name:	CONTAMINATION ASSESSMENT- EAST COAST GAS PIPELINE PORT KEMBLA
Project ID:	2127477-TASK 3J FOR CONTAMINATION
COC number:	Not provided
Turn around time:	5 Day
Date/Time received:	Aug 17, 2018 12:10 PM
Eurofins | mgt reference:	**612790**

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).

Notes

BH11 4.0-4.5 logged as BH11 4.5-5.0(as per ID on sample). ASSpH bag not received for BH11 0.2-0.3 & BH11 1.5-2.0; analysis cancelled. Only asbestos bag received for BH11 1.0-1.2; analysis cancelled.

Contact notes

If you have any questions with respect to these samples please contact:

Nibha Vaidya on Phone : +61 (2) 9900 8415 or by e.mail: NibhaVaidya@eurofins.com

Results will be delivered electronically via e.mail to Colee Quayle - colee.quayle@ghd.com.

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Phone: +613 8564 5000 Fax: +613 8564 5090
Email: enquiries.melb@mgtlabmark.com.au

CHAIN OF CUSTODY RECORD

CLIENT DETAILS

Company Name : GHD Pty Ltd	Contact Name: Iain Lindley 0459 353 385	Purchase Order :	COC Number :
Office Address : Level 11, 200 Crown Street	Project Manager : Colee Quayle 0403 242 431	PROJECT Number : 2127477 - Task 3J for Contamination	Eurofins | mgt quote ID :
Wollongong, NSW 2500	Email for results : iain.lindley@ghd.com	PROJECT Name : Contamination Assessment - East Coast Gas Pipelin, Port Kembla	Data output format: ESDAT

Special Directions & C

Eurofins | mgt DI water batch number:

Analytes

	Sample ID	Depth (m)	Date	Matrix	B7: TRH, BTEX, PAH, Metals (8)	B15 : OCP, OPP, PCB	TCLP for PAH and heavy metals	Asbestos ID	BTEX	TPH C6-C9, BTEX	pH field screen (ph f and pH fox)	TBT	Dioxins	Cyanide	Ammonia	VOCs	pH									Hold
1	BWS01	-	13/08/2018	W	X	X										X	X									
2	BH11	0.2-0.3	13/08/2018	S				X			X															
3	BH11	1.0-1.2	13/08/2018	S	X						X															
4	BH11	1.5-2.0	13/08/2018	S							X															
5	BH11	3.0-3.5	13/08/2018	S							X															
6	BH11	4.0-4.5	13/08/2018	S							X															
7	BH11	6.0-6.4	14/08/2018	S							X															
8	BH11	7.6-8.0	14/08/2018	S							X															
9	BH11	9.1-9.5	14/08/2018	S	X						X	X	X	X	X											
10	BH11	12.0-12.25	14/08/2018	S							X															
11	BH11	13.65-14.0	14/08/2018	S							X															
12	BH11	15.0-15.3	14/08/2018	S							X															
13	Trip Spike			S					X																	
14	Trip Blank			S						X																
15				S																						
16				S																						

Some common holding times (with correct preservation).
For further information contact the lab

Waters		Soils	
BTEX, MAH, VOC	14 days	BTEX, MAH, VOC	14 days
TRH, PAH, Phenols, Pesticides	7 days	TRH, PAH, Phenols, Pesticides	14 days
Heavy Metals	6 months	Heavy Metals	6 months
Mercury, CrVI	28 days	Mercury, CrVI	28 days
Microbiological testing	24 hours	Microbiological testing	72 hours
BOD, Nitrate, Nitrite, Total N	2 days	Anions	28 days
Solids - TSS, TDS etc	7 days	SPOCAS, pH Field and FOX, CrS	24 hours
Ferrous iron	7 days	ASLP, TCLP	7 days

Containers:

	Jar	Zip lock	Vial	Amber 1L	Plastic				Sample comments:
1			X	X	X				
2	X	X							
3	X	X							
4	X	X							
5	X	X							
6	X	X							
7	X	X							
8	X	X							
9	X	X							
10	X	X							
11	X	X							
12			X						
13			X						
14									
15									
16									

GHD Staff	Courier	Laboratory Staff	Turn around time	Method Of Shipment	Temperature on arrival:
Relinquished By: Iain Lindley	Received By:	Received By: Elvis D	1 DAY ☐ 2 DAY ☐ 3 DAY ☐	☐ Courier ☐ Hand Delivered ☐ Postal	9.6°c
Date & Time 16/8/2018	Date & Time:	Date & Time: 17/8/18 12:10pm	5 DAY ☑ 10 DAY ☐ Other:	Courier Consignment # :	Report number: 612790
Signature: I. Lindley	Signature:	Signature:			

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NATA # 1261 Site # 20794

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NATA # 1261
Site # 23736

Company Name: GHD Pty Ltd WOLLONGONG
Address: Level 3, 200 Crown St
Wollongong
NSW 2500

Order No.:
Report #: 612790
Phone: 02 4222 2300
Fax: 02 4222 2301

Received: Aug 17, 2018 12:10 PM
Due: Aug 24, 2018
Priority: 5 Day
Contact Name: Colee Quayle

Project Name: CONTAMINATION ASSESSMENT- EAST COAST GAS PIPELINE PORT KEMBLA
Project ID: 2127477-TASK 3J FOR CONTAMINATION

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail	Ammonia (as N)	Asbestos - AS4964	CANCELLED	Cyanide (total)	pH (at 25°C)	Acid Sulfate Soils Field pH Test	BTEX	Eurofins | mgt Suite B15	Volatile Organics	Moisture Set	Eurofins | mgt Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271	X			X	X			X	X	X	X	X
Sydney Laboratory - NATA Site # 18217		X	X				X				X	X
Brisbane Laboratory - NATA Site # 20794						X						
Perth Laboratory - NATA Site # 23736												
External Laboratory												

No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID											
1	BWS01	Aug 13, 2018		Water	S18-Au21814					X			X	X		X	
2	BH11 0.2-0.3	Aug 13, 2018		Soil	S18-Au21815		X										
3	BH11 1.5-2.0	Aug 13, 2018		Soil	S18-Au21816										X	X	
4	BH11 3.0-3.5	Aug 13, 2018		Soil	S18-Au21817						X						
5	BH11 4.5-5.0	Aug 13, 2018		Soil	S18-Au21818						X						
6	BH11 6.0-6.4	Aug 14, 2018		Soil	S18-Au21819						X						
7	BH11 7.6-8.0	Aug 14, 2018		Soil	S18-Au21820						X						
8	BH11 9.1-9.5	Aug 14, 2018		Soil	S18-Au21821	X			X		X				X	X	
9	BH11 12.0-12.25	Aug 14, 2018		Soil	S18-Au21822						X						

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Site # 23736

Company Name:	GHD Pty Ltd WOLLONGONG	**Order No.:**		**Received:**	Aug 17, 2018 12:10 PM
Address:	Level 3, 200 Crown St Wollongong NSW 2500	**Report #:** **Phone:** **Fax:**	612790 02 4222 2300 02 4222 2301	**Due:** **Priority:** **Contact Name:**	Aug 24, 2018 5 Day Colee Quayle
Project Name:	CONTAMINATION ASSESSMENT- EAST COAST GAS PIPELINE PORT KEMBLA				
Project ID:	2127477-TASK 3J FOR CONTAMINATION				

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Ammonia (as N)	Asbestos - AS4964	CANCELLED	Cyanide (total)	pH (at 25°C)	Acid Sulfate Soils Field pH Test	BTEX	Eurofins | mgt Suite B15	Volatile Organics	Moisture Set	Eurofins | mgt Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271						X			X	X			X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X	X				X				X	X
Brisbane Laboratory - NATA Site # 20794											X						
Perth Laboratory - NATA Site # 23736																	
10	BH11 13.65-14.0	Aug 14, 2018		Soil	S18-Au21823						X						
11	BH11 15-15.3	Aug 14, 2018		Soil	S18-Au21824						X						
12	TRIP SPIKE	Aug 14, 2018		Soil	S18-Au21825							X					
13	TRIP BLANK	Aug 14, 2018		Soil	S18-Au21826												X
14	BH11 1.0-1.2	Aug 13, 2018		Soil	S18-Au21838			X									
Test Counts						1	1	1	1	1	8	1	1	1	2	3	1

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Certificate of Analysis

GHD Pty Ltd WOLLONGONG
Level 3, 200 Crown St
Wollongong
NSW 2500

NATA Accredited
Accreditation Number 1261
Site Number 18217

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: **Iain Lindley**

Report **616384-S-V2**
Project name CONTAMINATION ASSESSMENT - EAST COAST GAS PIPELINE PROJECT PORT KEMBLA
Project ID 2127477 - TASK 3J FOR CONTAMINATION
Received Date Sep 06, 2018

Client Sample ID			**GBH05 3.7-4.0**	**GBH05 4.7-5.0**	**GBH05 6.7-7.0**	**GBH05 7.7-8.0**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S18-Se08777**	**S18-Se08778**	**S18-Se08779**	**S18-Se08780**
Date Sampled			**Aug 31, 2018**	**Aug 31, 2018**	**Aug 31, 2018**	**Aug 31, 2018**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	-	-	< 0.5	-
TRH C6-C10	20	mg/kg	-	-	< 20	-
TRH C6-C10 less BTEX (F1)[N04]	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	-
TRH >C10-C40 (total)*	100	mg/kg	-	-	< 100	-
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	-
BTEX						
Benzene	0.1	mg/kg	-	-	< 0.1	-
Toluene	0.1	mg/kg	-	-	< 0.1	-
Ethylbenzene	0.1	mg/kg	-	-	< 0.1	-
m&p-Xylenes	0.2	mg/kg	-	-	< 0.2	-
o-Xylene	0.1	mg/kg	-	-	< 0.1	-
Xylenes - Total	0.3	mg/kg	-	-	< 0.3	-
4-Bromofluorobenzene (surr.)	1	%	-	-	79	-
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	-

Client Sample ID			GBH05 3.7-4.0	GBH05 4.7-5.0	GBH05 6.7-7.0	GBH05 7.7-8.0
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S18-Se08777**	**S18-Se08778**	**S18-Se08779**	**S18-Se08780**
Date Sampled			**Aug 31, 2018**	**Aug 31, 2018**	**Aug 31, 2018**	**Aug 31, 2018**
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
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	%	-	-	66	-
p-Terphenyl-d14 (surr.)	1	%	-	-	59	-
Heavy Metals						
Arsenic	2	mg/kg	-	-	4.1	-
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	-
Nickel	5	mg/kg	-	-	< 5	-
Zinc	5	mg/kg	-	-	13	-
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	9.3	9.5	9.4	9.5
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	8.1	8.2	7.9	7.9
Reaction Ratings*[S05]		comment	4.0	4.0	1.0	1.0
% Moisture	1	%	-	-	16	-

Client Sample ID			GBH05 8.7-9.0	QC11	QC12	TRIP SPIKE
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S18-Se08781**	**S18-Se08782**	**S18-Se08783**	**S18-Se08792**
Date Sampled			**Aug 31, 2018**	**Aug 31, 2018**	**Aug 31, 2018**	**Sep 04, 2018**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	-
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	-
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	-
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	-
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	-
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	-
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100	-
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	-
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	-
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	-
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	-
TRH C10-36 (Total)	50	mg/kg	< 50	< 50	< 50	-

Client Sample ID			GBH05 8.7-9.0	QC11	QC12	TRIP SPIKE
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S18-Se08781	S18-Se08782	S18-Se08783	S18-Se08792
Date Sampled			Aug 31, 2018	Aug 31, 2018	Aug 31, 2018	Sep 04, 2018
Test/Reference	LOR	Unit				
BTEX						
Comments						R20
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	97
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	98
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	92
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	96
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	97
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3	97
4-Bromofluorobenzene (surr.)	1	%	88	118	85	73
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	-
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
2-Fluorobiphenyl (surr.)	1	%	89	84	106	-
p-Terphenyl-d14 (surr.)	1	%	82	83	92	-
Heavy Metals						
Arsenic	2	mg/kg	9.7	6.1	11	-
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	-
Chromium	5	mg/kg	6.7	< 5	6.5	-
Copper	5	mg/kg	< 5	< 5	< 5	-
Lead	5	mg/kg	< 5	6.0	< 5	-
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Nickel	5	mg/kg	< 5	< 5	< 5	-
Zinc	5	mg/kg	< 5	22	< 5	-
% Moisture	1	%	21	18	21	-

Client Sample ID			TRIP BLANK	GBH13 5.7-6.0	GBH22 5.2-5.5
Sample Matrix			**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S18-Se08793**	**S18-Se08795**	**S18-Se08796**
Date Sampled			**Sep 04, 2018**	**Sep 04, 2018**	**Aug 22, 2018**
Test/Reference	LOR	Unit			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					
Naphthalene[N02]	0.5	mg/kg	< 0.5	-	-
TRH C6-C10	20	mg/kg	< 20	-	-
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	-	-
Total Recoverable Hydrocarbons - 1999 NEPM Fractions					
TRH C6-C9	20	mg/kg	< 20	-	-
BTEX					
Benzene	0.1	mg/kg	< 0.1	-	-
Toluene	0.1	mg/kg	< 0.1	-	-
Ethylbenzene	0.1	mg/kg	< 0.1	-	-
m&p-Xylenes	0.2	mg/kg	< 0.2	-	-
o-Xylene	0.1	mg/kg	< 0.1	-	-
Xylenes - Total	0.3	mg/kg	< 0.3	-	-
4-Bromofluorobenzene (surr.)	1	%	74	-	-
Heavy Metals					
Arsenic	2	mg/kg	-	7.2	9.0
Cadmium	0.4	mg/kg	-	< 0.4	< 0.4
Chromium	5	mg/kg	-	< 5	< 5
Copper	5	mg/kg	-	< 5	< 5
Lead	5	mg/kg	-	< 5	< 5
Mercury	0.1	mg/kg	-	< 0.1	< 0.1
Nickel	5	mg/kg	-	< 5	< 5
Zinc	5	mg/kg	-	< 5	22
% Moisture	1	%	-	17	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 - 2013 NEPM Fractions	Melbourne	Sep 10, 2018	14 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons	Sydney	Sep 12, 2018	14 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	Sep 12, 2018	14 Day
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Sydney	Sep 12, 2018	14 Day
- Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices			
Eurofins | mgt Suite B7			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Sep 10, 2018	14 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Polycyclic Aromatic Hydrocarbons	Melbourne	Sep 10, 2018	14 Day
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Metals M8	Melbourne	Sep 10, 2018	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Acid Sulfate Soils Field pH Test	Brisbane	Sep 12, 2018	7 Days
- Method: LTM-GEN-7060 Determination of field pH (pHF) and field pH peroxide (pHFOX) tests			
% Moisture	Melbourne	Sep 07, 2018	14 Day
- Method: LTM-GEN-7080 Moisture			

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Company Name: GHD Pty Ltd WOLLONGONG
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Order No.:
Report #: 616384
Phone: 02 4222 2300
Fax: 02 4222 2301

Received: Sep 6, 2018 11:29 PM
Due: Sep 14, 2018
Priority: 5 Day
Contact Name: Iain Lindley

Project Name: CONTAMINATION ASSESSMENT - EAST COAST GAS PIPELINE PROJECT PORT KEMBLA
Project ID: 2127477 - TASK 3J FOR CONTAMINATION

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						CANCELLED	HOLD	HOLD	HOLD	Acid Sulfate Soils Field pH Test	Metals M8	BTEX	Moisture Set	Eurofins | mgt Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271							X				X		X	X	X
Sydney Laboratory - NATA Site # 18217						X			X			X		X	X
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	GBH05 3.7-4.0	Aug 31, 2018		Soil	S18-Se08777					X					
2	GBH05 4.7-5.0	Aug 31, 2018		Soil	S18-Se08778					X					
3	GBH05 6.7-7.0	Aug 31, 2018		Soil	S18-Se08779					X			X	X	
4	GBH05 7.7-8.0	Aug 31, 2018		Soil	S18-Se08780					X					
5	GBH05 8.7-9.0	Aug 31, 2018		Soil	S18-Se08781								X	X	
6	QC11	Aug 31, 2018		Soil	S18-Se08782								X	X	
7	QC12	Aug 31, 2018		Soil	S18-Se08783								X	X	
8	BH15 2.6-2.7	Sep 03, 2018		Soil	S18-Se08784		X								
9	BH15 10.5-10.95	Sep 03, 2018		Soil	S18-Se08785				X						

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Company Name: GHD Pty Ltd WOLLONGONG
Address: Level 3, 200 Crown St
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Order No.:
Report #: 616384
Phone: 02 4222 2300
Fax: 02 4222 2301

Received: Sep 6, 2018 11:29 PM
Due: Sep 14, 2018
Priority: 5 Day
Contact Name: Iain Lindley

Project Name: CONTAMINATION ASSESSMENT - EAST COAST GAS PIPELINE PROJECT PORT KEMBLA
Project ID: 2127477 - TASK 3J FOR CONTAMINATION

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						CANCELLED	HOLD	HOLD	HOLD	Acid Sulfate Soils Field pH Test	Metals M8	BTEX	Moisture Set	Eurofins | mgt Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271							X				X		X	X	X
Sydney Laboratory - NATA Site # 18217						X			X			X		X	X
Brisbane Laboratory - NATA Site # 20794								X		X					
Perth Laboratory - NATA Site # 23736															
10	BH15 19.5-19.95	Sep 04, 2018		Soil	S18-Se08786			X							
11	BH15 15-15.45	Sep 04, 2018		Soil	S18-Se08787			X							
12	BH15 6.0-6.35	Sep 04, 2018		Soil	S18-Se08788			X							
13	BH15 3.9	Sep 04, 2018		Soil	S18-Se08789			X							
14	BH14 9.5	Sep 03, 2018		Soil	S18-Se08790			X							
15	BH14 24.3-24.45	Sep 04, 2018		Soil	S18-Se08791			X							
16	TRIP SPIKE	Sep 04, 2018		Soil	S18-Se08792							X			
17	TRIP BLANK	Sep 04, 2018		Soil	S18-Se08793										X
18	GBH13 5.7-6.0	Sep 04, 2018		Soil	S18-Se08795						X		X		
19	GBH22 5.2-5.5	Aug 22, 2018		Soil	S18-Se08796						X		X		
20	GBH06 7.7-8.0	Aug 30, 2018		Soil	S18-Se08797	X									

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Company Name:	GHD Pty Ltd WOLLONGONG	**Order No.:**		**Received:**	Sep 6, 2018 11:29 PM
Address:	Level 3, 200 Crown St Wollongong NSW 2500	**Report #:** **Phone:** **Fax:**	616384 02 4222 2300 02 4222 2301	**Due:** **Priority:** **Contact Name:**	Sep 14, 2018 5 Day Iain Lindley
Project Name:	CONTAMINATION ASSESSMENT - EAST COAST GAS PIPELINE PROJECT PORT KEMBLA				
Project ID:	2127477 - TASK 3J FOR CONTAMINATION				

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail	CANCELLED	HOLD	HOLD	HOLD	Acid Sulfate Soils Field pH Test	Metals M8	BTEX	Moisture Set	Eurofins | mgt Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271		X				X		X	X	X
Sydney Laboratory - NATA Site # 18217	X			X			X		X	X
Brisbane Laboratory - NATA Site # 20794			X		X					
Perth Laboratory - NATA Site # 23736										
Test Counts	1	8	8	8	4	2	1	6	4	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/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.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

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 - 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							
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							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total	mg/kg	< 0.3			0.3	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							
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	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	100			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
TRH C6-C10	%	75			70-130	Pass	
TRH >C10-C16	%	130			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	80			70-130	Pass	
TRH C10-C14	%	112			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	98			70-130	Pass	
Toluene	%	97			70-130	Pass	
Ethylbenzene	%	95			70-130	Pass	
m&p-Xylenes	%	99			70-130	Pass	
Xylenes - Total	%	99			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	95			70-130	Pass	
Acenaphthylene	%	107			70-130	Pass	
Anthracene	%	120			70-130	Pass	
Benz(a)anthracene	%	90			70-130	Pass	
Benzo(a)pyrene	%	86			70-130	Pass	
Benzo(b&j)fluoranthene	%	80			70-130	Pass	
Benzo(g.h.i)perylene	%	87			70-130	Pass	
Benzo(k)fluoranthene	%	101			70-130	Pass	
Chrysene	%	102			70-130	Pass	
Dibenz(a.h)anthracene	%	82			70-130	Pass	
Fluoranthene	%	109			70-130	Pass	
Fluorene	%	107			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	81			70-130	Pass	
Naphthalene	%	110			70-130	Pass	
Phenanthrene	%	99			70-130	Pass	
Pyrene	%	118			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	99			80-120	Pass	
Cadmium	%	101			80-120	Pass	
Chromium	%	105			80-120	Pass	
Copper	%	99			80-120	Pass	
Lead	%	106			80-120	Pass	
Mercury	%	96			75-125	Pass	
Nickel	%	106			80-120	Pass	
Zinc	%	105			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S18-Se08779	CP	%	95			70-130	Pass	
TRH C6-C10	S18-Se08779	CP	%	72			70-130	Pass	
TRH >C10-C16	M18-Se09843	NCP	%	115			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S18-Se08779	CP	%	73			70-130	Pass	
TRH C10-C14	M18-Se09843	NCP	%	110			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S18-Se08779	CP	%	77			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Toluene	S18-Se08779	CP	%	80			70-130	Pass	
Ethylbenzene	S18-Se08779	CP	%	85			70-130	Pass	
m&p-Xylenes	S18-Se08779	CP	%	91			70-130	Pass	
o-Xylene	S18-Se08779	CP	%	96			70-130	Pass	
Xylenes - Total	S18-Se08779	CP	%	93			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	M18-Se09936	NCP	%	92			70-130	Pass	
Acenaphthylene	M18-Se09936	NCP	%	102			70-130	Pass	
Anthracene	M18-Se09936	NCP	%	117			70-130	Pass	
Benz(a)anthracene	M18-Se09936	NCP	%	85			70-130	Pass	
Benzo(a)pyrene	M18-Se09936	NCP	%	82			70-130	Pass	
Benzo(b&j)fluoranthene	M18-Se09936	NCP	%	75			70-130	Pass	
Benzo(g.h.i)perylene	M18-Se09936	NCP	%	84			70-130	Pass	
Benzo(k)fluoranthene	M18-Se09936	NCP	%	104			70-130	Pass	
Chrysene	M18-Se09936	NCP	%	100			70-130	Pass	
Dibenz(a.h)anthracene	M18-Se09936	NCP	%	81			70-130	Pass	
Fluoranthene	M18-Se09936	NCP	%	100			70-130	Pass	
Fluorene	M18-Se09936	NCP	%	105			70-130	Pass	
Indeno(1.2.3-cd)pyrene	M18-Se09936	NCP	%	81			70-130	Pass	
Naphthalene	M18-Se09936	NCP	%	111			70-130	Pass	
Phenanthrene	M18-Se09936	NCP	%	91			70-130	Pass	
Pyrene	M18-Se09936	NCP	%	112			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S18-Se08782	CP	%	100			75-125	Pass	
Cadmium	S18-Se08782	CP	%	99			75-125	Pass	
Chromium	S18-Se08782	CP	%	96			75-125	Pass	
Copper	S18-Se08782	CP	%	103			75-125	Pass	
Lead	S18-Se08782	CP	%	94			75-125	Pass	
Mercury	S18-Se08782	CP	%	93			70-130	Pass	
Nickel	S18-Se08782	CP	%	91			75-125	Pass	
Zinc	S18-Se08782	CP	%	94			75-125	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Acid Sulfate Soils Field pH Test				Result 1	Result 2	RPD			
pH-F (Field pH test)*	S18-Se08777	CP	pH Units	9.3	9.4	pass	30%	Pass	
Reaction Ratings*	S18-Se08777	CP	comment	4.0	4.0	pass	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	M18-Se10251	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	M18-Se10251	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	M18-Se10251	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	M18-Se10251	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	M18-Se10251	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	M18-Se10251	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	M18-Se10251	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	M18-Se10251	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	M18-Se10251	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	M18-Se10251	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	M18-Se10251	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	M18-Se10251	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	M18-Se10251	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	M18-Se10251	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Phenanthrene	M18-Se10251	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	M18-Se10251	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S18-Se08781	CP	mg/kg	9.7	10	7.0	30%	Pass	
Cadmium	S18-Se08781	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S18-Se08781	CP	mg/kg	6.7	6.4	4.0	30%	Pass	
Copper	S18-Se08781	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Lead	S18-Se08781	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Mercury	S18-Se08781	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	S18-Se08781	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	S18-Se08781	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	S18-Se08782	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S18-Se08782	CP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	S18-Se08782	CP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C10-C14	S18-Se08782	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S18-Se08782	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S18-Se08782	CP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S18-Se08782	CP	mg/kg	6.1	6.9	11	30%	Pass	
Cadmium	S18-Se08782	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S18-Se08782	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Copper	S18-Se08782	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Lead	S18-Se08782	CP	mg/kg	6.0	6.2	3.0	30%	Pass	
Mercury	S18-Se08782	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	S18-Se08782	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	S18-Se08782	CP	mg/kg	22	22	1.0	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	S18-Se08783	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S18-Se08783	CP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	S18-Se08783	CP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C10-C14	S18-Se08783	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S18-Se08783	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S18-Se08783	CP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S18-Se08783	CP	%	21	22	2.0	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S18-Se12674	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S18-Se12674	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S18-Se12674	NCP	mg/kg	< 20	< 20	<1	30%	Pass	

Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S18-Se12674	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S18-Se12674	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S18-Se12674	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S18-Se12674	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S18-Se12674	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	S18-Se12674	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	

Comments

This report has been revised (V2) to amend sample ID S18-Se08796.

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
R20	This sample is a Trip Spike and therefore all results are reported as a percentage
S05	Field Screen uses the following fizz rating to classify the rate the samples reacted to the peroxide: 1.0; No reaction to slight. 2.0; Moderate reaction. 3.0; Strong reaction with persistent froth. 4.0; Extreme reaction.

Authorised By

Nibha Vaidya	Analytical Services Manager
Chris Bennett	Senior Analyst-Metal (VIC)
Harry Bacalis	Senior Analyst-Volatile (VIC)
Joseph Edouard	Senior Analyst-Organic (VIC)
Myles Clark	Senior Analyst-SPOCAS (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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NATA # 1261 Site # 20794

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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:	**GHD Pty Ltd WOLLONGONG**
Contact name:	Iain Lindley
Project name:	CONTAMINATION ASSESSMENT - EAST COAST GAS PIPELINE PROJECT
Project ID:	12127477 TASK 3J FOR CONTAMINATION
COC number:	Not provided
Turn around time:	5 Day
Date/Time received:	Sep 6, 2018 11:29 PM
Eurofins | mgt reference:	**616384**

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).

Notes

QC11A sent to ALS for analysis. GBH06 7.7-8.0 not received; analysis cancelled.

Contact notes

If you have any questions with respect to these samples please contact:

Nibha Vaidya on Phone : +61 (2) 9900 8415 or by e.mail: NibhaVaidya@eurofins.com

Results will be delivered electronically via e.mail to Iain Lindley - iain.lindley@ghd.com.

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NATA # 1261
Site # 23736

Company Name: GHD Pty Ltd WOLLONGONG
Address: Level 3, 200 Crown St
Wollongong
NSW 2500

Order No.:
Report #: 616384
Phone: 02 4222 2300
Fax: 02 4222 2301

Received: Sep 6, 2018 11:29 PM
Due: Sep 14, 2018
Priority: 5 Day
Contact Name: Iain Lindley

Project Name: CONTAMINATION ASSESSMENT - EAST COAST GAS PIPELINE PROJECT PORT KEMBLA
Project ID: 2127477 - TASK 3J FOR CONTAMINATION

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						CANCELLED	HOLD	HOLD	HOLD	Acid Sulfate Soils Field pH Test	Metals M8	BTEX	Moisture Set	Eurofins | mgt Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271							X				X		X	X	X
Sydney Laboratory - NATA Site # 18217						X			X			X		X	X
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	GBH05 3.7-4.0	Aug 31, 2018		Soil	S18-Se08777					X					
2	GBH05 4.7-5.0	Aug 31, 2018		Soil	S18-Se08778					X					
3	GBH05 6.7-7.0	Aug 31, 2018		Soil	S18-Se08779					X			X	X	
4	GBH05 7.7-8.0	Aug 31, 2018		Soil	S18-Se08780					X					
5	GBH05 8.7-9.0	Aug 31, 2018		Soil	S18-Se08781								X	X	
6	QC11	Aug 31, 2018		Soil	S18-Se08782								X	X	
7	QC12	Aug 31, 2018		Soil	S18-Se08783								X	X	
8	BH15 2.6-2.7	Sep 03, 2018		Soil	S18-Se08784		X								
9	BH15 10.5-10.95	Sep 03, 2018		Soil	S18-Se08785				X						

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Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name: GHD Pty Ltd WOLLONGONG
Address: Level 3, 200 Crown St
Wollongong
NSW 2500

Order No.:
Report #: 616384
Phone: 02 4222 2300
Fax: 02 4222 2301

Received: Sep 6, 2018 11:29 PM
Due: Sep 14, 2018
Priority: 5 Day
Contact Name: Iain Lindley

Project Name: CONTAMINATION ASSESSMENT - EAST COAST GAS PIPELINE PROJECT PORT KEMBLA
Project ID: 2127477 - TASK 3J FOR CONTAMINATION

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						CANCELLED	HOLD	HOLD	HOLD	Acid Sulfate Soils Field pH Test	Metals M8	BTEX	Moisture Set	Eurofins | mgt Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271							X				X		X	X	X
Sydney Laboratory - NATA Site # 18217						X			X			X		X	X
Brisbane Laboratory - NATA Site # 20794								X		X					
Perth Laboratory - NATA Site # 23736															
10	BH15 19.5-19.95	Sep 04, 2018		Soil	S18-Se08786			X							
11	BH15 15-15.45	Sep 04, 2018		Soil	S18-Se08787			X							
12	BH15 6.0-6.35	Sep 04, 2018		Soil	S18-Se08788			X							
13	BH15 3.9	Sep 04, 2018		Soil	S18-Se08789			X							
14	BH14 9.5	Sep 03, 2018		Soil	S18-Se08790			X							
15	BH14 24.3-24.45	Sep 04, 2018		Soil	S18-Se08791			X							
16	TRIP SPIKE	Sep 04, 2018		Soil	S18-Se08792							X			
17	TRIP BLANK	Sep 04, 2018		Soil	S18-Se08793										X
18	GBH13 5.7-6.0	Sep 04, 2018		Soil	S18-Se08795						X		X		
19	GBH22 5.2-5.5	Aug 22, 2018		Soil	S18-Se08796						X		X		
20	GBH06 7.7-8.0	Aug 30, 2018		Soil	S18-Se08797	X									

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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:	GHD Pty Ltd WOLLONGONG	**Order No.:**		**Received:**	Sep 6, 2018 11:29 PM
Address:	Level 3, 200 Crown St Wollongong NSW 2500	**Report #:** **Phone:** **Fax:**	616384 02 4222 2300 02 4222 2301	**Due:** **Priority:** **Contact Name:**	Sep 14, 2018 5 Day Iain Lindley
Project Name:	CONTAMINATION ASSESSMENT - EAST COAST GAS PIPELINE PROJECT PORT KEMBLA				
Project ID:	2127477 - TASK 3J FOR CONTAMINATION				

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail	CANCELLED	HOLD	HOLD	HOLD	Acid Sulfate Soils Field pH Test	Metals M8	BTEX	Moisture Set	Eurofins | mgt Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271		X				X		X	X	X
Sydney Laboratory - NATA Site # 18217	X			X			X		X	X
Brisbane Laboratory - NATA Site # 20794			X		X					
Perth Laboratory - NATA Site # 23736										
Test Counts	1	8	8	8	4	2	1	6	4	1

eurofins

☑ **Sydney**
Unit F3 - 6 Building F, 16 Mars Road, Lane Cove
Phone: +612 9900 8400
Email: enviro.syd@mgtlabmark.com.au

☐ **Brisbane**
Unit 1-21 Smallwood Place, Murrarie
Phone: +617 3902 4600
Email: enviro.bris@mgtlabmark.com.au

☐ **Melbourne**
2 Kingston Town Close, Oakleigh, VIC 3166
Phone: +613 8564 5000 Fax: +613 8564 5090
Email: enquiries.melb@mgtlabmark.com.au

CHAIN OF CUSTODY RECORD

CLIENT DETAILS

Company Name : GHD Pty Ltd	Contact Name: Iain Lindley 0459 353 385	Purchase Order :	COC Number :
Office Address : Level 11, 200 Crown Street	Project Manager : Colee Quayle 0403 242 431	PROJECT Number : 2127477 - Task 3J for Contamination	Eurofins | mgt quote ID :
Wollongong, NSW 2500	Email for results : iain.lindley@ghd.com	PROJECT Name : Contamination Assessment - East Coast Gas Pipeline Project, Port Kembla	Data output format: ESDAT

Special Directions & Comments :

Eurofins | mgt DI water batch number:

	Sample ID	Depth (m)	Date	Matrix	B7: TRH, BTEX, PAH, Metals (8)	B15 : OCP, OPP, PCB	TCLP for PAH and heavy metals	Asbestos ID	BTEX	TPH C6-C9, BTEX	pH field screen (ph f and pH fox)	TBT	M8: Metals	Cyanide	Ammonia	VOCs	pH	Hold
1	GBH13	5.7-6.0	22/08/2018	S									x					
2	GBH22	5.2-5.5	22/08/2018	S									x					
3	GBH05	3.7-4.0	31/08/2018	S							x							
4	GBH05	4.7-5.0	31/08/2018	S							x							
5	GBH05	6.7-7.0	31/08/2018	S	x						x							
6	GBH05	7.7-8.0	31/08/2018	S							x							
7	GBH05	8.7-9.0	31/08/2018	S	x													
8	QC11	-	31/08/2018	S	x													
9	QC11A	-	31/08/2018	S	x													
10	QC12	-	31/08/2018	S	x													
11	BH15	2.6-2.7	3/09/2018	S														x
12	BH15	10.5-10.95	3/09/2018	S														x
13	BH15	19.5-19.95	4/09/2018	S														x
14	BH15	15-15.45	4/09/2018	S														x
15	BH15	6.0-6.35	3/09/2018	S														x
16	BH15	3.9	3/09/2018	S														x

Some common holding times (with correct preservation). For further information contact the lab

Waters		Soils	
BTEX, MAH, VOC	14 days	BTEX, MAH, VOC	14 days
TRH, PAH, Phenols, Pesticides	7 days	TRH, PAH, Phenols, Pesticides	14 days
Heavy Metals	6 months	Heavy Metals	6 months
Mercury, CrVI	28 days	Mercury, CrVI	28 days
Microbiological testing	24 hours	Microbiological testing	72 hours
BOD, Nitrate, Nitrite, Total N	2 days	Anions	28 days
Solids - TSS, TDS etc	7 days	SPOCAS, pH Field and FOX, CrS	24 hours
Ferrous iron	7 days	ASLP, TCLP	7 days

Containers:								Sample comments:
Jar	Zip lock	ASS	Amber 1L	Plastic				
X	X	X						
X	X	X						
X	X	X						
X	X	X						
X	X	X						
X	X	X						
X	X	X						
X	X	X						
X		X						Please send to ALS
X	X	X						
X								
	x							
		x						
		x						
		x						
		x						

GHD Staff	Courier	Laboratory Staff
Relinquished By: Colee Quayle	Received By:	Received By:
Date & Time 6/9/2018	Date & Time:	Date & Time: 11:29am 6/9
Signature: C. Quayle	Signature:	Signature:

Turn around time

1 DAY ☐ 2 DAY ☐ 3 DAY ☐

5 DAY ☑ 10 DAY ☐ Other:

Method Of Shipment

☐ Courier
☐ Hand Delivered
☐ Postal
Courier Consignment # :

Temperature on arrival: 3.4°C

Report number: 616384

eurofins | mgt

☑ **Sydney**
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2 Kingston Town Close, Oakleigh, VIC 3166
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Email: enquiries.melb@mgtlabmark.com.au

CHAIN OF CUSTODY RECORD

CLIENT DETAILS

Company Name : GHD Pty Ltd	Contact Name: Iain Lindley 0459 353 385	Purchase Order :	COC Number :
Office Address : Level 11, 200 Crown Street	Project Manager : Colee Quayle 0403 242 431	PROJECT Number : 2127477 - Task 3J for Contamination	Eurofins | mgt quote ID :
Wollongong, NSW 2500	Email for results : iain.lindley@ghd.com	PROJECT Name : Contamination Assessment - East Coast Gas Pipeline Project, Port Kembla	Data output format: ESDAT

Special Directions & Comments :

Eurofins | mgt DI water batch number:

	Sample ID	Depth (m)	Date	Matrix	B7: TRH, BTEX, PAH, Metals (8)	B15 : OCP, OPP, PCB	TCLP for PAH and heavy metals	Asbestos ID	BTEX	TPH C6-C9, BTEX	pH field screen (ph f and pH fox)	TBT	Metals (8)	Cyanide	Ammonia	VOCs	pH	Hold
1	BH14	9.5	3/09/2018	S														x
2	BH14	24.3-24.45	4/09/2018	S														x
3	Trip Spike	-	-	S					x									
4	Trip Blank	-	-	S						x								
5	GBH06	7.7-8.0	30/08/2018	S	x													
6				S														
7				S														
8				S														
9				S														
10				S														
11				S														
12				S														
13				S														
14				S														
15				S														
16				S														

Some common holding times (with correct preservation).
For further information contact the lab

Waters		Soils	
BTEX, MAH, VOC	14 days	BTEX, MAH, VOC	14 days
TRH, PAH, Phenols, Pesticides	7 days	TRH, PAH, Phenols, Pesticides	14 days
Heavy Metals	6 months	Heavy Metals	6 months
Mercury, CrVi	28 days	Mercury, CrVI	28 days
Microbiological testing	24 hours	Microbiological testing	72 hours
BOD, Nitrate. Nitrite, Total N	2 days	Anions	28 days
Solids - TSS, TDS etc	7 days	SPOCAS, pH Field and FOX, CrS	24 hours
Ferrous iron	7 days	ASLP, TCLP	7 days

Containers:

Jar	Zip lock	ASS	Vials	Plastic				Sample comments:
		x						
		x						
			x					
			x					

GHD Staff	Courier	Laboratory Staff	Turn around time	Method Of Shipment	Temperature on arrival:
Relinquished By: Colee Quayle	Received By:	Received By:	1 DAY ☐ 2 DAY ☐ 3 DAY ☐	☐ Courier ☐ Hand Delivered ☐ Postal	3.4 °C
Date & Time 6/9/2018	Date & Time:	Date & Time: 6/9 1.22pm	5 DAY ☑ 10 DAY ☐ Other:	Courier Consignment # :	Report number: 616384
Signature: C. Quayle	Signature:	Signature:			

Certificate of Analysis

GHD Pty Ltd WOLLONGONG
Level 3, 200 Crown St
Wollongong
NSW 2500

Attention: **Iain Lindley**

Report **618151-S-V3**
Project name CONTAMINATION ASSESSMENT - EAST COAST GAS PIPELINE PROJECT PORT KEMBLA
Project ID 2127477- TASK 3J FOR CONTAMINATION
Received Date Sep 18, 2018

Client Sample ID			**GBH01 1.7-2.0**	**GBH01 2.7-3.0**	**GBH01 3.7-4.0**	**GBH01 4.7-5.0**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S18-Se22863**	**S18-Se22864**	**S18-Se22865**	**S18-Se22866**
Date Sampled			**Sep 07, 2018**	**Sep 07, 2018**	**Sep 07, 2018**	**Sep 07, 2018**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	-	-	< 20
TRH C10-C14	20	mg/kg	< 20	-	-	< 20
TRH C15-C28	50	mg/kg	< 50	-	-	< 50
TRH C29-C36	50	mg/kg	< 50	-	-	< 50
TRH C10-36 (Total)	50	mg/kg	< 50	-	-	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	-	-	< 0.1
Toluene	0.1	mg/kg	< 0.1	-	-	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	-	-	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	-	-	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	-	-	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	-	-	< 0.3
4-Bromofluorobenzene (surr.)	1	%	129	-	-	105
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	-	-	< 0.5
TRH C6-C10	20	mg/kg	< 20	-	-	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	-	-	< 20
TRH >C10-C16	50	mg/kg	< 50	-	-	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	-	-	< 50
TRH >C16-C34	100	mg/kg	< 100	-	-	< 100
TRH >C34-C40	100	mg/kg	< 100	-	-	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	-	-	< 100
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	-	-	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	-	-	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	-	-	1.2
Acenaphthene	0.5	mg/kg	< 0.5	-	-	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	-	-	< 0.5
Anthracene	0.5	mg/kg	< 0.5	-	-	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	-	-	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	-	-	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	-	-	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	-	-	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	-	-	< 0.5
Chrysene	0.5	mg/kg	< 0.5	-	-	< 0.5

Client Sample ID			GBH01 1.7-2.0	GBH01 2.7-3.0	GBH01 3.7-4.0	GBH01 4.7-5.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S18-Se22863	S18-Se22864	S18-Se22865	S18-Se22866
Date Sampled			Sep 07, 2018	Sep 07, 2018	Sep 07, 2018	Sep 07, 2018
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	-	-	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	-	-	< 0.5
Fluorene	0.5	mg/kg	< 0.5	-	-	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	-	-	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	-	-	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	-	-	< 0.5
Pyrene	0.5	mg/kg	< 0.5	-	-	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	-	-	< 0.5
2-Fluorobiphenyl (surr.)	1	%	87	-	-	105
p-Terphenyl-d14 (surr.)	1	%	92	-	-	108
% Moisture	1	%	2.5	-	-	2.2
Heavy Metals						
Arsenic	2	mg/kg	2.4	-	-	4.9
Cadmium	0.4	mg/kg	< 0.4	-	-	< 0.4
Chromium	5	mg/kg	< 5	-	-	< 5
Copper	5	mg/kg	< 5	-	-	< 5
Lead	5	mg/kg	< 5	-	-	< 5
Mercury	0.1	mg/kg	< 0.1	-	-	< 0.1
Nickel	5	mg/kg	< 5	-	-	< 5
Zinc	5	mg/kg	8.6	-	-	7.0
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	9.7	9.8	9.7	9.8
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	8.4	8.2	8.6	8.3
Reaction Ratings*[S05]		comment	4.0	4.0	4.0	4.0

Client Sample ID			GBH01 6.7-7.0	GBH01 7.7-8.0	QC14	GBH04 2.7-3.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S18-Se22867	S18-Se22868	S18-Se22869	S18-Se22870
Date Sampled			Sep 07, 2018	Sep 07, 2018	Sep 07, 2018	Sep 06, 2018
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	-	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	-	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	-	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	-	< 50	< 50	< 50
TRH C10-36 (Total)	50	mg/kg	-	< 50	< 50	< 50
BTEX						
Benzene	0.1	mg/kg	-	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	-	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	-	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	-	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	-	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	-	86	97	99

Client Sample ID			GBH01 6.7-7.0	GBH01 7.7-8.0	QC14	GBH04 2.7-3.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S18-Se22867	S18-Se22868	S18-Se22869	S18-Se22870
Date Sampled			Sep 07, 2018	Sep 07, 2018	Sep 07, 2018	Sep 06, 2018
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	-	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	-	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	-	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	-	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	-	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	-	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	-	< 100	< 100	< 100
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	-	119	105	111
p-Terphenyl-d14 (surr.)	1	%	-	133	120	131
% Moisture	1	%	-	17	3.0	5.0
Heavy Metals						
Arsenic	2	mg/kg	-	4.1	2.4	4.4
Cadmium	0.4	mg/kg	-	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	-	< 5	< 5	< 5
Copper	5	mg/kg	-	< 5	< 5	6.3
Lead	5	mg/kg	-	< 5	< 5	9.7
Mercury	0.1	mg/kg	-	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	-	< 5	< 5	14
Zinc	5	mg/kg	-	< 5	5.2	190
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	9.4	8.6	9.8	7.6
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	7.3	7.1	7.4	8.0
Reaction Ratings*[S05]		comment	1.0	1.0	2.0	4.0

Client Sample ID			GBH04 3.7-4.0	GBH04 4.7-5.0	QC13	GBH07 1.7-2.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S18-Se22871	S18-Se22872	S18-Se22873	S18-Se22874
Date Sampled			Sep 06, 2018	Sep 06, 2018	Sep 06, 2018	Sep 10, 2018
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	-
BTEX						
Benzene	0.1	mg/kg	-	-	< 0.1	-
Toluene	0.1	mg/kg	-	-	< 0.1	-
Ethylbenzene	0.1	mg/kg	-	-	< 0.1	-
m&p-Xylenes	0.2	mg/kg	-	-	< 0.2	-
o-Xylene	0.1	mg/kg	-	-	< 0.1	-
Xylenes - Total	0.3	mg/kg	-	-	< 0.3	-
4-Bromofluorobenzene (surr.)	1	%	-	-	104	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	-	-	< 0.5	-
TRH C6-C10	20	mg/kg	-	-	< 20	-
TRH C6-C10 less BTEX (F1)[N04]	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	-
TRH >C10-C40 (total)*	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	-
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	%	-	-	108	-
p-Terphenyl-d14 (surr.)	1	%	-	-	125	-
% Moisture	1	%	-	-	6.3	-

Client Sample ID			GBH04 3.7-4.0	GBH04 4.7-5.0	QC13	GBH07 1.7-2.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S18-Se22871	S18-Se22872	S18-Se22873	S18-Se22874
Date Sampled			Sep 06, 2018	Sep 06, 2018	Sep 06, 2018	Sep 10, 2018
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	-	-	5.3	-
Cadmium	0.4	mg/kg	-	-	< 0.4	-
Chromium	5	mg/kg	-	-	< 5	-
Copper	5	mg/kg	-	-	6.9	-
Lead	5	mg/kg	-	-	13	-
Mercury	0.1	mg/kg	-	-	< 0.1	-
Nickel	5	mg/kg	-	-	13	-
Zinc	5	mg/kg	-	-	180	-
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	9.3	9.6	7.9	9.2
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	10	8.1	8.2	7.5
Reaction Ratings*[S05]		comment	4.0	4.0	4.0	4.0

Client Sample ID			GBH07 2.7-3.0	GBH07 3.7-4.0	GBH07 4.7-5.0	GBH07 6.7-7.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S18-Se22875	S18-Se22876	S18-Se22877	S18-Se22878
Date Sampled			Sep 10, 2018	Sep 10, 2018	Sep 10, 2018	Sep 10, 2018
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
BTEX						
Benzene	0.1	mg/kg	-	-	-	< 0.1
Toluene	0.1	mg/kg	-	-	-	< 0.1
Ethylbenzene	0.1	mg/kg	-	-	-	< 0.1
m&p-Xylenes	0.2	mg/kg	-	-	-	< 0.2
o-Xylene	0.1	mg/kg	-	-	-	< 0.1
Xylenes - Total	0.3	mg/kg	-	-	-	< 0.3
4-Bromofluorobenzene (surr.)	1	%	-	-	-	93
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	-	-	-	< 0.5
TRH C6-C10	20	mg/kg	-	-	-	< 20
TRH C6-C10 less BTEX (F1)[N04]	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
TRH >C10-C40 (total)*	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

Client Sample ID			GBH07 2.7-3.0	GBH07 3.7-4.0	GBH07 4.7-5.0	GBH07 6.7-7.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S18-Se22875	S18-Se22876	S18-Se22877	S18-Se22878
Date Sampled			Sep 10, 2018	Sep 10, 2018	Sep 10, 2018	Sep 10, 2018
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
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
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	%	-	-	-	102
p-Terphenyl-d14 (surr.)	1	%	-	-	-	75
% Moisture	1	%	-	-	-	17
Heavy Metals						
Arsenic	2	mg/kg	-	-	-	5.6
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
Nickel	5	mg/kg	-	-	-	< 5
Zinc	5	mg/kg	-	-	-	< 5
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	9.4	8.5	9.3	9.6
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	7.4	7.1	7.3	7.2
Reaction Ratings*[S05]		comment	4.0	4.0	2.0	2.0

Client Sample ID			GBH07 8.7-9.0	GBH31 1.7-2.0	GBH31 2.7-3.0	GBH31 3.7-4.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S18-Se22879	S18-Se22880	S18-Se22881	S18-Se22882
Date Sampled			Sep 10, 2018	Sep 10, 2018	Sep 10, 2018	Sep 10, 2018
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	-	-	-
BTEX						
Benzene	0.1	mg/kg	< 0.1	-	-	-
Toluene	0.1	mg/kg	< 0.1	-	-	-
Ethylbenzene	0.1	mg/kg	< 0.1	-	-	-
m&p-Xylenes	0.2	mg/kg	< 0.2	-	-	-

Client Sample ID			GBH07 8.7-9.0	GBH31 1.7-2.0	GBH31 2.7-3.0	GBH31 3.7-4.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S18-Se22879	S18-Se22880	S18-Se22881	S18-Se22882
Date Sampled			Sep 10, 2018	Sep 10, 2018	Sep 10, 2018	Sep 10, 2018
Test/Reference	LOR	Unit				
BTEX						
o-Xylene	0.1	mg/kg	< 0.1	-	-	-
Xylenes - Total	0.3	mg/kg	< 0.3	-	-	-
4-Bromofluorobenzene (surr.)	1	%	90	-	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	-	-	-
TRH C6-C10	20	mg/kg	< 20	-	-	-
TRH C6-C10 less BTEX (F1)[N04]	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	-	-	-
TRH >C10-C40 (total)*	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	-	-	-
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	%	101	-	-	-
p-Terphenyl-d14 (surr.)	1	%	68	-	-	-
% Moisture	1	%	27	-	-	-
Heavy Metals						
Arsenic	2	mg/kg	54	-	-	-
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	-	-	-
Nickel	5	mg/kg	< 5	-	-	-
Zinc	5	mg/kg	6.2	-	-	-
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	8.9	9.5	9.6	10
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	2.8	8.2	7.7	8.3
Reaction Ratings*[S05]		comment	4.0	4.0	4.0	4.0

Client Sample ID			GBH31 4.7-5.0	QC15	GBH14 1.7-2.0	GBH14 2.7-3.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S18-Se22883	S18-Se22884	S18-Se22885	S18-Se22886
Date Sampled			Sep 10, 2018	Sep 10, 2018	Sep 10, 2018	Sep 10, 2018
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	-	< 20	-
TRH C10-C14	20	mg/kg	< 20	-	< 20	-
TRH C15-C28	50	mg/kg	< 50	-	< 50	-
TRH C29-C36	50	mg/kg	< 50	-	< 50	-
TRH C10-36 (Total)	50	mg/kg	< 50	-	< 50	-
BTEX						
Benzene	0.1	mg/kg	< 0.1	-	< 0.1	-
Toluene	0.1	mg/kg	< 0.1	-	< 0.1	-
Ethylbenzene	0.1	mg/kg	< 0.1	-	< 0.1	-
m&p-Xylenes	0.2	mg/kg	< 0.2	-	< 0.2	-
o-Xylene	0.1	mg/kg	< 0.1	-	< 0.1	-
Xylenes - Total	0.3	mg/kg	< 0.3	-	< 0.3	-
4-Bromofluorobenzene (surr.)	1	%	95	-	95	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	-	< 0.5	-
TRH C6-C10	20	mg/kg	< 20	-	< 20	-
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	-	< 20	-
TRH >C10-C16	50	mg/kg	< 50	-	< 50	-
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	-	< 50	-
TRH >C16-C34	100	mg/kg	< 100	-	< 100	-
TRH >C34-C40	100	mg/kg	< 100	-	< 100	-
TRH >C10-C40 (total)*	100	mg/kg	< 100	-	< 100	-
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	-	< 0.5	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	-	0.6	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	-	1.2	-
Acenaphthene	0.5	mg/kg	< 0.5	-	< 0.5	-
Acenaphthylene	0.5	mg/kg	< 0.5	-	< 0.5	-
Anthracene	0.5	mg/kg	< 0.5	-	< 0.5	-
Benz(a)anthracene	0.5	mg/kg	< 0.5	-	< 0.5	-
Benzo(a)pyrene	0.5	mg/kg	< 0.5	-	< 0.5	-
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	-	< 0.5	-
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	-	< 0.5	-
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	-	< 0.5	-
Chrysene	0.5	mg/kg	< 0.5	-	< 0.5	-
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	-	< 0.5	-
Fluoranthene	0.5	mg/kg	< 0.5	-	< 0.5	-
Fluorene	0.5	mg/kg	< 0.5	-	< 0.5	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	-	< 0.5	-
Naphthalene	0.5	mg/kg	< 0.5	-	< 0.5	-
Phenanthrene	0.5	mg/kg	< 0.5	-	< 0.5	-
Pyrene	0.5	mg/kg	< 0.5	-	< 0.5	-
Total PAH*	0.5	mg/kg	< 0.5	-	< 0.5	-
2-Fluorobiphenyl (surr.)	1	%	111	-	108	-
p-Terphenyl-d14 (surr.)	1	%	79	-	76	-
% Moisture	1	%	5.8	-	3.1	-

Client Sample ID			GBH31 4.7-5.0	QC15	GBH14 1.7-2.0	GBH14 2.7-3.0
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S18-Se22883**	**S18-Se22884**	**S18-Se22885**	**S18-Se22886**
Date Sampled			**Sep 10, 2018**	**Sep 10, 2018**	**Sep 10, 2018**	**Sep 10, 2018**
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	4.9	-	3.3	-
Cadmium	0.4	mg/kg	< 0.4	-	< 0.4	-
Chromium	5	mg/kg	< 5	-	< 5	-
Copper	5	mg/kg	< 5	-	< 5	-
Lead	5	mg/kg	< 5	-	< 5	-
Mercury	0.1	mg/kg	< 0.1	-	< 0.1	-
Nickel	5	mg/kg	< 5	-	< 5	-
Zinc	5	mg/kg	< 5	-	13	-
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	9.5	8.7	-	9.3
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	7.3	7.2	-	7.5
Reaction Ratings*[S05]		comment	2.0	2.0	-	2.0

Client Sample ID			GBH14 3.7-4.0	GBH14 4.7-5.0	GBH20 1.7-2.0	GBH20 2.7-3.0
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S18-Se22887**	**S18-Se22888**	**S18-Se22889**	**S18-Se22890**
Date Sampled			**Sep 10, 2018**	**Sep 10, 2018**	**Sep 10, 2018**	**Sep 10, 2018**
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	9.4	9.8	9.3	9.5
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	7.3	8.8	9.0	10
Reaction Ratings*[S05]		comment	2.0	4.0	4.0	4.0

Client Sample ID			GBH20 3.7-4.0	GBH20 4.7-5.0	GBH20 6.7-7.0	GBH20 8.7-9.0
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S18-Se22891**	**S18-Se22892**	**S18-Se22893**	**S18-Se22894**
Date Sampled			**Sep 10, 2018**	**Sep 10, 2018**	**Sep 10, 2018**	**Sep 10, 2018**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	-	-	< 20	< 20
TRH C10-C14	20	mg/kg	-	-	< 20	< 20
TRH C15-C28	50	mg/kg	-	-	< 50	< 50
TRH C29-C36	50	mg/kg	-	-	< 50	< 50
TRH C10-36 (Total)	50	mg/kg	-	-	< 50	< 50
BTEX						
Benzene	0.1	mg/kg	-	-	< 0.1	< 0.1
Toluene	0.1	mg/kg	-	-	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	-	-	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	-	-	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	-	-	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	-	-	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	-	-	93	88

Client Sample ID			GBH20 3.7-4.0	GBH20 4.7-5.0	GBH20 6.7-7.0	GBH20 8.7-9.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S18-Se22891	S18-Se22892	S18-Se22893	S18-Se22894
Date Sampled			Sep 10, 2018	Sep 10, 2018	Sep 10, 2018	Sep 10, 2018
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	-	-	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	-	-	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	-	-	< 20	< 20
TRH >C10-C16	50	mg/kg	-	-	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	-	-	< 50	< 50
TRH >C16-C34	100	mg/kg	-	-	< 100	< 100
TRH >C34-C40	100	mg/kg	-	-	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	-	-	< 100	< 100
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	-	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	-	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	-	1.2	1.2
Acenaphthene	0.5	mg/kg	-	-	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	-	-	< 0.5	< 0.5
Anthracene	0.5	mg/kg	-	-	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	-	-	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	-	-	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	-	-	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	-	-	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	-	-	< 0.5	< 0.5
Chrysene	0.5	mg/kg	-	-	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	-	-	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	-	-	< 0.5	< 0.5
Fluorene	0.5	mg/kg	-	-	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	-	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	-	-	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	-	-	< 0.5	< 0.5
Pyrene	0.5	mg/kg	-	-	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	-	-	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	-	-	98	88
p-Terphenyl-d14 (surr.)	1	%	-	-	72	55
Ammonia (as N)	5	mg/kg	-	-	-	< 5
Cyanide (total)	5	mg/kg	-	-	-	< 5
% Moisture	1	%	-	-	14	19
Heavy Metals						
Arsenic	2	mg/kg	-	-	4.4	6.0
Cadmium	0.4	mg/kg	-	-	< 0.4	< 0.4
Chromium	5	mg/kg	-	-	< 5	< 5
Copper	5	mg/kg	-	-	8.7	5.7
Lead	5	mg/kg	-	-	13	16
Mercury	0.1	mg/kg	-	-	< 0.1	< 0.1
Nickel	5	mg/kg	-	-	< 5	< 5
Zinc	5	mg/kg	-	-	83	83
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	9.7	9.3	9.5	8.6
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	9.4	9.1	7.4	7.3
Reaction Ratings*[S05]		comment	4.0	4.0	2.0	2.0

Client Sample ID			GBH16 1.7-2.0	GBH16 2.7-3.0	GBH16 3.7-4.0	GBH16 4.7-5.0
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S18-Se22896**	**S18-Se22897**	**S18-Se22898**	**S18-Se22899**
Date Sampled			**Sep 12, 2018**	**Sep 12, 2018**	**Sep 12, 2018**	**Sep 12, 2018**
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	11	9.7	9.7	9.7
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	9.6	7.5	7.9	7.2
Reaction Ratings*[S05]		comment	2.0	2.0	4.0	2.0

Client Sample ID			GBH16 5.7-6.0	GBH16 9.7-10.0	GBH23 0.5-0.7	GBH23 1.7-2.0
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S18-Se22900**	**S18-Se22901**	**S18-Se22902**	**S18-Se22903**
Date Sampled			**Sep 12, 2018**	**Sep 12, 2018**	**Sep 11, 2018**	**Sep 11, 2018**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	-
TRH C10-C14	20	mg/kg	< 20	< 20	45	-
TRH C15-C28	50	mg/kg	< 50	< 50	140	-
TRH C29-C36	50	mg/kg	< 50	< 50	52	-
TRH C10-36 (Total)	50	mg/kg	< 50	< 50	237	-
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3	-
4-Bromofluorobenzene (surr.)	1	%	90	87	91	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	-
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	-
TRH >C10-C16	50	mg/kg	< 50	< 50	55	-
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	55	-
TRH >C16-C34	100	mg/kg	< 100	< 100	170	-
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	-
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	225	-
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	-
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Chrysene	0.5	mg/kg	< 0.5	< 0.5	0.5	-
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	0.5	-

Client Sample ID			GBH16 5.7-6.0	GBH16 9.7-10.0	GBH23 0.5-0.7	GBH23 1.7-2.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S18-Se22900	S18-Se22901	S18-Se22902	S18-Se22903
Date Sampled			Sep 12, 2018	Sep 12, 2018	Sep 11, 2018	Sep 11, 2018
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	1.2	-
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	2.2	-
2-Fluorobiphenyl (surr.)	1	%	100	106	98	-
p-Terphenyl-d14 (surr.)	1	%	72	77	106	-
% Moisture	1	%	16	16	8.2	-
Heavy Metals						
Arsenic	2	mg/kg	4.8	2.2	3.9	-
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	-
Chromium	5	mg/kg	< 5	< 5	13	-
Copper	5	mg/kg	< 5	< 5	25	-
Lead	5	mg/kg	< 5	< 5	25	-
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Nickel	5	mg/kg	< 5	< 5	< 5	-
Zinc	5	mg/kg	< 5	< 5	230	-
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	9.5	9.0	-	9.5
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	7.2	7.2	-	9.4
Reaction Ratings*[S05]		comment	1.0	2.0	-	4.0

Client Sample ID			GBH23 2.7-3.0	GBH23 3.7-4.0	GBH23 6.7-7.0	GBH23 8.7-9.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S18-Se22904	S18-Se22905	S18-Se22906	S18-Se22907
Date Sampled			Sep 11, 2018	Sep 11, 2018	Sep 11, 2018	Sep 11, 2018
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
BTEX						
Benzene	0.1	mg/kg	-	-	-	< 0.1
Toluene	0.1	mg/kg	-	-	-	< 0.1
Ethylbenzene	0.1	mg/kg	-	-	-	< 0.1
m&p-Xylenes	0.2	mg/kg	-	-	-	< 0.2
o-Xylene	0.1	mg/kg	-	-	-	< 0.1
Xylenes - Total	0.3	mg/kg	-	-	-	< 0.3
4-Bromofluorobenzene (surr.)	1	%	-	-	-	85

Client Sample ID			GBH23 2.7-3.0	GBH23 3.7-4.0	GBH23 6.7-7.0	GBH23 8.7-9.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S18-Se22904	S18-Se22905	S18-Se22906	S18-Se22907
Date Sampled			Sep 11, 2018	Sep 11, 2018	Sep 11, 2018	Sep 11, 2018
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	-	-	-	< 0.5
TRH C6-C10	20	mg/kg	-	-	-	< 20
TRH C6-C10 less BTEX (F1)[N04]	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
TRH >C10-C40 (total)*	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
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	-	-	-	0.6
Fluorene	0.5	mg/kg	-	-	-	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	-	-	< 0.5
Naphthalene	0.5	mg/kg	-	-	-	1.4
Phenanthrene	0.5	mg/kg	-	-	-	< 0.5
Pyrene	0.5	mg/kg	-	-	-	< 0.5
Total PAH*	0.5	mg/kg	-	-	-	2
2-Fluorobiphenyl (surr.)	1	%	-	-	-	100
p-Terphenyl-d14 (surr.)	1	%	-	-	-	108
% Moisture	1	%	-	-	-	24
Heavy Metals						
Arsenic	2	mg/kg	-	-	-	9.2
Cadmium	0.4	mg/kg	-	-	-	< 0.4
Chromium	5	mg/kg	-	-	-	20
Copper	5	mg/kg	-	-	-	31
Lead	5	mg/kg	-	-	-	69
Mercury	0.1	mg/kg	-	-	-	< 0.1
Nickel	5	mg/kg	-	-	-	14
Zinc	5	mg/kg	-	-	-	520
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	9.0	9.2	9.4	-
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	10.0	8.9	7.4	-
Reaction Ratings*[S05]		comment	4.0	4.0	2.0	-

Client Sample ID			GBH23 9.7-10.0	QC18	BH17 7.5	BH17 3.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S18-Se22908	S18-Se22909	S18-Se22910	S18-Se22911
Date Sampled			Sep 11, 2018	Sep 11, 2018	Sep 05, 2018	Sep 05, 2018
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	-	-
TRH C10-C14	20	mg/kg	< 20	< 20	-	-
TRH C15-C28	50	mg/kg	< 50	< 50	-	-
TRH C29-C36	50	mg/kg	< 50	< 50	-	-
TRH C10-36 (Total)	50	mg/kg	< 50	< 50	-	-
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	-	-
Toluene	0.1	mg/kg	< 0.1	< 0.1	-	-
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	-	-
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	-	-
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	-	-
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	-	-
4-Bromofluorobenzene (surr.)	1	%	92	83	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	-	-
TRH C6-C10	20	mg/kg	< 20	< 20	-	-
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	-	-
TRH >C10-C16	50	mg/kg	< 50	< 50	-	-
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	-	-
TRH >C16-C34	100	mg/kg	< 100	< 100	-	-
TRH >C34-C40	100	mg/kg	< 100	< 100	-	-
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	-	-
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	-	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	-	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	-	-
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	-	-
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	-	-
Anthracene	0.5	mg/kg	< 0.5	< 0.5	-	-
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	-	-
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	-	-
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	-	-
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	-	-
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	-	-
Chrysene	0.5	mg/kg	< 0.5	< 0.5	-	-
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	-	-
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	-	-
Fluorene	0.5	mg/kg	< 0.5	< 0.5	-	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	-	-
Naphthalene	0.5	mg/kg	< 0.5	0.6	-	-
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	-	-
Pyrene	0.5	mg/kg	< 0.5	< 0.5	-	-
Total PAH*	0.5	mg/kg	< 0.5	0.6	-	-
2-Fluorobiphenyl (surr.)	1	%	95	95	-	-
p-Terphenyl-d14 (surr.)	1	%	61	60	-	-
Ammonia (as N)	5	mg/kg	< 5	< 5	-	-
Cyanide (total)	5	mg/kg	< 5	< 5	-	-
% Moisture	1	%	17	18	-	7.5

Client Sample ID			GBH23 9.7-10.0	QC18	BH17 7.5	BH17 3.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S18-Se22908	S18-Se22909	S18-Se22910	S18-Se22911
Date Sampled			Sep 11, 2018	Sep 11, 2018	Sep 05, 2018	Sep 05, 2018
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	2.8	6.4	-	3.9
Cadmium	0.4	mg/kg	< 0.4	< 0.4	-	< 0.4
Chromium	5	mg/kg	< 5	11	-	52
Copper	5	mg/kg	< 5	18	-	28
Lead	5	mg/kg	< 5	42	-	24
Mercury	0.1	mg/kg	< 0.1	< 0.1	-	< 0.1
Nickel	5	mg/kg	< 5	10	-	14
Zinc	5	mg/kg	< 5	350	-	220
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	8.6	8.9	8.3	-
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	8.1	5.6	2.3	-
Reaction Ratings*[S05]		comment	4.0	4.0	4.0	-

Client Sample ID			BH17 1.5	BH17 13.5	BH21 1.3	BH21 6.0-6.45
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S18-Se22912	S18-Se22913	S18-Se22914	S18-Se22915
Date Sampled			Sep 05, 2018	Sep 06, 2018	Sep 10, 2018	Sep 10, 2018
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	-
BTEX						
Benzene	0.1	mg/kg	-	-	< 0.1	-
Toluene	0.1	mg/kg	-	-	< 0.1	-
Ethylbenzene	0.1	mg/kg	-	-	< 0.1	-
m&p-Xylenes	0.2	mg/kg	-	-	< 0.2	-
o-Xylene	0.1	mg/kg	-	-	< 0.1	-
Xylenes - Total	0.3	mg/kg	-	-	< 0.3	-
4-Bromofluorobenzene (surr.)	1	%	-	-	93	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	-	-	< 0.5	-
TRH C6-C10	20	mg/kg	-	-	< 20	-
TRH C6-C10 less BTEX (F1)[N04]	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	-
TRH >C10-C40 (total)*	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	-

Client Sample ID			BH17 1.5	BH17 13.5	BH21 1.3	BH21 6.0-6.45
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S18-Se22912	S18-Se22913	S18-Se22914	S18-Se22915
Date Sampled			Sep 05, 2018	Sep 06, 2018	Sep 10, 2018	Sep 10, 2018
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
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	-
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	%	-	-	107	-
p-Terphenyl-d14 (surr.)	1	%	-	-	59	-
% Moisture	1	%	8.3	-	22	-
Heavy Metals						
Arsenic	2	mg/kg	3.2	-	5.3	-
Cadmium	0.4	mg/kg	< 0.4	-	< 0.4	-
Chromium	5	mg/kg	14	-	34	-
Copper	5	mg/kg	25	-	24	-
Lead	5	mg/kg	17	-	84	-
Mercury	0.1	mg/kg	< 0.1	-	< 0.1	-
Nickel	5	mg/kg	8.6	-	< 5	-
Zinc	5	mg/kg	85	-	82	-
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	-	8.2	-	6.5
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	-	7.2	-	5.6
Reaction Ratings*[S05]		comment	-	2.0	-	2.0

Client Sample ID			BH16 1.0	BH16 3.0-3.5	BH21 9.0-9.12	DS01
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S18-Se22916	S18-Se22917	S18-Se22918	S18-Se22919
Date Sampled			Sep 05, 2018	Sep 06, 2018	Sep 10, 2018	Sep 07, 2018
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	-	< 20	-	< 20
TRH C10-C14	20	mg/kg	-	< 20	-	< 20
TRH C15-C28	50	mg/kg	-	< 50	-	120
TRH C29-C36	50	mg/kg	-	< 50	-	96
TRH C10-36 (Total)	50	mg/kg	-	< 50	-	216

Client Sample ID			BH16 1.0	BH16 3.0-3.5	BH21 9.0-9.12	DS01
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S18-Se22916	S18-Se22917	S18-Se22918	S18-Se22919
Date Sampled			Sep 05, 2018	Sep 06, 2018	Sep 10, 2018	Sep 07, 2018
Test/Reference	LOR	Unit				
BTEX						
Benzene	0.1	mg/kg	-	< 0.1	-	< 0.1
Toluene	0.1	mg/kg	-	< 0.1	-	< 0.1
Ethylbenzene	0.1	mg/kg	-	< 0.1	-	< 0.1
m&p-Xylenes	0.2	mg/kg	-	< 0.2	-	< 0.2
o-Xylene	0.1	mg/kg	-	< 0.1	-	< 0.1
Xylenes - Total	0.3	mg/kg	-	< 0.3	-	< 0.3
4-Bromofluorobenzene (surr.)	1	%	-	88	-	101
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	-	< 0.5	-	< 0.5
TRH C6-C10	20	mg/kg	-	< 20	-	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	-	< 20	-	< 20
TRH >C10-C16	50	mg/kg	-	< 50	-	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	-	< 50	-	< 50
TRH >C16-C34	100	mg/kg	-	< 100	-	190
TRH >C34-C40	100	mg/kg	-	< 100	-	< 100
TRH >C10-C40 (total)*	100	mg/kg	-	< 100	-	190
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	0.7	-	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	1.3	-	1.2
Acenaphthene	0.5	mg/kg	-	< 0.5	-	< 0.5
Acenaphthylene	0.5	mg/kg	-	< 0.5	-	< 0.5
Anthracene	0.5	mg/kg	-	< 0.5	-	< 0.5
Benz(a)anthracene	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzo(a)pyrene	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	-	0.8	-	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	-	0.7	-	< 0.5
Chrysene	0.5	mg/kg	-	0.5	-	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	-	< 0.5	-	< 0.5
Fluoranthene	0.5	mg/kg	-	1.4	-	< 0.5
Fluorene	0.5	mg/kg	-	< 0.5	-	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	< 0.5	-	< 0.5
Naphthalene	0.5	mg/kg	-	2.7	-	< 0.5
Phenanthrene	0.5	mg/kg	-	0.7	-	< 0.5
Pyrene	0.5	mg/kg	-	1.2	-	< 0.5
Total PAH*	0.5	mg/kg	-	8	-	< 0.5
2-Fluorobiphenyl (surr.)	1	%	-	102	-	99
p-Terphenyl-d14 (surr.)	1	%	-	98	-	99
% Moisture	1	%	11	8.5	-	10
Heavy Metals						
Arsenic	2	mg/kg	< 2	< 2	-	2.5
Cadmium	0.4	mg/kg	< 0.4	< 0.4	-	< 0.4
Chromium	5	mg/kg	550	< 5	-	410
Copper	5	mg/kg	26	< 5	-	21
Lead	5	mg/kg	11	< 5	-	14
Mercury	0.1	mg/kg	< 0.1	< 0.1	-	< 0.1
Nickel	5	mg/kg	11	< 5	-	15
Zinc	5	mg/kg	99	< 5	-	88

Client Sample ID			BH16 1.0	BH16 3.0-3.5	BH21 9.0-9.12	DS01
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S18-Se22916**	**S18-Se22917**	**S18-Se22918**	**S18-Se22919**
Date Sampled			**Sep 05, 2018**	**Sep 06, 2018**	**Sep 10, 2018**	**Sep 07, 2018**
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	-	-	6.9	-
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	-	-	5.6	-
Reaction Ratings*[S05]		comment	-	-	2.0	-

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
Eurofins | mgt Suite B2			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Sep 21, 2018	14 Day
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Melbourne	Sep 21, 2018	14 Day
- Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Sep 21, 2018	14 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Sep 21, 2018	14 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Metals M8	Melbourne	Sep 21, 2018	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Eurofins | mgt Suite B7			
Polycyclic Aromatic Hydrocarbons	Melbourne	Sep 21, 2018	14 Day
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Ammonia (as N)	Melbourne	Sep 21, 2018	7 Day
- Method: APHA 4500-NH3 Ammonia Nitrogen by FIA			
Cyanide (total)	Melbourne	Sep 21, 2018	14 Day
- Method: LTM-INO-4020 Total Free WAD Cyanide by CFA			
Acid Sulfate Soils Field pH Test	Brisbane	Sep 19, 2018	7 Days
- Method: LTM-GEN-7060 Determination of field pH (pHF) and field pH peroxide (pHFOX) tests			
% Moisture	Melbourne	Sep 18, 2018	14 Day
- Method: LTM-GEN-7080 Moisture			

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Company Name: GHD Pty Ltd WOLLONGONG
Address: Level 3, 200 Crown St
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NSW 2500

Order No.:
Report #: 618151
Phone: 02 4222 2300
Fax: 02 4222 2301

Received: Sep 18, 2018 12:58 PM
Due: Sep 25, 2018
Priority: 5 Day
Contact Name: Iain Lindley

Project Name: CONTAMINATION ASSESSMENT - EAST COAST GAS PIPELINE PROJECT PORT KEMBLA
Project ID: 2127477- TASK 3J FOR CONTAMINATION

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Ammonia (as N)	CANCELLED	Cyanide (total)	HOLD	pH (at 25°C)	Acid Sulfate Soils Field pH Test	Metals M8	Moisture Set	Eurofins | mgt Suite B7	Eurofins | mgt Suite B2	Polycyclic Aromatic Hydrocarbons (Trace level)
Melbourne Laboratory - NATA Site # 1254 & 14271						X		X		X		X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X								X	
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	GBH01 1.7-2.0	Sep 07, 2018		Soil	S18-Se22863						X		X	X		
2	GBH01 2.7-3.0	Sep 07, 2018		Soil	S18-Se22864						X					
3	GBH01 3.7-4.0	Sep 07, 2018		Soil	S18-Se22865						X					
4	GBH01 4.7-5.0	Sep 07, 2018		Soil	S18-Se22866						X		X	X		
5	GBH01 6.7-7.0	Sep 07, 2018		Soil	S18-Se22867						X					
6	GBH01 7.7-8.0	Sep 07, 2018		Soil	S18-Se22868						X		X	X		
7	QC14	Sep 07, 2018		Soil	S18-Se22869						X		X	X		
8	GBH04 2.7-3.0	Sep 06, 2018		Soil	S18-Se22870						X		X	X		
9	GBH04 3.7-4.0	Sep 06, 2018		Soil	S18-Se22871						X					

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Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Ammonia (as N)	CANCELLED	Cyanide (total)	HOLD	pH (at 25°C)	Acid Sulfate Soils Field pH Test	Metals M8	Moisture Set	Eurofins | mgt Suite B7	Eurofins | mgt Suite B2	Polycyclic Aromatic Hydrocarbons (Trace level)
Melbourne Laboratory - NATA Site # 1254 & 14271						X		X		X		X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X								X	
Brisbane Laboratory - NATA Site # 20794									X		X					
Perth Laboratory - NATA Site # 23736																
10	GBH04 4.7-5.0	Sep 06, 2018		Soil	S18-Se22872						X					
11	QC13	Sep 06, 2018		Soil	S18-Se22873						X		X	X		
12	GBH07 1.7-2.0	Sep 10, 2018		Soil	S18-Se22874						X					
13	GBH07 2.7-3.0	Sep 10, 2018		Soil	S18-Se22875						X					
14	GBH07 3.7-4.0	Sep 10, 2018		Soil	S18-Se22876						X					
15	GBH07 4.7-5.0	Sep 10, 2018		Soil	S18-Se22877						X					
16	GBH07 6.7-7.0	Sep 10, 2018		Soil	S18-Se22878						X		X	X		
17	GBH07 8.7-9.0	Sep 10, 2018		Soil	S18-Se22879						X		X	X		
18	GBH31 1.7-2.0	Sep 10, 2018		Soil	S18-Se22880						X					
19	GBH31 2.7-3.0	Sep 10, 2018		Soil	S18-Se22881						X					
20	GBH31 3.7-4.0	Sep 10, 2018		Soil	S18-Se22882						X					
21	GBH31 4.7-5.0	Sep 10, 2018		Soil	S18-Se22883						X		X	X		

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Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Ammonia (as N)	CANCELLED	Cyanide (total)	HOLD	pH (at 25°C)	Acid Sulfate Soils Field pH Test	Metals M8	Moisture Set	Eurofins | mgt Suite B7	Eurofins | mgt Suite B2	Polycyclic Aromatic Hydrocarbons (Trace level)
Melbourne Laboratory - NATA Site # 1254 & 14271						X		X		X		X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X								X	
Brisbane Laboratory - NATA Site # 20794									X		X					
Perth Laboratory - NATA Site # 23736																
22	QC15	Sep 10, 2018		Soil	S18-Se22884						X					
23	GBH14 1.7-2.0	Sep 10, 2018		Soil	S18-Se22885								X	X		
24	GBH14 2.7-3.0	Sep 10, 2018		Soil	S18-Se22886						X					
25	GBH14 3.7-4.0	Sep 10, 2018		Soil	S18-Se22887						X					
26	GBH14 4.7-5.0	Sep 10, 2018		Soil	S18-Se22888						X					
27	GBH20 1.7-2.0	Sep 10, 2018		Soil	S18-Se22889						X					
28	GBH20 2.7-3.0	Sep 10, 2018		Soil	S18-Se22890						X					
29	GBH20 3.7-4.0	Sep 10, 2018		Soil	S18-Se22891						X					
30	GBH20 4.7-5.0	Sep 10, 2018		Soil	S18-Se22892						X					
31	GBH20 6.7-7.0	Sep 10, 2018		Soil	S18-Se22893						X		X	X		
32	GBH20 8.7-9.0	Sep 10, 2018		Soil	S18-Se22894	X		X			X		X	X		
33	QC17	Sep 10, 2018		Soil	S18-Se22895		X									

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Contact Name: Iain Lindley

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Project ID: 2127477- TASK 3J FOR CONTAMINATION

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Ammonia (as N)	CANCELLED	Cyanide (total)	HOLD	pH (at 25°C)	Acid Sulfate Soils Field pH Test	Metals M8	Moisture Set	Eurofins | mgt Suite B7	Eurofins | mgt Suite B2	Polycyclic Aromatic Hydrocarbons (Trace level)
Melbourne Laboratory - NATA Site # 1254 & 14271						X		X		X		X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X								X	
Brisbane Laboratory - NATA Site # 20794									X		X					
Perth Laboratory - NATA Site # 23736																
34	GBH16 1.7-2.0	Sep 12, 2018		Soil	S18-Se22896						X					
35	GBH16 2.7-3.0	Sep 12, 2018		Soil	S18-Se22897						X					
36	GBH16 3.7-4.0	Sep 12, 2018		Soil	S18-Se22898						X					
37	GBH16 4.7-5.0	Sep 12, 2018		Soil	S18-Se22899						X					
38	GBH16 5.7-6.0	Sep 12, 2018		Soil	S18-Se22900						X		X	X		
39	GBH16 9.7-10.0	Sep 12, 2018		Soil	S18-Se22901						X		X	X		
40	GBH23 0.5-0.7	Sep 11, 2018		Soil	S18-Se22902								X	X		
41	GBH23 1.7-2.0	Sep 11, 2018		Soil	S18-Se22903						X					
42	GBH23 2.7-3.0	Sep 11, 2018		Soil	S18-Se22904						X					
43	GBH23 3.7-4.0	Sep 11, 2018		Soil	S18-Se22905						X					
44	GBH23 6.7-7.0	Sep 11, 2018		Soil	S18-Se22906						X					

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Address:	Level 3, 200 Crown St Wollongong NSW 2500	**Report #:** **Phone:** **Fax:**	618151 02 4222 2300 02 4222 2301	**Due:** **Priority:** **Contact Name:**	Sep 25, 2018 5 Day Iain Lindley
Project Name:	CONTAMINATION ASSESSMENT - EAST COAST GAS PIPELINE PROJECT PORT KEMBLA				
Project ID:	2127477- TASK 3J FOR CONTAMINATION				

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Ammonia (as N)	CANCELLED	Cyanide (total)	HOLD	pH (at 25°C)	Acid Sulfate Soils Field pH Test	Metals M8	Moisture Set	Eurofins | mgt Suite B7	Eurofins | mgt Suite B2	Polycyclic Aromatic Hydrocarbons (Trace level)
Melbourne Laboratory - NATA Site # 1254 & 14271						X		X		X		X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X								X	
Brisbane Laboratory - NATA Site # 20794									X		X					
Perth Laboratory - NATA Site # 23736																
45	GBH23 8.7-9.0	Sep 11, 2018		Soil	S18-Se22907		X						X	X		
46	GBH23 9.7-10.0	Sep 11, 2018		Soil	S18-Se22908	X		X			X		X	X		
47	QC18	Sep 11, 2018		Soil	S18-Se22909	X		X			X		X	X		
48	BH17 7.5	Sep 05, 2018		Soil	S18-Se22910						X					
49	BH17 3.5	Sep 05, 2018		Soil	S18-Se22911							X	X			
50	BH17 1.5	Sep 05, 2018		Soil	S18-Se22912							X	X			
51	BH17 13.5	Sep 06, 2018		Soil	S18-Se22913						X					
52	BH21 1.3	Sep 10, 2018		Soil	S18-Se22914								X	X		
53	BH21 6.0-6.45	Sep 10, 2018		Soil	S18-Se22915						X					
54	BH16 1.0	Sep 05, 2018		Soil	S18-Se22916							X	X			
55	BH16 3.0-3.5	Sep 06, 2018		Soil	S18-Se22917								X	X		

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Project ID: 2127477- TASK 3J FOR CONTAMINATION

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Ammonia (as N)	CANCELLED	Cyanide (total)	HOLD	pH (at 25°C)	Acid Sulfate Soils Field pH Test	Metals M8	Moisture Set	Eurofins | mgt Suite B7	Eurofins | mgt Suite B2	Polycyclic Aromatic Hydrocarbons (Trace level)
Melbourne Laboratory - NATA Site # 1254 & 14271						X		X		X		X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X								X	
Brisbane Laboratory - NATA Site # 20794									X		X					
Perth Laboratory - NATA Site # 23736																
56	BH21 9.0-9.12	Sep 10, 2018		Soil	S18-Se22918						X					
57	DS01	Sep 07, 2018		Soil	S18-Se22919								X	X		
58	DW01	Sep 07, 2018		Water	S18-Se22920					X		X			X	X
59	GBH01 0.6-0.8	Sep 07, 2018		Soil	S18-Se22995				X							
60	GBH04 1.5-1.7	Sep 06, 2018		Soil	S18-Se22996				X							
61	GBH07 0.5-0.7	Sep 10, 2018		Soil	S18-Se22997				X							
62	GBH31 0.8-0.9	Sep 10, 2018		Soil	S18-Se22998				X							
63	QC16	Sep 10, 2018		Soil	S18-Se22999				X							
64	GBH20 0.5-0.7	Sep 10, 2018		Soil	S18-Se23000				X							
65	GBH16 0.6-0.8	Sep 10, 2018		Soil	S18-Se23001				X							
Test Counts						3	2	3	7	1	47	4	24	21	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/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.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

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							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	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							
Ammonia (as N)	mg/kg	< 5			5	Pass	
Cyanide (total)	mg/kg	< 5			5	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	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	85			70-130	Pass	
TRH C10-C14	%	89			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	87			70-130	Pass	
Toluene	%	100			70-130	Pass	
Ethylbenzene	%	113			70-130	Pass	
m&p-Xylenes	%	113			70-130	Pass	
Xylenes - Total	%	114			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	106			70-130	Pass	
TRH C6-C10	%	83			70-130	Pass	
TRH >C10-C16	%	87			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	90			70-130	Pass	
Acenaphthylene	%	93			70-130	Pass	
Anthracene	%	85			70-130	Pass	
Benz(a)anthracene	%	89			70-130	Pass	
Benzo(a)pyrene	%	83			70-130	Pass	
Benzo(b&j)fluoranthene	%	91			70-130	Pass	
Benzo(g.h.i)perylene	%	97			70-130	Pass	
Benzo(k)fluoranthene	%	95			70-130	Pass	
Chrysene	%	93			70-130	Pass	
Dibenz(a.h)anthracene	%	70			70-130	Pass	
Fluoranthene	%	111			70-130	Pass	
Fluorene	%	89			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	97			70-130	Pass	
Naphthalene	%	89			70-130	Pass	
Phenanthrene	%	81			70-130	Pass	
Pyrene	%	107			70-130	Pass	
LCS - % Recovery							
Ammonia (as N)	%	109			70-130	Pass	
Cyanide (total)	%	118			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	108			80-120	Pass	
Cadmium	%	102			80-120	Pass	
Chromium	%	110			80-120	Pass	
Copper	%	112			80-120	Pass	
Lead	%	120			80-120	Pass	
Mercury	%	102			75-125	Pass	
Nickel	%	109			80-120	Pass	
Zinc	%	107			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	S18-Se22866	CP	%	94			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S18-Se22866	CP	%	103			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Toluene	S18-Se22866	CP	%	113			70-130	Pass	
Ethylbenzene	S18-Se22866	CP	%	113			70-130	Pass	
m&p-Xylenes	S18-Se22866	CP	%	121			70-130	Pass	
o-Xylene	S18-Se22866	CP	%	126			70-130	Pass	
Xylenes - Total	S18-Se22866	CP	%	123			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S18-Se22866	CP	%	126			70-130	Pass	
TRH C6-C10	S18-Se22866	CP	%	94			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	S18-Se22866	CP	%	88			70-130	Pass	
Acenaphthylene	S18-Se22866	CP	%	102			70-130	Pass	
Anthracene	S18-Se22866	CP	%	93			70-130	Pass	
Benz(a)anthracene	S18-Se22866	CP	%	91			70-130	Pass	
Benzo(a)pyrene	S18-Se22866	CP	%	88			70-130	Pass	
Benzo(b&j)fluoranthene	S18-Se22866	CP	%	78			70-130	Pass	
Benzo(g.h.i)perylene	S18-Se22866	CP	%	93			70-130	Pass	
Benzo(k)fluoranthene	S18-Se22866	CP	%	106			70-130	Pass	
Chrysene	S18-Se22866	CP	%	101			70-130	Pass	
Dibenz(a.h)anthracene	S18-Se22866	CP	%	99			70-130	Pass	
Fluoranthene	S18-Se22866	CP	%	96			70-130	Pass	
Fluorene	S18-Se22866	CP	%	95			70-130	Pass	
Indeno(1.2.3-cd)pyrene	S18-Se22866	CP	%	82			70-130	Pass	
Naphthalene	S18-Se22866	CP	%	106			70-130	Pass	
Phenanthrene	S18-Se22866	CP	%	95			70-130	Pass	
Pyrene	S18-Se22866	CP	%	105			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S18-Se22866	CP	%	96			75-125	Pass	
Cadmium	S18-Se22866	CP	%	92			75-125	Pass	
Chromium	S18-Se22866	CP	%	99			75-125	Pass	
Copper	S18-Se22866	CP	%	97			75-125	Pass	
Lead	S18-Se22866	CP	%	102			75-125	Pass	
Mercury	S18-Se22866	CP	%	101			70-130	Pass	
Nickel	S18-Se22866	CP	%	95			75-125	Pass	
Zinc	S18-Se22866	CP	%	92			75-125	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S18-Se22894	CP	%	76			70-130	Pass	
TRH C10-C14	S18-Se22894	CP	%	75			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S18-Se22894	CP	%	75			70-130	Pass	
Toluene	S18-Se22894	CP	%	88			70-130	Pass	
Ethylbenzene	S18-Se22894	CP	%	104			70-130	Pass	
m&p-Xylenes	S18-Se22894	CP	%	106			70-130	Pass	
o-Xylene	S18-Se22894	CP	%	109			70-130	Pass	
Xylenes - Total	S18-Se22894	CP	%	107			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S18-Se22894	CP	%	99			70-130	Pass	
TRH C6-C10	S18-Se22894	CP	%	74			70-130	Pass	
TRH >C10-C16	S18-Se22894	CP	%	82			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
				Result 1					
Ammonia (as N)	M18-Oc24712	NCP	%	89			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S18-Se22894	CP	%	108			75-125	Pass	
Cadmium	S18-Se22894	CP	%	103			75-125	Pass	
Chromium	S18-Se22894	CP	%	110			75-125	Pass	
Copper	S18-Se22894	CP	%	110			75-125	Pass	
Lead	S18-Se22894	CP	%	110			75-125	Pass	
Mercury	S18-Se22894	CP	%	104			70-130	Pass	
Nickel	S18-Se22894	CP	%	103			75-125	Pass	
Zinc	S18-Se22894	CP	%	103			75-125	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S18-Se22898	CP	%	101			70-130	Pass	
Cadmium	S18-Se22898	CP	%	106			70-130	Pass	
Chromium	S18-Se22898	CP	%	112			70-130	Pass	
Copper	S18-Se22898	CP	%	104			70-130	Pass	
Lead	S18-Se22898	CP	%	103			70-130	Pass	
Mercury	S18-Se22898	CP	%	113			70-130	Pass	
Nickel	S18-Se22898	CP	%	105			70-130	Pass	
Zinc	S18-Se22898	CP	%	113			70-130	Pass	
Spike - % Recovery									
				Result 1					
Cyanide (total)	S18-Se22908	CP	%	14			70-130	Fail	Q08
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S18-Se22916	CP	%	103			75-125	Pass	
Cadmium	S18-Se22916	CP	%	99			75-125	Pass	
Copper	S18-Se22916	CP	%	93			75-125	Pass	
Lead	S18-Se22916	CP	%	112			75-125	Pass	
Mercury	S18-Se22916	CP	%	107			70-130	Pass	
Nickel	S18-Se22916	CP	%	115			75-125	Pass	
Zinc	S18-Se22916	CP	%	114			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	S18-Se22863	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	S18-Se22863	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S18-Se22863	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S18-Se22863	CP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S18-Se22863	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S18-Se22863	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S18-Se22863	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S18-Se22863	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S18-Se22863	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	S18-Se22863	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	

Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S18-Se22863	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S18-Se22863	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	S18-Se22863	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S18-Se22863	CP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	S18-Se22863	CP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S18-Se22863	CP	%	2.5	2.6	2.0	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S18-Se22863	CP	mg/kg	2.4	2.0	18	30%	Pass	
Cadmium	S18-Se22863	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S18-Se22863	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Copper	S18-Se22863	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Lead	S18-Se22863	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Mercury	S18-Se22863	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	S18-Se22863	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	S18-Se22863	CP	mg/kg	8.6	< 5	75	30%	Fail	Q15
Duplicate									
Acid Sulfate Soils Field pH Test				Result 1	Result 2	RPD			
pH-F (Field pH test)*	S18-Se22863	CP	pH Units	9.7	9.7	pass	30%	Pass	
Reaction Ratings*	S18-Se22863	CP	comment	4.0	4.0	pass	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S18-Se22866	CP	mg/kg	4.9	4.8	1.0	30%	Pass	
Cadmium	S18-Se22866	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S18-Se22866	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Copper	S18-Se22866	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Lead	S18-Se22866	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Mercury	S18-Se22866	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	S18-Se22866	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	S18-Se22866	CP	mg/kg	7.0	7.0	1.0	30%	Pass	
Duplicate									
Acid Sulfate Soils Field pH Test				Result 1	Result 2	RPD			
pH-F (Field pH test)*	S18-Se22873	CP	pH Units	7.9	7.9	pass	30%	Pass	
Reaction Ratings*	S18-Se22873	CP	comment	4.0	4.0	pass	30%	Pass	
Duplicate									
Acid Sulfate Soils Field pH Test				Result 1	Result 2	RPD			
pH-F (Field pH test)*	S18-Se22883	CP	pH Units	9.5	9.5	pass	30%	Pass	
Reaction Ratings*	S18-Se22883	CP	comment	2.0	2.0	pass	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S18-Se22893	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S18-Se22893	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S18-Se22893	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S18-Se22893	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S18-Se22893	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S18-Se22893	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	S18-Se22893	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S18-Se22893	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S18-Se22893	CP	mg/kg	< 20	< 20	<1	30%	Pass	

Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S18-Se22893	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S18-Se22893	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S18-Se22893	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S18-Se22893	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S18-Se22893	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	S18-Se22893	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	S18-Se22893	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S18-Se22893	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S18-Se22893	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	S18-Se22893	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S18-Se22893	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S18-Se22893	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S18-Se22893	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S18-Se22893	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S18-Se22893	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S18-Se22893	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S18-Se22893	CP	%	14	16	13	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S18-Se22893	CP	mg/kg	4.4	4.3	1.0	30%	Pass	
Cadmium	S18-Se22893	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S18-Se22893	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Copper	S18-Se22893	CP	mg/kg	8.7	7.7	13	30%	Pass	
Lead	S18-Se22893	CP	mg/kg	13	8.2	44	30%	Fail	Q15
Mercury	S18-Se22893	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	S18-Se22893	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	S18-Se22893	CP	mg/kg	83	70	18	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Ammonia (as N)	M18-Oc24712	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Cyanide (total)	M18-Se27062	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S18-Se22894	CP	mg/kg	6.0	5.8	3.0	30%	Pass	
Cadmium	S18-Se22894	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S18-Se22894	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Mercury	S18-Se22894	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	S18-Se22894	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	S18-Se22894	CP	mg/kg	83	83	1.0	30%	Pass	
Duplicate									
Acid Sulfate Soils Field pH Test				Result 1	Result 2	RPD			
pH-F (Field pH test)*	S18-Se22894	CP	pH Units	8.6	8.6	pass	30%	Pass	
Reaction Ratings*	S18-Se22894	CP	comment	2.0	2.0	pass	30%	Pass	
Duplicate									
Acid Sulfate Soils Field pH Test				Result 1	Result 2	RPD			
pH-F (Field pH test)*	S18-Se22906	CP	pH Units	9.4	9.4	pass	30%	Pass	
Reaction Ratings*	S18-Se22906	CP	comment	2.0	2.0	pass	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S18-Se22914	CP	%	22	20	6.0	30%	Pass	

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S18-Se22914	CP	mg/kg	5.3	8.1	43	30%	Fail	Q15
Cadmium	S18-Se22914	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S18-Se22914	CP	mg/kg	34	32	6.0	30%	Pass	
Copper	S18-Se22914	CP	mg/kg	24	36	42	30%	Fail	Q15
Lead	S18-Se22914	CP	mg/kg	84	93	10	30%	Pass	
Mercury	S18-Se22914	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	S18-Se22914	CP	mg/kg	< 5	6.4	45	30%	Fail	Q15
Zinc	S18-Se22914	CP	mg/kg	82	96	16	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S18-Se22916	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Cadmium	S18-Se22916	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S18-Se22916	CP	mg/kg	550	550	<1	30%	Pass	
Copper	S18-Se22916	CP	mg/kg	26	25	1.0	30%	Pass	
Lead	S18-Se22916	CP	mg/kg	11	11	1.0	30%	Pass	
Mercury	S18-Se22916	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	S18-Se22916	CP	mg/kg	11	11	1.0	30%	Pass	
Zinc	S18-Se22916	CP	mg/kg	99	98	1.0	30%	Pass	

Comments

This report has been revised (V3) to include additional QC results for Ammonia.

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.
S05	Field Screen uses the following fizz rating to classify the rate the samples reacted to the peroxide: 1.0; No reaction to slight. 2.0; Moderate reaction. 3.0; Strong reaction with persistent froth. 4.0; Extreme reaction.

Authorised By

Nibha Vaidya	Analytical Services Manager
Chris Bennett	Senior Analyst-Metal (VIC)
Harry Bacalis	Senior Analyst-Volatile (VIC)
Joseph Edouard	Senior Analyst-Organic (VIC)
Julie Kay	Senior Analyst-Inorganic (VIC)
Myles Clark	Senior Analyst-SPOCAS (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.

Certificate of Analysis

GHD Pty Ltd WOLLONGONG
Level 3, 200 Crown St
Wollongong
NSW 2500

Attention: **Iain Lindley**

Report **618151-W-V3**
Project name CONTAMINATION ASSESSMENT - EAST COAST GAS PIPELINE PROJECT PORT KEMBLA
Project ID 2127477- TASK 3J FOR CONTAMINATION
Received Date Sep 18, 2018

Client Sample ID			**DW01**
Sample Matrix			**Water**
Eurofins | mgt Sample No.			**S18-Se22920**
Date Sampled			**Sep 07, 2018**
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons - 1999 NEPM Fractions			
TRH C6-C9	0.02	mg/L	0.05
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
BTEX			
Benzene	0.001	mg/L	< 0.001
Toluene	0.001	mg/L	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002
o-Xylene	0.001	mg/L	< 0.001
Xylenes - Total	0.003	mg/L	< 0.003
4-Bromofluorobenzene (surr.)	1	%	97
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene[N02]	0.01	mg/L	< 0.01
TRH C6-C10	0.02	mg/L	0.05
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	0.05
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
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1
Polycyclic Aromatic Hydrocarbons (Trace level)			
Acenaphthene	0.00001	mg/L	< 0.00001
Acenaphthylene	0.00001	mg/L	< 0.00001
Anthracene	0.00001	mg/L	< 0.00001
Benz(a)anthracene	0.00001	mg/L	< 0.00001
Benzo(a)pyrene	0.00001	mg/L	< 0.00001
Benzo(b&j)fluoranthene	0.00001	mg/L	< 0.00001
Benzo(g.h.i)perylene	0.00001	mg/L	< 0.00001
Benzo(k)fluoranthene	0.00001	mg/L	< 0.00001
Chrysene	0.00001	mg/L	< 0.00001
Dibenz(a.h)anthracene	0.00001	mg/L	< 0.00001
Fluoranthene	0.00001	mg/L	< 0.00001
Fluorene	0.00001	mg/L	< 0.00001

Client Sample ID			DW01
Sample Matrix			**Water**
Eurofins | mgt Sample No.			**S18-Se22920**
Date Sampled			**Sep 07, 2018**
Test/Reference	LOR	Unit	
Polycyclic Aromatic Hydrocarbons (Trace level)			
Indeno(1.2.3-cd)pyrene	0.00001	mg/L	< 0.00001
Naphthalene	0.00001	mg/L	< 0.00001
Phenanthrene	0.00001	mg/L	< 0.00001
Pyrene	0.00001	mg/L	< 0.00001
Total PAH*	0.00001	mg/L	< 0.00001
2-Fluorobiphenyl (surr.)	1	%	68
p-Terphenyl-d14 (surr.)	1	%	69
pH (at 25°C)	0.1	pH Units	7.6
Heavy Metals			
Arsenic	0.001	mg/L	0.002
Cadmium	0.0002	mg/L	< 0.0002
Chromium	0.001	mg/L	0.005
Copper	0.001	mg/L	0.51
Lead	0.001	mg/L	0.001
Mercury	0.0001	mg/L	< 0.0001
Nickel	0.001	mg/L	0.008
Zinc	0.005	mg/L	0.076

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
Eurofins | mgt Suite B2			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Sep 21, 2018	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Melbourne	Sep 20, 2018	14 Day
- Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Sep 20, 2018	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Sep 21, 2018	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Metals M8	Melbourne	Sep 21, 2018	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Polycyclic Aromatic Hydrocarbons (Trace level)	Melbourne	Sep 21, 2018	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
pH (at 25°C)	Melbourne	Sep 20, 2018	0 Hours
- Method: LTM-GEN-7090 pH in water by ISE			

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Company Name: GHD Pty Ltd WOLLONGONG
Address: Level 3, 200 Crown St
Wollongong
NSW 2500

Order No.:
Report #: 618151
Phone: 02 4222 2300
Fax: 02 4222 2301

Received: Sep 18, 2018 12:58 PM
Due: Sep 25, 2018
Priority: 5 Day
Contact Name: Iain Lindley

Project Name: CONTAMINATION ASSESSMENT - EAST COAST GAS PIPELINE PROJECT PORT KEMBLA
Project ID: 2127477- TASK 3J FOR CONTAMINATION

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Ammonia (as N)	CANCELLED	Cyanide (total)	HOLD	pH (at 25°C)	Acid Sulfate Soils Field pH Test	Metals M8	Moisture Set	Eurofins | mgt Suite B7	Eurofins | mgt Suite B2	Polycyclic Aromatic Hydrocarbons (Trace level)
Melbourne Laboratory - NATA Site # 1254 & 14271						X		X		X		X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X								X	
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	GBH01 1.7-2.0	Sep 07, 2018		Soil	S18-Se22863						X		X	X		
2	GBH01 2.7-3.0	Sep 07, 2018		Soil	S18-Se22864						X					
3	GBH01 3.7-4.0	Sep 07, 2018		Soil	S18-Se22865						X					
4	GBH01 4.7-5.0	Sep 07, 2018		Soil	S18-Se22866						X		X	X		
5	GBH01 6.7-7.0	Sep 07, 2018		Soil	S18-Se22867						X					
6	GBH01 7.7-8.0	Sep 07, 2018		Soil	S18-Se22868						X		X	X		
7	QC14	Sep 07, 2018		Soil	S18-Se22869						X		X	X		
8	GBH04 2.7-3.0	Sep 06, 2018		Soil	S18-Se22870						X		X	X		
9	GBH04 3.7-4.0	Sep 06, 2018		Soil	S18-Se22871						X					

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Order No.:
Report #: 618151
Phone: 02 4222 2300
Fax: 02 4222 2301

Received: Sep 18, 2018 12:58 PM
Due: Sep 25, 2018
Priority: 5 Day
Contact Name: Iain Lindley

Project Name: CONTAMINATION ASSESSMENT - EAST COAST GAS PIPELINE PROJECT PORT KEMBLA
Project ID: 2127477- TASK 3J FOR CONTAMINATION

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Ammonia (as N)	CANCELLED	Cyanide (total)	HOLD	pH (at 25°C)	Acid Sulfate Soils Field pH Test	Metals M8	Moisture Set	Eurofins | mgt Suite B7	Eurofins | mgt Suite B2	Polycyclic Aromatic Hydrocarbons (Trace level)
Melbourne Laboratory - NATA Site # 1254 & 14271						X		X		X		X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X								X	
Brisbane Laboratory - NATA Site # 20794									X		X					
Perth Laboratory - NATA Site # 23736																
10	GBH04 4.7-5.0	Sep 06, 2018		Soil	S18-Se22872						X					
11	QC13	Sep 06, 2018		Soil	S18-Se22873						X		X	X		
12	GBH07 1.7-2.0	Sep 10, 2018		Soil	S18-Se22874						X					
13	GBH07 2.7-3.0	Sep 10, 2018		Soil	S18-Se22875						X					
14	GBH07 3.7-4.0	Sep 10, 2018		Soil	S18-Se22876						X					
15	GBH07 4.7-5.0	Sep 10, 2018		Soil	S18-Se22877						X					
16	GBH07 6.7-7.0	Sep 10, 2018		Soil	S18-Se22878						X		X	X		
17	GBH07 8.7-9.0	Sep 10, 2018		Soil	S18-Se22879						X		X	X		
18	GBH31 1.7-2.0	Sep 10, 2018		Soil	S18-Se22880						X					
19	GBH31 2.7-3.0	Sep 10, 2018		Soil	S18-Se22881						X					
20	GBH31 3.7-4.0	Sep 10, 2018		Soil	S18-Se22882						X					
21	GBH31 4.7-5.0	Sep 10, 2018		Soil	S18-Se22883						X		X	X		

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Company Name:	GHD Pty Ltd WOLLONGONG	**Order No.:**		**Received:**	Sep 18, 2018 12:58 PM
Address:	Level 3, 200 Crown St Wollongong NSW 2500	**Report #:** **Phone:** **Fax:**	618151 02 4222 2300 02 4222 2301	**Due:** **Priority:** **Contact Name:**	Sep 25, 2018 5 Day Iain Lindley
Project Name:	CONTAMINATION ASSESSMENT - EAST COAST GAS PIPELINE PROJECT PORT KEMBLA				
Project ID:	2127477- TASK 3J FOR CONTAMINATION				

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Ammonia (as N)	CANCELLED	Cyanide (total)	HOLD	pH (at 25°C)	Acid Sulfate Soils Field pH Test	Metals M8	Moisture Set	Eurofins | mgt Suite B7	Eurofins | mgt Suite B2	Polycyclic Aromatic Hydrocarbons (Trace level)
Melbourne Laboratory - NATA Site # 1254 & 14271						X		X		X		X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X								X	
Brisbane Laboratory - NATA Site # 20794									X		X					
Perth Laboratory - NATA Site # 23736																
22	QC15	Sep 10, 2018		Soil	S18-Se22884						X					
23	GBH14 1.7-2.0	Sep 10, 2018		Soil	S18-Se22885								X	X		
24	GBH14 2.7-3.0	Sep 10, 2018		Soil	S18-Se22886						X					
25	GBH14 3.7-4.0	Sep 10, 2018		Soil	S18-Se22887						X					
26	GBH14 4.7-5.0	Sep 10, 2018		Soil	S18-Se22888						X					
27	GBH20 1.7-2.0	Sep 10, 2018		Soil	S18-Se22889						X					
28	GBH20 2.7-3.0	Sep 10, 2018		Soil	S18-Se22890						X					
29	GBH20 3.7-4.0	Sep 10, 2018		Soil	S18-Se22891						X					
30	GBH20 4.7-5.0	Sep 10, 2018		Soil	S18-Se22892						X					
31	GBH20 6.7-7.0	Sep 10, 2018		Soil	S18-Se22893						X		X	X		
32	GBH20 8.7-9.0	Sep 10, 2018		Soil	S18-Se22894	X		X			X		X	X		
33	QC17	Sep 10, 2018		Soil	S18-Se22895		X									

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Received: Sep 18, 2018 12:58 PM
Due: Sep 25, 2018
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Contact Name: Iain Lindley

Project Name: CONTAMINATION ASSESSMENT - EAST COAST GAS PIPELINE PROJECT PORT KEMBLA
Project ID: 2127477- TASK 3J FOR CONTAMINATION

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Ammonia (as N)	CANCELLED	Cyanide (total)	HOLD	pH (at 25°C)	Acid Sulfate Soils Field pH Test	Metals M8	Moisture Set	Eurofins | mgt Suite B7	Eurofins | mgt Suite B2	Polycyclic Aromatic Hydrocarbons (Trace level)
Melbourne Laboratory - NATA Site # 1254 & 14271						X		X		X		X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X								X	
Brisbane Laboratory - NATA Site # 20794									X		X					
Perth Laboratory - NATA Site # 23736																
34	GBH16 1.7-2.0	Sep 12, 2018		Soil	S18-Se22896						X					
35	GBH16 2.7-3.0	Sep 12, 2018		Soil	S18-Se22897						X					
36	GBH16 3.7-4.0	Sep 12, 2018		Soil	S18-Se22898						X					
37	GBH16 4.7-5.0	Sep 12, 2018		Soil	S18-Se22899						X					
38	GBH16 5.7-6.0	Sep 12, 2018		Soil	S18-Se22900						X		X	X		
39	GBH16 9.7-10.0	Sep 12, 2018		Soil	S18-Se22901						X		X	X		
40	GBH23 0.5-0.7	Sep 11, 2018		Soil	S18-Se22902								X	X		
41	GBH23 1.7-2.0	Sep 11, 2018		Soil	S18-Se22903						X					
42	GBH23 2.7-3.0	Sep 11, 2018		Soil	S18-Se22904						X					
43	GBH23 3.7-4.0	Sep 11, 2018		Soil	S18-Se22905						X					
44	GBH23 6.7-7.0	Sep 11, 2018		Soil	S18-Se22906						X					

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Company Name: GHD Pty Ltd WOLLONGONG
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Wollongong
NSW 2500

Order No.:
Report #: 618151
Phone: 02 4222 2300
Fax: 02 4222 2301

Received: Sep 18, 2018 12:58 PM
Due: Sep 25, 2018
Priority: 5 Day
Contact Name: Iain Lindley

Project Name: CONTAMINATION ASSESSMENT - EAST COAST GAS PIPELINE PROJECT PORT KEMBLA
Project ID: 2127477- TASK 3J FOR CONTAMINATION

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Ammonia (as N)	CANCELLED	Cyanide (total)	HOLD	pH (at 25°C)	Acid Sulfate Soils Field pH Test	Metals M8	Moisture Set	Eurofins | mgt Suite B7	Eurofins | mgt Suite B2	Polycyclic Aromatic Hydrocarbons (Trace level)
Melbourne Laboratory - NATA Site # 1254 & 14271						X		X		X		X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X								X	
Brisbane Laboratory - NATA Site # 20794									X		X					
Perth Laboratory - NATA Site # 23736																
45	GBH23 8.7-9.0	Sep 11, 2018		Soil	S18-Se22907		X						X	X		
46	GBH23 9.7-10.0	Sep 11, 2018		Soil	S18-Se22908	X		X			X		X	X		
47	QC18	Sep 11, 2018		Soil	S18-Se22909	X		X			X		X	X		
48	BH17 7.5	Sep 05, 2018		Soil	S18-Se22910						X					
49	BH17 3.5	Sep 05, 2018		Soil	S18-Se22911							X	X			
50	BH17 1.5	Sep 05, 2018		Soil	S18-Se22912							X	X			
51	BH17 13.5	Sep 06, 2018		Soil	S18-Se22913						X					
52	BH21 1.3	Sep 10, 2018		Soil	S18-Se22914								X	X		
53	BH21 6.0-6.45	Sep 10, 2018		Soil	S18-Se22915						X					
54	BH16 1.0	Sep 05, 2018		Soil	S18-Se22916							X	X			
55	BH16 3.0-3.5	Sep 06, 2018		Soil	S18-Se22917								X	X		

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Company Name:	GHD Pty Ltd WOLLONGONG	**Order No.:**		**Received:**	Sep 18, 2018 12:58 PM
Address:	Level 3, 200 Crown St Wollongong NSW 2500	**Report #:** **Phone:** **Fax:**	618151 02 4222 2300 02 4222 2301	**Due:** **Priority:** **Contact Name:**	Sep 25, 2018 5 Day Iain Lindley
Project Name:	CONTAMINATION ASSESSMENT - EAST COAST GAS PIPELINE PROJECT PORT KEMBLA				
Project ID:	2127477- TASK 3J FOR CONTAMINATION				

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Ammonia (as N)	CANCELLED	Cyanide (total)	HOLD	pH (at 25°C)	Acid Sulfate Soils Field pH Test	Metals M8	Moisture Set	Eurofins | mgt Suite B7	Eurofins | mgt Suite B2	Polycyclic Aromatic Hydrocarbons (Trace level)
Melbourne Laboratory - NATA Site # 1254 & 14271						X		X		X		X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X								X	
Brisbane Laboratory - NATA Site # 20794									X		X					
Perth Laboratory - NATA Site # 23736																
56	BH21 9.0-9.12	Sep 10, 2018		Soil	S18-Se22918						X					
57	DS01	Sep 07, 2018		Soil	S18-Se22919								X	X		
58	DW01	Sep 07, 2018		Water	S18-Se22920					X		X			X	X
59	GBH01 0.6-0.8	Sep 07, 2018		Soil	S18-Se22995				X							
60	GBH04 1.5-1.7	Sep 06, 2018		Soil	S18-Se22996				X							
61	GBH07 0.5-0.7	Sep 10, 2018		Soil	S18-Se22997				X							
62	GBH31 0.8-0.9	Sep 10, 2018		Soil	S18-Se22998				X							
63	QC16	Sep 10, 2018		Soil	S18-Se22999				X							
64	GBH20 0.5-0.7	Sep 10, 2018		Soil	S18-Se23000				X							
65	GBH16 0.6-0.8	Sep 10, 2018		Soil	S18-Se23001				X							
Test Counts						3	2	3	7	1	47	4	24	21	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/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.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

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							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	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 (Trace level)							
Acenaphthene	mg/L	< 0.00001			0.00001	Pass	
Acenaphthylene	mg/L	< 0.00001			0.00001	Pass	
Anthracene	mg/L	< 0.00001			0.00001	Pass	
Benz(a)anthracene	mg/L	< 0.00001			0.00001	Pass	
Benzo(a)pyrene	mg/L	< 0.00001			0.00001	Pass	
Benzo(b&j)fluoranthene	mg/L	< 0.00001			0.00001	Pass	
Benzo(g.h.i)perylene	mg/L	< 0.00001			0.00001	Pass	
Benzo(k)fluoranthene	mg/L	< 0.00001			0.00001	Pass	
Chrysene	mg/L	< 0.00001			0.00001	Pass	
Dibenz(a.h)anthracene	mg/L	< 0.00001			0.00001	Pass	
Fluoranthene	mg/L	< 0.00001			0.00001	Pass	
Fluorene	mg/L	< 0.00001			0.00001	Pass	
Indeno(1.2.3-cd)pyrene	mg/L	< 0.00001			0.00001	Pass	
Naphthalene	mg/L	< 0.00001			0.00001	Pass	
Phenanthrene	mg/L	< 0.00001			0.00001	Pass	
Pyrene	mg/L	< 0.00001			0.00001	Pass	
Total PAH*	mg/L	< 0.00001			0.00001	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/L	< 0.001			0.001	Pass	
Cadmium	mg/L	< 0.0002			0.0002	Pass	
Chromium	mg/L	< 0.001			0.001	Pass	
Copper	mg/L	< 0.001			0.001	Pass	
Lead	mg/L	< 0.001			0.001	Pass	
Mercury	mg/L	< 0.0001			0.0001	Pass	
Nickel	mg/L	< 0.001			0.001	Pass	
Zinc	mg/L	< 0.005			0.005	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
TRH C6-C9	%	92			70-130	Pass	
TRH C10-C14	%	118			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	102			70-130	Pass	
Toluene	%	92			70-130	Pass	
Ethylbenzene	%	80			70-130	Pass	
m&p-Xylenes	%	85			70-130	Pass	
Xylenes - Total	%	87			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	91			70-130	Pass	
TRH C6-C10	%	93			70-130	Pass	
TRH >C10-C16	%	111			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons (Trace level)							
Acenaphthene	%	78			70-130	Pass	
Acenaphthylene	%	81			70-130	Pass	
Anthracene	%	77			70-130	Pass	
Benz(a)anthracene	%	125			70-130	Pass	
Benzo(a)pyrene	%	121			70-130	Pass	
Benzo(b&j)fluoranthene	%	111			70-130	Pass	
Benzo(g.h.i)perylene	%	121			70-130	Pass	
Benzo(k)fluoranthene	%	113			70-130	Pass	
Chrysene	%	120			70-130	Pass	
Dibenz(a.h)anthracene	%	107			70-130	Pass	
Fluoranthene	%	118			70-130	Pass	
Fluorene	%	75			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	119			70-130	Pass	
Naphthalene	%	85			70-130	Pass	
Phenanthrene	%	78			70-130	Pass	
Pyrene	%	116			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	106			80-120	Pass	
Cadmium	%	99			80-120	Pass	
Chromium	%	105			80-120	Pass	
Copper	%	107			80-120	Pass	
Lead	%	102			80-120	Pass	
Mercury	%	107			75-125	Pass	
Nickel	%	109			80-120	Pass	
Zinc	%	105			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	M18-Se26509	NCP	%	97			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	M18-Se26509	NCP	%	91			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons (Trace level)				Result 1					
Acenaphthene	M18-Se19126	NCP	%	114			70-130	Pass	
Acenaphthylene	M18-Se19126	NCP	%	121			70-130	Pass	
Anthracene	M18-Se19126	NCP	%	128			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Benz(a)anthracene	M18-Se19126	NCP	%	105			70-130	Pass	
Benzo(a)pyrene	M18-Se19126	NCP	%	107			70-130	Pass	
Benzo(b&j)fluoranthene	M18-Se19126	NCP	%	109			70-130	Pass	
Benzo(g.h.i)perylene	M18-Se19126	NCP	%	84			70-130	Pass	
Benzo(k)fluoranthene	M18-Se19126	NCP	%	107			70-130	Pass	
Chrysene	M18-Se19126	NCP	%	103			70-130	Pass	
Dibenz(a.h)anthracene	M18-Se19126	NCP	%	94			70-130	Pass	
Fluoranthene	M18-Se19126	NCP	%	98			70-130	Pass	
Fluorene	M18-Se19126	NCP	%	117			70-130	Pass	
Indeno(1.2.3-cd)pyrene	M18-Se19126	NCP	%	99			70-130	Pass	
Naphthalene	M18-Se19126	NCP	%	103			70-130	Pass	
Phenanthrene	M18-Se19126	NCP	%	116			70-130	Pass	
Pyrene	M18-Se19126	NCP	%	101			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	M18-Se27518	NCP	%	102			75-125	Pass	
Cadmium	M18-Se27518	NCP	%	91			75-125	Pass	
Chromium	M18-Se27518	NCP	%	98			75-125	Pass	
Copper	M18-Se27518	NCP	%	103			75-125	Pass	
Lead	M18-Se27518	NCP	%	97			75-125	Pass	
Mercury	M18-Se27518	NCP	%	109			70-130	Pass	
Nickel	M18-Se27518	NCP	%	104			75-125	Pass	
Zinc	M18-Se27518	NCP	%	98			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	B18-Se24647	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH C10-C14	M18-Se26508	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH C15-C28	M18-Se26508	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36	M18-Se26508	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	B18-Se24647	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	B18-Se24647	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	B18-Se24647	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	B18-Se24647	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	B18-Se24647	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total	B18-Se24647	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	B18-Se24647	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
TRH C6-C10	B18-Se24647	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH >C10-C16	M18-Se26508	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH >C16-C34	M18-Se26508	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH >C34-C40	M18-Se26508	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons (Trace level)				Result 1	Result 2	RPD			
Acenaphthene	M18-Se19125	NCP	mg/L	< 0.00001	< 0.00001	<1	30%	Pass	
Acenaphthylene	M18-Se19125	NCP	mg/L	< 0.00001	< 0.00001	<1	30%	Pass	
Anthracene	M18-Se19125	NCP	mg/L	< 0.00001	< 0.00001	<1	30%	Pass	
Benz(a)anthracene	M18-Se19125	NCP	mg/L	< 0.00001	< 0.00001	<1	30%	Pass	
Benzo(a)pyrene	M18-Se19125	NCP	mg/L	< 0.00001	< 0.00001	<1	30%	Pass	
Benzo(b&j)fluoranthene	M18-Se19125	NCP	mg/L	< 0.00001	< 0.00001	<1	30%	Pass	
Benzo(g.h.i)perylene	M18-Se19125	NCP	mg/L	< 0.00001	< 0.00001	<1	30%	Pass	

Duplicate									
Polycyclic Aromatic Hydrocarbons (Trace level)				Result 1	Result 2	RPD			
Benzo(k)fluoranthene	M18-Se19125	NCP	mg/L	< 0.00001	< 0.00001	<1	30%	Pass	
Chrysene	M18-Se19125	NCP	mg/L	< 0.00001	< 0.00001	<1	30%	Pass	
Dibenz(a.h)anthracene	M18-Se19125	NCP	mg/L	< 0.00001	< 0.00001	<1	30%	Pass	
Fluoranthene	M18-Se19125	NCP	mg/L	< 0.00001	< 0.00001	<1	30%	Pass	
Fluorene	M18-Se19125	NCP	mg/L	< 0.00001	< 0.00001	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	M18-Se19125	NCP	mg/L	< 0.00001	< 0.00001	<1	30%	Pass	
Naphthalene	M18-Se19125	NCP	mg/L	< 0.00001	< 0.00001	<1	30%	Pass	
Phenanthrene	M18-Se19125	NCP	mg/L	< 0.00001	< 0.00001	<1	30%	Pass	
Pyrene	M18-Se19125	NCP	mg/L	< 0.00001	< 0.00001	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
pH (at 25°C)	M18-Se24669	NCP	pH Units	7.2	7.2	pass	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M18-Se27518	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cadmium	M18-Se27518	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium	M18-Se27518	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper	M18-Se27518	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Lead	M18-Se27518	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Mercury	M18-Se27518	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel	M18-Se27518	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Zinc	M18-Se27518	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	

Comments

This report has been revised (V3) to include additional QC results for Ammonia.

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.

Authorised By

Nibha Vaidya	Analytical Services Manager
Chris Bennett	Senior Analyst-Metal (VIC)
Harry Bacalis	Senior Analyst-Volatile (VIC)
Joseph Edouard	Senior Analyst-Organic (VIC)
Julie Kay	Senior Analyst-Inorganic (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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NATA # 1261 Site # 23736

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Sample Receipt Advice

Company name:	**GHD Pty Ltd WOLLONGONG**
Contact name:	Iain Lindley
Project name:	CONTAMINATION ASSESSMENT - EAST COAST GAS PIPELINE PROJECT
Project ID:	21277 PORT KEMBLA TASK 3J FOR CONTAMINATION
COC number:	Not provided
Turn around time:	5 Day
Date/Time received:	Sep 18, 2018 12:58 PM
Eurofins | mgt reference:	**618151**

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).

Notes

Triplicate samples sent to ALS for analysis. Asbestos bags for the following samples not received: GBH07 8.7-9.0, GBH16 9.7-10.0, GBH23 8.7-9.0, GBH23 9.7-10.0. ASSpH bags for QC17 & GBH23 8.7-9.0 not received; analysis cancelled.

Contact notes

If you have any questions with respect to these samples please contact:

Nibha Vaidya on Phone : +61 (2) 9900 8415 or by e.mail: NibhaVaidya@eurofins.com

Results will be delivered electronically via e.mail to Iain Lindley - iain.lindley@ghd.com.

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CHAIN OF CUSTODY RECORD

CLIENT DETAILS

Company Name : GHD Pty Ltd	Contact Name: Iain Lindley 0459 353 385	Purchase Order :	COC Number :
Office Address : Level 11, 200 Crown Street	Project Manager : Colee Quayle 0403 242 431	PROJECT Number : 2127477 - Task 3J for Contamination	Eurofins | mgt quote ID :
Wollongong, NSW 2500	Email for results : colee.quayle@ghd.com	PROJECT Name : Contamination Assessment - East Coast Gas Pipeline Project, Port Kembla	Data output format: ESDAT

Special Directions & Comments :

Eurofins | mgt DI water batch number:

Analytes

	Sample ID	Depth (m)	Date	Matrix	B7: TRH, BTEX, PAH, Metals (8)	B15 : OCP, OPP, PCB	TCLP for PAH and heavy metals	Asbestos ID	BTEX	TPH C6-C9, BTEX	pH field screen (ph f and pH fox)	TBT	Dioxins	Cyanide	Ammonia	VOCs	pH									Hold
1	GBH01	0.6-0.8	7/09/2018	S																						x
2	GBH01	1.7-2.0	7/09/2018	S	x						x															
3	GBH01	2.7-3.0	7/09/2018	S							x															
4	GBH01	3.7-4.0	7/09/2018	S							x															
5	GBH01	4.7-5.0	7/09/2018	S	x						x															
6	GBH01	6.7-7.0	7/09/2018	S							x															
7	GBH01	7.7-8.0	7/09/2018	S	x						x															
8	QC14	-	7/09/2018	S	x						x															
9	QC14a	-	7/09/2018	S	x																					
10	GBH04	1.5-1.7	6/09/2018	S																						x
11	GBH04	2.7-3.0	6/09/2018	S	x						x															
12	GBH04	3.7-4.0	6/09/2018	S							x															
13	GBH04	4.7-5.0	6/09/2018	S							x															
14	QC13	-	6/09/2018	S	x						x															
15	QC13a	-	6/09/2018	S	x																					
16	GBH07	0.5-0.7	10/09/2018	S																						x

Some common holding times (with correct preservation). For further information contact the lab

Wators		Soils	
BTEX, MAH, VOC	14 days	BTEX, MAH, VOC	14 days
TRH, PAH, Phenols, Pesticides	7 days	TRH, PAH, Phenols, Pesticides	14 days
Heavy Metals	6 months	Heavy Metals	6 months
Mercury, CrVI	28 days	Mercury, CrVI	28 days
Microbiological testing	24 hours	Microbiological testing	72 hours
BOD, Nitrate, Nitrite, Total N	2 days	Anions	28 days
Solids - TSS, TDS etc	7 days	SPOCAS, pH Field and FOX, CrS	24 hours
Ferrous iron	7 days	ASLP, TCLP	7 days

	Containers:								Sample comments:
	Jar	Zip lock	ASS	Amber 1L	Plastic				
1	X	X	X						
2	X	X	X						
3	X	X	X						
4	X	X	X						
5	X	X	X						
6	X	X	X						
7	X	X	X						
8	X		X						
9	X		X						Send to ALS
10	X	X	X						
11	X	X	X						
12	X	X	X						
13	X	X	X						
14	X		X						
15	X		X						Send to ALS
16	X	X	X						

GHD Staff	Courier	Laboratory Staff	Turn around time	Method Of Shipment	Temperature on arrival:
Relinquished By: Jarrad Mawbey	Received By:	Received By: UHONG	1 DAY ☐ 2 DAY ☐ 3 DAY ☑	☐ Courier ☐ Hand Delivered ☐ Postal	6.1 °C
Date & Time 13/9/2018	Date & Time:	Date & Time: 18/9 12:58pm	5 DAY ☐ 10 DAY ☐ Other:	Courier Consignment # :	Report number: 618151 618306
Signature: J. Mawbey	Signature:	Signature:			

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CHAIN OF CUSTODY RECORD

CLIENT DETAILS

Company Name : GHD Pty Ltd	Contact Name: Iain Lindley 0459 353 385	Purchase Order :	COC Number :
Office Address : Level 11, 200 Crown Street	Project Manager : Colee Quayle 0403 242 431	PROJECT Number : 2127477 - Task 3J for Contamination	Eurofins | mgt quote ID :
Wollongong, NSW 2500	Email for results : colee.quayle@ghd.com	PROJECT Name : Contamination Assessment - East Coast Gas Pipeline Project, Port Kembla	Data output format: ESDAT

Special Directions & Comments :

Eurofins | mgt DI water batch number:

Some common holding times (with correct preservation). For further information contact the lab

Waters		Soils	
BTEX, MAH, VOC	14 days	BTEX, MAH, VOC	14 days
TRH, PAH, Phenols, Pesticides	7 days	TRH, PAH, Phenols, Pesticides	14 days
Heavy Metals	6 months	Heavy Metals	6 months
Mercury, CrVI	28 days	Mercury, CrVI	28 days
Microbiological testing	24 hours	Microbiological testing	72 hours
BOD, Nitrate, Nitrite, Total N	2 days	Anions	28 days
Solids - TSS, TDS etc	7 days	SPOCAS, pH Field and FOX, CrS	24 hours
Ferrous iron	7 days	ASLP, TCLP	7 days

Analytes

	Sample ID	Depth (m)	Date	Matrix	B7: TRH, BTEX, PAH, Metals (8)	B15 : OCP, OPP, PCB	TCLP for PAH and heavy metals	Asbestos ID	BTEX	TPH C6-C9, BTEX	pH field screen (ph f and pH fox)	TBT	Dioxins	Cyanide	Ammonia	VOCs	pH	Hold	Containers: Jar	Zip lock	ASS	Amber 1L	Plastic	Sample comments:
1	GBH07	1.7-2.0	10/09/2018	S							x								X	X	X			
2	GBH07	2.7-3.0	10/09/2018	S							x								X	X	X			
3	GBH07	3.7-4.0	10/09/2018	S							x								X	X	X			
4	GBH07	4.7-5.0	10/09/2018	S							x								X	X	X			
5	GBH07	6.7-7.0	10/09/2018	S	x						x								X	X	X			
6	GBH07	8.7-9.0	10/09/2018	S	x						x								X	X	X			
7	GBH31	0.8-0.9	10/09/2018	S														x	X	X	X			
8	GBH31	1.7-2.0	10/09/2018	S							x								X	X	X			
9	GBH31	2.7-3.0	10/09/2018	S							x								X	X	X			
10	GBH31	3.7-4.0	10/09/2018	S							x								X	X	X			
11	GBH31	4.7-5.0	10/09/2018	S	x						x								X	X	X			
12	QC15	-	10/09/2018	S							x								X		X			
13	QC15a	-	10/09/2018	S														x	X		X			
14	GBH14	1.7-2.0	10/09/2018	S	x														X	X	X			
15	GBH14	2.7-3.0	10/09/2018	S							x								X	X	X			
16	GBH14	3.7-4.0	10/09/2018	S							x								X	X	X			

GHD Staff	Courier	Laboratory Staff	Turn around time	Method Of Shipment	Temperature on arrival:
Relinquished By: Jarrad Mawbey	Received By:	Received By: WONG	1 DAY ☐ 2 DAY ☐ 3 DAY ☑	☐ Courier ☐ Hand Delivered ☐ Postal	6.1°C
Date & Time 13/9/2018	Date & Time:	Date & Time: 18/9 12-58pm	5 DAY ☐ 10 DAY ☐ Other:	Courier Consignment # :	Report number: 618157
Signature: J. Mawbey	Signature:	Signature:			

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CHAIN OF CUSTODY RECORD

CLIENT DETAILS

Company Name : GHD Pty Ltd	Contact Name: Iain Lindley 0459 353 385	Purchase Order :	COC Number :
Office Address : Level 11, 200 Crown Street	Project Manager : Colee Quayle 0403 242 431	PROJECT Number : 2127477 - Task 3J for Contamination	Eurofins | mgt quote ID :
Wollongong, NSW 2500	Email for results : colee.quayle@ghd.com	PROJECT Name : Contamination Assessment - East Coast Gas Pipeline Project, Port Kembla	Data output format: ESDAT

Special Directions & Comments :

Eurofins | mgt DI water batch number:

Some common holding times (with correct preservation). For further information contact the lab

Waters		Soils	
BTEX, MAH, VOC	14 days	BTEX, MAH, VOC	14 days
TRH, PAH, Phenols, Pesticides	7 days	TRH, PAH, Phenols, Pesticides	14 days
Heavy Metals	6 months	Heavy Metals	6 months
Mercury, CrVI	28 days	Mercury, CrVI	28 days
Microbiological testing	24 hours	Microbiological testing	72 hours
BOD, Nitrate, Nitrite, Total N	2 days	Anions	28 days
Solids - TSS, TDS etc	7 days	SPOCAS, pH Field and FOX, CrS	24 hours
Ferrous iron	7 days	ASLP, TCLP	7 days

	Sample ID	Depth (m)	Date	Matrix	B7: TRH, BTEX, PAH, Metals (8)	B15 : OCP, OPP, PCB	TCLP for PAH and heavy metals	Asbestos ID	BTEX	TPH C6-C9, BTEX	pH field screen (ph f and pH fox)	TBT	Dioxins	Cyanide	Ammonia	VOCs	pH	Hold	Containers: Jar	Zip lock	ASS	Amber 1L	Plastic	Sample comments:
1	GBH14	4.7-5.0	10/09/2018	S							x								X	X	X			
2	QC16	-	10/09/2018	S														x	X		X			
3	GBH20	0.5-0.7	10/09/2018	S														x	X	X	X			
4	GBH20	1.7-2.0	10/09/2018	S							x								X	X	X			
5	GBH20	2.7-3.0	10/09/2018	S							x								X	X	X			
6	GBH20	3.7-4.0	10/09/2018	S							x								X	X	X			
7	GBH20	4.7-5.0	10/09/2018	S							x								X	X	X			
8	GBH20	6.7-7.0	10/09/2018	S	x						x								X	X	X			
9	GBH20	8.7-9.0	10/09/2018	S	x						x	x		x	x				X	X	X			
10	QC17	-	10/09/2018	S							x								X		X			
11	GBH16	0.6-0.8	12/09/2018	S														x	X	X	X			
12	GBH16	1.7-2.0	12/09/2018	S							x								X	X	X			
13	GBH16	2.7-3.0	12/09/2018	S							x								X	X	X			
14	GBH16	3.7-4.0	12/09/2018	S							x								X	X	X			
15	GBH16	4.7-5.0	12/09/2018	S							x								X	X	X			
16	GBH16	5.7-6.0	12/09/2018	S	x						x								X	X	X			

GHD Staff	Courier	Laboratory Staff	Turn around time	Method Of Shipment	Temperature on arrival:
Relinquished By: Jarrad Mawbey	Received By:	Received By: [illegible]	1 DAY ☐ 2 DAY ☐ 3 DAY ☑	☐ Courier ☐ Hand Delivered ☐ Postal	6.1 °C
Date & Time 13/9/2018	Date & Time:	Date & Time: 18/9 12.58pm	5 DAY ☐ 10 DAY ☐ Other:	Courier Consignment # :	Report number: 618151
Signature: J. Mawbey	Signature:	Signature:			

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CHAIN OF CUSTODY RECORD

CLIENT DETAILS

Company Name : GHD Pty Ltd	Contact Name: Iain Lindley 0459 353 385	Purchase Order :	COC Number :
Office Address : Level 11, 200 Crown Street	Project Manager : Colee Quayle 0403 242 431	PROJECT Number : 2127477 - Task 3J for Contamination	Eurofins | mgt quote ID :
Wollongong, NSW 2500	Email for results : colee.quayle@ghd.com	PROJECT Name : Contamination Assessment - East Coast Gas Pipeline Project, Port Kembla	Data output format: ESDAT

Special Directions & Comments :

Eurofins | mgt DI water batch number:

	Sample ID	Depth (m)	Date	Matrix	B7: TRH, BTEX, PAH, Metals (8)	B15 : OCP, OPP, PCB	TCLP for PAH and heavy metals	Asbestos ID	BTEX	TPH C6-C9, BTEX	pH field screen (ph f and pH fox)	TBT	Dioxins	Cyanide	Ammonia	VOCs	pH	Metals (M8)	Hold
1	GBH16	9.7-10.0	12/09/2018	S	x						x								
2	GBH23	0.5-0.7	11/09/2018	S	x														
3	GBH23	1.7-2.0	11/09/2018	S							x								
4	GBH23	2.7-3.0	11/09/2018	S							x								
5	GBH23	3.7-4.0	11/09/2018	S							x								
6	GBH23	6.7-7.0	11/09/2018	S							x								
7	GBH23	8.7-9.0	11/09/2018	S	x						x								
8	GBH23	9.7-10.0	11/09/2018	S	x						x	x		x	x				
9	QC18	-	11/09/2018	S	x						x	x		x	x				
10	QC18a	-	11/09/2018	S	x														
11	BH17	7.5	6/09/2018	S							x								
12	BH17	3.5	5/09/2018	S														x	
13	BH17	1.5	5/09/2018	S														x	
14	BH17	13.5	6/09/2018	S							x								
15	BH21	1.3	10/09/2018	S	x														
16	BH21	6.0-6.45	10/09/2018	S							x								

Some common holding times (with correct preservation). For further information contact the lab

Waters		Soils	
BTEX, MAH, VOC	14 days	BTEX, MAH, VOC	14 days
TRH, PAH, Phenols, Pesticides	7 days	TRH, PAH, Phenols, Pesticides	14 days
Heavy Metals	6 months	Heavy Metals	6 months
Mercury, CrVI	28 days	Mercury, CrVI	28 days
Microbiological testing	24 hours	Microbiological testing	72 hours
BOD, Nitrate, Nitrite, Total N	2 days	Anions	28 days
Solids - TSS, TDS etc	7 days	SPOCAS, pH Field and FOX, CrS	24 hours
Ferrous iron	7 days	ASLP, TCLP	7 days

	Containers:								Sample comments:
	Jar	Zip lock	ASS	Amber 1L	Plastic				
1	X	X	X						
2	X	X	X						
3	X	X	X						
4	X	X	X						
5	X	X	X						
6	X	X	X						
7	X	X	X						
8	X	X	X						
9	X		X						
10	X		X						Send to ALS
11			X						
12	X								
13	X								
14			X						
15	X								
16			X						

GHD Staff	Courier	Laboratory Staff	Turn around time	Method Of Shipment	Temperature on arrival:
Relinquished By: Jarrad Mawbey	Received By:	Received By:	1 DAY ☐ 2 DAY ☐ 3 DAY ☑	☐ Courier ☐ Hand Delivered ☐ Postal	6.1°C
Date & Time 13/9/2018	Date & Time:	Date & Time: 18/9 12:58pm	5 DAY ☐ 10 DAY ☐ Other:	Courier Consignment # :	Report number: 618151
Signature: J. Mawbey	Signature:	Signature:			

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CHAIN OF CUSTODY RECORD

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Office Address: Level 11, 200 Crown Street	Project Manager: Colee Quayle 0403 242 431	PROJECT Number: 2127477 - Task 3J for Contamination	Eurofins | mgt quote ID:
Wollongong, NSW 2500	Email for results: colee.quayle@ghd.com	PROJECT Name: Contamination Assessment - East Coast Gas Pipeline Project, Port Kembla	Data output format: ESDAT

Special Directions & Comments:
Ultratrace PAH LOR 0.01 ug/L

Eurofins | mgt DI water batch number:

	Sample ID	Depth (m)	Date	Matrix	B7: TRH, BTEX, PAH, Metals (8)	B15 : OCP, OPP, PCB	TCLP for PAH and heavy metals	Asbestos ID	BTEX	TPH C6-C9, BTEX	pH field screen (ph f and pH fox)	TBT	Dioxins	Cyanide	Ammonia	VOCs	pH	Metals (M8)	B2: TRH, BTEX, Metals (8)	Ultratrace PAH						Hold
1	BH16	1.0	5/09/2018	S														x								
2	BH16	3.0-3.5	6/09/2018	S	x																					
3	BH21	9.0-9.12	10/09/2018	S							x															
4	DS01	-	7/09/2018	S	x																					
5	DW01	-	7/09/2018	W													x		x	x						
6																										
7																										
8																										
9																										
10																										
11																										
12																										
13																										
14																										
15																										
16																										

Some common holding times (with correct preservation). For further information contact the lab

Waters		Soils	
BTEX, MAH, VOC	14 days	BTEX, MAH, VOC	14 days
TRH, PAH, Phenols, Pesticides	7 days	TRH, PAH, Phenols, Pesticides	14 days
Heavy Metals	6 months	Heavy Metals	6 months
Mercury, CrVI	28 days	Mercury, CrVI	28 days
Microbiological testing	24 hours	Microbiological testing	72 hours
BOD, Nitrate, Nitrite, Total N	2 days	Anions	28 days
Solids - TSS, TDS etc	7 days	SPOCAS, pH Field and FOX, CrS	24 hours
Ferrous iron	7 days	ASLP, TCLP	7 days

Containers:

	Jar	Zip lock	ASS	Amber 1L	Plastic	Vials	Metals		Sample comments:
1	X								
2	X								
3			X						
4	X	X	X						
5				X	X	X	X		
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									

GHD Staff	Courier	Laboratory Staff	Turn around time	Method Of Shipment	Temperature on arrival:
Relinquished By: Jarrad Mawbey	Received By:	Received By:	1 DAY ☐ 2 DAY ☐ 3 DAY ☑	☐ Courier ☐ Hand Delivered ☐ Postal	6.1°C
Date & Time 13/9/2018	Date & Time:	Date & Time: 18/9 12.58pm	5 DAY ☐ 10 DAY ☐ Other:	Courier Consignment #:	Report number: 618151
Signature: J. Mawbey	Signature:	Signature:			

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NATA # 1261 Site # 18217

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Company Name: GHD Pty Ltd WOLLONGONG
Address: Level 3, 200 Crown St
Wollongong
NSW 2500

Order No.:
Report #: 618151
Phone: 02 4222 2300
Fax: 02 4222 2301

Received: Sep 18, 2018 12:58 PM
Due: Sep 25, 2018
Priority: 5 Day
Contact Name: Iain Lindley

Project Name: CONTAMINATION ASSESSMENT - EAST COAST GAS PIPELINE PROJECT PORT KEMBLA
Project ID: 2127477- TASK 3J FOR CONTAMINATION

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Ammonia (as N)	CANCELLED	Cyanide (total)	HOLD	pH (at 25°C)	Acid Sulfate Soils Field pH Test	Metals M8	Moisture Set	Eurofins | mgt Suite B7	Eurofins | mgt Suite B2	Polycyclic Aromatic Hydrocarbons (Trace level)
Melbourne Laboratory - NATA Site # 1254 & 14271						X		X		X		X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X								X	
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	GBH01 1.7-2.0	Sep 07, 2018		Soil	S18-Se22863						X		X	X		
2	GBH01 2.7-3.0	Sep 07, 2018		Soil	S18-Se22864						X					
3	GBH01 3.7-4.0	Sep 07, 2018		Soil	S18-Se22865						X					
4	GBH01 4.7-5.0	Sep 07, 2018		Soil	S18-Se22866						X		X	X		
5	GBH01 6.7-7.0	Sep 07, 2018		Soil	S18-Se22867						X					
6	GBH01 7.7-8.0	Sep 07, 2018		Soil	S18-Se22868						X		X	X		
7	QC14	Sep 07, 2018		Soil	S18-Se22869						X		X	X		
8	GBH04 2.7-3.0	Sep 06, 2018		Soil	S18-Se22870						X		X	X		
9	GBH04 3.7-4.0	Sep 06, 2018		Soil	S18-Se22871						X					

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Eurofins | mgt Analytical Services Manager : Nibha Vaidya

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Melbourne Laboratory - NATA Site # 1254 & 14271						X		X		X		X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X								X	
Brisbane Laboratory - NATA Site # 20794									X		X					
Perth Laboratory - NATA Site # 23736																
10	GBH04 4.7-5.0	Sep 06, 2018		Soil	S18-Se22872						X					
11	QC13	Sep 06, 2018		Soil	S18-Se22873						X		X	X		
12	GBH07 1.7-2.0	Sep 10, 2018		Soil	S18-Se22874						X					
13	GBH07 2.7-3.0	Sep 10, 2018		Soil	S18-Se22875						X					
14	GBH07 3.7-4.0	Sep 10, 2018		Soil	S18-Se22876						X					
15	GBH07 4.7-5.0	Sep 10, 2018		Soil	S18-Se22877						X					
16	GBH07 6.7-7.0	Sep 10, 2018		Soil	S18-Se22878						X		X	X		
17	GBH07 8.7-9.0	Sep 10, 2018		Soil	S18-Se22879						X		X	X		
18	GBH31 1.7-2.0	Sep 10, 2018		Soil	S18-Se22880						X					
19	GBH31 2.7-3.0	Sep 10, 2018		Soil	S18-Se22881						X					
20	GBH31 3.7-4.0	Sep 10, 2018		Soil	S18-Se22882						X					
21	GBH31 4.7-5.0	Sep 10, 2018		Soil	S18-Se22883						X		X	X		

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Project Name:	CONTAMINATION ASSESSMENT - EAST COAST GAS PIPELINE PROJECT PORT KEMBLA				
Project ID:	2127477- TASK 3J FOR CONTAMINATION				

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Ammonia (as N)	CANCELLED	Cyanide (total)	HOLD	pH (at 25°C)	Acid Sulfate Soils Field pH Test	Metals M8	Moisture Set	Eurofins | mgt Suite B7	Eurofins | mgt Suite B2	Polycyclic Aromatic Hydrocarbons (Trace level)
Melbourne Laboratory - NATA Site # 1254 & 14271						X		X		X		X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X								X	
Brisbane Laboratory - NATA Site # 20794									X		X					
Perth Laboratory - NATA Site # 23736																
22	QC15	Sep 10, 2018		Soil	S18-Se22884						X					
23	GBH14 1.7-2.0	Sep 10, 2018		Soil	S18-Se22885								X	X		
24	GBH14 2.7-3.0	Sep 10, 2018		Soil	S18-Se22886						X					
25	GBH14 3.7-4.0	Sep 10, 2018		Soil	S18-Se22887						X					
26	GBH14 4.7-5.0	Sep 10, 2018		Soil	S18-Se22888						X					
27	GBH20 1.7-2.0	Sep 10, 2018		Soil	S18-Se22889						X					
28	GBH20 2.7-3.0	Sep 10, 2018		Soil	S18-Se22890						X					
29	GBH20 3.7-4.0	Sep 10, 2018		Soil	S18-Se22891						X					
30	GBH20 4.7-5.0	Sep 10, 2018		Soil	S18-Se22892						X					
31	GBH20 6.7-7.0	Sep 10, 2018		Soil	S18-Se22893						X		X	X		
32	GBH20 8.7-9.0	Sep 10, 2018		Soil	S18-Se22894	X		X			X		X	X		
33	QC17	Sep 10, 2018		Soil	S18-Se22895		X									

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Melbourne Laboratory - NATA Site # 1254 & 14271						X		X		X		X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X								X	
Brisbane Laboratory - NATA Site # 20794									X		X					
Perth Laboratory - NATA Site # 23736																
34	GBH16 1.7-2.0	Sep 12, 2018		Soil	S18-Se22896						X					
35	GBH16 2.7-3.0	Sep 12, 2018		Soil	S18-Se22897						X					
36	GBH16 3.7-4.0	Sep 12, 2018		Soil	S18-Se22898						X					
37	GBH16 4.7-5.0	Sep 12, 2018		Soil	S18-Se22899						X					
38	GBH16 5.7-6.0	Sep 12, 2018		Soil	S18-Se22900						X		X	X		
39	GBH16 9.7-10.0	Sep 12, 2018		Soil	S18-Se22901						X		X	X		
40	GBH23 0.5-0.7	Sep 11, 2018		Soil	S18-Se22902								X	X		
41	GBH23 1.7-2.0	Sep 11, 2018		Soil	S18-Se22903						X					
42	GBH23 2.7-3.0	Sep 11, 2018		Soil	S18-Se22904						X					
43	GBH23 3.7-4.0	Sep 11, 2018		Soil	S18-Se22905						X					
44	GBH23 6.7-7.0	Sep 11, 2018		Soil	S18-Se22906						X					

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Melbourne Laboratory - NATA Site # 1254 & 14271						X		X		X		X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X								X	
Brisbane Laboratory - NATA Site # 20794									X		X					
Perth Laboratory - NATA Site # 23736																
45	GBH23 8.7-9.0	Sep 11, 2018		Soil	S18-Se22907		X						X	X		
46	GBH23 9.7-10.0	Sep 11, 2018		Soil	S18-Se22908	X		X			X		X	X		
47	QC18	Sep 11, 2018		Soil	S18-Se22909	X		X			X		X	X		
48	BH17 7.5	Sep 05, 2018		Soil	S18-Se22910						X					
49	BH17 3.5	Sep 05, 2018		Soil	S18-Se22911							X	X			
50	BH17 1.5	Sep 05, 2018		Soil	S18-Se22912							X	X			
51	BH17 13.5	Sep 06, 2018		Soil	S18-Se22913						X					
52	BH21 1.3	Sep 10, 2018		Soil	S18-Se22914								X	X		
53	BH21 6.0-6.45	Sep 10, 2018		Soil	S18-Se22915						X					
54	BH16 1.0	Sep 05, 2018		Soil	S18-Se22916							X	X			
55	BH16 3.0-3.5	Sep 06, 2018		Soil	S18-Se22917								X	X		

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Melbourne Laboratory - NATA Site # 1254 & 14271						X		X		X		X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X								X	
Brisbane Laboratory - NATA Site # 20794									X		X					
Perth Laboratory - NATA Site # 23736																
56	BH21 9.0-9.12	Sep 10, 2018		Soil	S18-Se22918						X					
57	DS01	Sep 07, 2018		Soil	S18-Se22919								X	X		
58	DW01	Sep 07, 2018		Water	S18-Se22920					X		X			X	X
59	GBH01 0.6-0.8	Sep 07, 2018		Soil	S18-Se22995				X							
60	GBH04 1.5-1.7	Sep 06, 2018		Soil	S18-Se22996				X							
61	GBH07 0.5-0.7	Sep 10, 2018		Soil	S18-Se22997				X							
62	GBH31 0.8-0.9	Sep 10, 2018		Soil	S18-Se22998				X							
63	QC16	Sep 10, 2018		Soil	S18-Se22999				X							
64	GBH20 0.5-0.7	Sep 10, 2018		Soil	S18-Se23000				X							
65	GBH16 0.6-0.8	Sep 10, 2018		Soil	S18-Se23001				X							
Test Counts						3	2	3	7	1	47	4	24	21	1	1

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Celebrating 30 years Testing and Protecting Human Health

Certificate of Analysis

GHD Pty Ltd WOLLONGONG
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NATA Accredited
Accreditation Number 1261
Site Number 18217

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: **Iain Lindley**

Report **622247-S**
Project name CONTAMINATION ASSESSMENT-EAST COAST GAS PIPELINE PROJECT-PORT KEMBLA
Project ID 2127477-TASK 3J FOR CONTAMINATION
Received Date Oct 11, 2018

Client Sample ID			**BH23 6.0-6.45**	**BH23 9.00-9.45**	**BH22 6.0-6.45**	**BH22 7.5-7.95**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S18-Oc14834**	**S18-Oc14836**	**S18-Oc14837**	**S18-Oc14838**
Date Sampled			**Oct 05, 2018**	**Oct 05, 2018**	**Oct 08, 2018**	**Oct 08, 2018**
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	8.7	8.3	5.0	5.6
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	8.4	8.1	4.0	4.5
Reaction Ratings*[S05]		comment	4.0	4.0	4.0	4.0

Client Sample ID			**BH22 1.0**
Sample Matrix			**Soil**
Eurofins | mgt Sample No.			**S18-Oc14839**
Date Sampled			**Oct 08, 2018**
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons - 1999 NEPM Fractions			
TRH C6-C9	20	mg/kg	< 20
TRH C10-C14	20	mg/kg	22
TRH C15-C28	50	mg/kg	71
TRH C29-C36	50	mg/kg	< 50
TRH C10-36 (Total)	50	mg/kg	93
BTEX			
Benzene	0.1	mg/kg	< 0.1
Toluene	0.1	mg/kg	0.2
Ethylbenzene	0.1	mg/kg	< 0.1
m&p-Xylenes	0.2	mg/kg	0.2
o-Xylene	0.1	mg/kg	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3
4-Bromofluorobenzene (surr.)	1	%	81
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene[N02]	0.5	mg/kg	< 0.5
TRH C6-C10	20	mg/kg	< 20
TRH C6-C10 less BTEX (F1)[N04]	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
TRH >C10-C40 (total)*	100	mg/kg	< 100

Client Sample ID			BH22 1.0
Sample Matrix			Soil
Eurofins | mgt Sample No.			S18-Oc14839
Date Sampled			Oct 08, 2018
Test/Reference	LOR	Unit	
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
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5
Naphthalene	0.5	mg/kg	< 0.5
Phenanthrene	0.5	mg/kg	0.6
Pyrene	0.5	mg/kg	< 0.5
Total PAH*	0.5	mg/kg	0.6
2-Fluorobiphenyl (surr.)	1	%	89
p-Terphenyl-d14 (surr.)	1	%	79
Heavy Metals			
Arsenic	2	mg/kg	2.9
Cadmium	0.4	mg/kg	< 0.4
Chromium	5	mg/kg	8.8
Copper	5	mg/kg	21
Lead	5	mg/kg	18
Mercury	0.1	mg/kg	< 0.1
Nickel	5	mg/kg	5.3
Zinc	5	mg/kg	55
% Moisture	1	%	6.4

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
Eurofins | mgt Suite B7			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Oct 16, 2018	14 Day
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Melbourne	Oct 16, 2018	14 Day
- Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Oct 16, 2018	14 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Oct 16, 2018	14 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Polycyclic Aromatic Hydrocarbons	Melbourne	Oct 16, 2018	14 Day
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Metals M8	Melbourne	Oct 16, 2018	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Acid Sulfate Soils Field pH Test	Brisbane	Oct 16, 2018	7 Days
- Method: LTM-GEN-7060 Determination of field pH (pHF) and field pH peroxide (pHFOX) tests			
% Moisture	Melbourne	Oct 12, 2018	14 Day
- Method: LTM-GEN-7080 Moisture			

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Company Name:	GHD Pty Ltd WOLLONGONG	**Order No.:**		**Received:**	Oct 11, 2018 6:00 PM
Address:	Level 3, 200 Crown St Wollongong NSW 2500	**Report #:** **Phone:** **Fax:**	622247 02 4222 2300 02 4222 2301	**Due:** **Priority:** **Contact Name:**	Oct 18, 2018 5 Day Iain Lindley
Project Name:	CONTAMINATION ASSESSMENT-EAST COAST GAS PIPELINE PROJECT-PORT KEMBLA				
Project ID:	2127477-TASK 3J FOR CONTAMINATION				

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos - AS4964	HOLD	Acid Sulfate Soils Field pH Test	Moisture Set	Eurofins | mgt Suite B7
Melbourne Laboratory - NATA Site # 1254 & 14271							X		X	X
Sydney Laboratory - NATA Site # 18217						X				
Brisbane Laboratory - NATA Site # 20794								X		
Perth Laboratory - NATA Site # 23736										
External Laboratory										
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**					
1	BH23 6.0-6.45	Oct 05, 2018		Soil	S18-Oc14834			X		
2	BH23 1.50-1.95	Oct 05, 2018		Soil	S18-Oc14835	X				
3	BH23 9.00-9.45	Oct 05, 2018		Soil	S18-Oc14836			X		
4	BH22 6.0-6.45	Oct 08, 2018		Soil	S18-Oc14837			X		
5	BH22 7.5-7.95	Oct 08, 2018		Soil	S18-Oc14838			X		
6	BH22 1.0	Oct 08, 2018		Soil	S18-Oc14839				X	X
7	BH22 3.0-3.45	Oct 08, 2018		Soil	S18-Oc14840		X			
8	BH22 12.0-	Oct 08, 2018		Soil	S18-Oc14841		X			

eurofins | mgt

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NATA # 1261
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Melbourne Laboratory - NATA Site # 1254 & 14271							X		X	X
Sydney Laboratory - NATA Site # 18217						X				
Brisbane Laboratory - NATA Site # 20794								X		
Perth Laboratory - NATA Site # 23736										
	12.45									
9	BH24 1.5-2.0	Oct 09, 2018		Soil	S18-Oc14842		X			
Test Counts						1	3	4	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/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.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

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							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	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							
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	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	95			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
TRH C10-C14	%	95			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	95			70-130	Pass	
Toluene	%	99			70-130	Pass	
Ethylbenzene	%	107			70-130	Pass	
m&p-Xylenes	%	99			70-130	Pass	
Xylenes - Total	%	103			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	120			70-130	Pass	
TRH C6-C10	%	91			70-130	Pass	
TRH >C10-C16	%	93			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	86			70-130	Pass	
Acenaphthylene	%	90			70-130	Pass	
Anthracene	%	94			70-130	Pass	
Benz(a)anthracene	%	90			70-130	Pass	
Benzo(a)pyrene	%	86			70-130	Pass	
Benzo(b&j)fluoranthene	%	77			70-130	Pass	
Benzo(g.h.i)perylene	%	79			70-130	Pass	
Benzo(k)fluoranthene	%	77			70-130	Pass	
Chrysene	%	93			70-130	Pass	
Dibenz(a.h)anthracene	%	82			70-130	Pass	
Fluoranthene	%	81			70-130	Pass	
Fluorene	%	87			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	79			70-130	Pass	
Naphthalene	%	83			70-130	Pass	
Phenanthrene	%	91			70-130	Pass	
Pyrene	%	81			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	105			80-120	Pass	
Cadmium	%	108			80-120	Pass	
Chromium	%	114			80-120	Pass	
Copper	%	108			80-120	Pass	
Lead	%	114			80-120	Pass	
Mercury	%	101			75-125	Pass	
Nickel	%	106			80-120	Pass	
Zinc	%	105			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	M18-Oc14325	NCP	%	79			70-130	Pass	
TRH C10-C14	M18-Oc14298	NCP	%	81			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	M18-Oc14325	NCP	%	105			70-130	Pass	
Toluene	M18-Oc14325	NCP	%	101			70-130	Pass	
Ethylbenzene	M18-Oc14325	NCP	%	84			70-130	Pass	
m&p-Xylenes	M18-Oc14325	NCP	%	74			70-130	Pass	
o-Xylene	M18-Oc14325	NCP	%	83			70-130	Pass	
Xylenes - Total	M18-Oc14325	NCP	%	77			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	M18-Oc14325	NCP	%	98			70-130	Pass	
TRH C6-C10	M18-Oc14325	NCP	%	73			70-130	Pass	
TRH >C10-C16	M18-Oc14298	NCP	%	84			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	M18-Oc14338	NCP	%	97			70-130	Pass	
Acenaphthylene	M18-Oc14338	NCP	%	101			70-130	Pass	
Anthracene	M18-Oc14338	NCP	%	105			70-130	Pass	
Benz(a)anthracene	M18-Oc14338	NCP	%	104			70-130	Pass	
Benzo(a)pyrene	M18-Oc14338	NCP	%	97			70-130	Pass	
Benzo(b&j)fluoranthene	M18-Oc14338	NCP	%	93			70-130	Pass	
Benzo(g.h.i)perylene	M18-Oc14338	NCP	%	82			70-130	Pass	
Benzo(k)fluoranthene	M18-Oc14338	NCP	%	87			70-130	Pass	
Chrysene	M18-Oc14338	NCP	%	109			70-130	Pass	
Dibenz(a.h)anthracene	M18-Oc14338	NCP	%	95			70-130	Pass	
Fluoranthene	M18-Oc14338	NCP	%	99			70-130	Pass	
Fluorene	M18-Oc14338	NCP	%	101			70-130	Pass	
Indeno(1.2.3-cd)pyrene	M18-Oc14338	NCP	%	82			70-130	Pass	
Naphthalene	M18-Oc14338	NCP	%	92			70-130	Pass	
Phenanthrene	M18-Oc14338	NCP	%	102			70-130	Pass	
Pyrene	M18-Oc14338	NCP	%	100			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	M18-Oc13211	NCP	%	92			75-125	Pass	
Cadmium	M18-Oc13211	NCP	%	100			75-125	Pass	
Chromium	M18-Oc13211	NCP	%	103			75-125	Pass	
Copper	M18-Oc13211	NCP	%	92			75-125	Pass	
Lead	M18-Oc13211	NCP	%	121			75-125	Pass	
Mercury	M18-Oc13211	NCP	%	89			70-130	Pass	
Nickel	M18-Oc13211	NCP	%	91			75-125	Pass	
Zinc	M18-Oc13211	NCP	%	117			75-125	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Acid Sulfate Soils Field pH Test				Result 1	Result 2	RPD			
pH-F (Field pH test)*	S18-Oc14834	CP	pH Units	8.7	8.8	pass	30%	Pass	
Reaction Ratings*	S18-Oc14834	CP	comment	4.0	4.0	pass	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S18-Oc14839	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	S18-Oc14839	CP	mg/kg	22	24	7.0	30%	Pass	
TRH C15-C28	S18-Oc14839	CP	mg/kg	71	73	3.0	30%	Pass	
TRH C29-C36	S18-Oc14839	CP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S18-Oc14839	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S18-Oc14839	CP	mg/kg	0.2	0.2	14	30%	Pass	
Ethylbenzene	S18-Oc14839	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S18-Oc14839	CP	mg/kg	0.2	0.2	11	30%	Pass	
o-Xylene	S18-Oc14839	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	S18-Oc14839	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	

Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S18-Oc14839	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S18-Oc14839	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	S18-Oc14839	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S18-Oc14839	CP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	S18-Oc14839	CP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S18-Oc14839	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S18-Oc14839	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S18-Oc14839	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S18-Oc14839	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S18-Oc14839	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	S18-Oc14839	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	S18-Oc14839	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S18-Oc14839	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S18-Oc14839	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	S18-Oc14839	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S18-Oc14839	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S18-Oc14839	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S18-Oc14839	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S18-Oc14839	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S18-Oc14839	CP	mg/kg	0.6	0.6	1.0	30%	Pass	
Pyrene	S18-Oc14839	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M18-Oc14339	NCP	mg/kg	4.6	5.1	11	30%	Pass	
Cadmium	M18-Oc14339	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	M18-Oc14339	NCP	mg/kg	26	25	2.0	30%	Pass	
Copper	M18-Oc14339	NCP	mg/kg	11	10	1.0	30%	Pass	
Lead	M18-Oc14339	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Mercury	M18-Oc14339	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	M18-Oc14339	NCP	mg/kg	12	13	8.0	30%	Pass	
Zinc	M18-Oc14339	NCP	mg/kg	21	17	19	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S18-Oc14839	CP	%	6.4	6.3	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
S05	Field Screen uses the following fizz rating to classify the rate the samples reacted to the peroxide: 1.0; No reaction to slight. 2.0; Moderate reaction. 3.0; Strong reaction with persistent froth. 4.0; Extreme reaction.

Authorised By

Nibha Vaidya	Analytical Services Manager
Chris Bennett	Senior Analyst-Metal (VIC)
Harry Bacalis	Senior Analyst-Volatile (VIC)
Joseph Edouard	Senior Analyst-Organic (VIC)
Myles Clark	Senior Analyst-SPOCAS (QLD)
Nibha Vaidya	Senior Analyst-Asbestos (NSW)

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.

Certificate of Analysis

NATA Accredited
Accreditation Number 1261
Site Number 18217

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.

GHD Pty Ltd WOLLONGONG
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Wollongong
NSW 2500

Attention:	Iain Lindley
Report	622247-AID
Project Name	CONTAMINATION ASSESSMENT-EAST COAST GAS PIPELINE PROJECT-PORT KEMBLA
Project ID	2127477-TASK 3J FOR CONTAMINATION
Received Date	Oct 11, 2018
Date Reported	Oct 18, 2018

Methodology:

Asbestos Fibre Identification	Conducted in accordance with the Australian Standard AS 4964 – 2004: Method for the Qualitative Identification of Asbestos in Bulk Samples and in-house Method LTM-ASB-8020 by polarised light microscopy (PLM) and dispersion staining (DS) techniques. *NOTE: Positive Trace Analysis results indicate the sample contains detectable respirable fibres.*
Unknown Mineral Fibres	Mineral fibres of unknown type, as determined by PLM with DS, may require another analytical technique, such as Electron Microscopy, to confirm unequivocal identity. *NOTE: While Actinolite, Anthophyllite and Tremolite asbestos may be detected by PLM with DS, due to variability in the optical properties of these materials, AS4964 requires that these are reported as UMF unless confirmed by an independent technique.*
Subsampling Soil Samples	The whole sample submitted is first dried and then passed through a 10mm sieve followed by a 2mm sieve. All fibrous matter greater than 10mm, greater than 2mm as well as the material passing through the 2mm sieve are retained and analysed for the presence of asbestos. If the sub 2mm fraction is greater than approximately 30 to 60g then a sub-sampling routine based on ISO 3082:2009(E) is employed. *NOTE: Depending on the nature and size of the soil sample, the sub-2 mm residue material may need to be sub-sampled for trace analysis, in accordance with AS 4964-2004.*
Bonded asbestos-containing material (ACM)	The material is first examined and any fibres isolated for identification by PLM and DS. Where required, interfering matrices may be removed by disintegration using a range of heat, chemical or physical treatments, possibly in combination.The resultant material is then further examined in accordance with AS 4964 - 2004. *NOTE: Even after disintegration it may be difficult to detect the presence of asbestos in some asbestos-containing bulk materials using PLM and DS. This is due to the low grade or small length or diameter of the asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials. Vinyl/asbestos floor tiles, some asbestos-containing sealants and mastics, asbestos-containing epoxy resins and some ore samples are examples of these types of material, which are difficult to analyse.*
Limit of Reporting	The performance limitation of the AS4964 method for inhomogeneous samples is around 0.1 g/kg (0.01% (w/w)). Where no asbestos is found by PLM and DS, including Trace Analysis where required, this is considered to be at the nominal reporting limit of 0.01 % (w / w).The examination of large sample sizes(500 mL is recommended) may improve the likelihood of identifying ACM in the > 2mm fraction.The NEPM screening level of 0.001 % (w / w) asbestos in soil for FA(friable asbestos) and AF(asbestos fines) then applies where they are able to be quantified by gravimetric procedures.This quantitative screening is not generally applicable to FF(free fibres) and results of Trace Analysis are referred. *NOTE: NATA News March 2014, p.7, states in relation to AS4964: "This is a qualitative method with a nominal reporting limit of 0.01%" and that currently in Australia "there is no validated method available for the quantification of asbestos". Accordingly, NATA Accreditation does not cover the performance of this service (indicated with an asterisk).* *This report is consistent with the analytical procedures and reporting recommendations in the National Environment Protection (Assessment of Site Contamination) Measure, 2013 (as amended) and the Western Australia Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia, 2009, including supporting document Recommended Procedures for Laboratory Analysis of Asbestos in Soil, June 2011.*

Project Name CONTAMINATION ASSESSMENT-EAST COAST GAS PIPELINE PROJECT-PORT KEMBLA
Project ID 2127477-TASK 3J FOR CONTAMINATION
Date Sampled Oct 05, 2018
Report 622247-AID

Client Sample ID	Eurofins | mgt Sample No.	Date Sampled	Sample Description	Result
BH23 1.50-1.95	18-Oc14835	Oct 05, 2018	Approximate Sample 593g Sample consisted of: Dark grey fine-grained soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No respirable fibres detected.

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
Asbestos - LTM-ASB-8020	Sydney	Oct 12, 2018	Indefinite

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Site # 1254 & 14271

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NATA # 1261 Site # 20794

Perth
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Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name:	GHD Pty Ltd WOLLONGONG	**Order No.:**		**Received:**	Oct 11, 2018 6:00 PM
Address:	Level 3, 200 Crown St Wollongong NSW 2500	**Report #:** **Phone:** **Fax:**	622247 02 4222 2300 02 4222 2301	**Due:** **Priority:** **Contact Name:**	Oct 18, 2018 5 Day Iain Lindley
Project Name:	CONTAMINATION ASSESSMENT-EAST COAST GAS PIPELINE PROJECT-PORT KEMBLA				
Project ID:	2127477-TASK 3J FOR CONTAMINATION				

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos - AS4964	HOLD	Acid Sulfate Soils Field pH Test	Moisture Set	Eurofins | mgt Suite B7
Melbourne Laboratory - NATA Site # 1254 & 14271							X		X	X
Sydney Laboratory - NATA Site # 18217						X				
Brisbane Laboratory - NATA Site # 20794								X		
Perth Laboratory - NATA Site # 23736										
External Laboratory										
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**					
1	BH23 6.0-6.45	Oct 05, 2018		Soil	S18-Oc14834			X		
2	BH23 1.50-1.95	Oct 05, 2018		Soil	S18-Oc14835	X				
3	BH23 9.00-9.45	Oct 05, 2018		Soil	S18-Oc14836			X		
4	BH22 6.0-6.45	Oct 08, 2018		Soil	S18-Oc14837			X		
5	BH22 7.5-7.95	Oct 08, 2018		Soil	S18-Oc14838			X		
6	BH22 1.0	Oct 08, 2018		Soil	S18-Oc14839				X	X
7	BH22 3.0-3.45	Oct 08, 2018		Soil	S18-Oc14840		X			
8	BH22 12.0-	Oct 08, 2018		Soil	S18-Oc14841		X			

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Project ID:	2127477-TASK 3J FOR CONTAMINATION				

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos - AS4964	HOLD	Acid Sulfate Soils Field pH Test	Moisture Set	Eurofins | mgt Suite B7
Melbourne Laboratory - NATA Site # 1254 & 14271							X		X	X
Sydney Laboratory - NATA Site # 18217						X				
Brisbane Laboratory - NATA Site # 20794								X		
Perth Laboratory - NATA Site # 23736										
	12.45									
9	BH24 1.5-2.0	Oct 09, 2018		Soil	S18-Oc14842		X			
Test Counts						1	3	4	1	1

Internal Quality Control Review and Glossary

General

1. QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Samples were analysed on an 'as received' basis.
4. 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.

Units

% w/w: weight for weight basis	grams per kilogram
Filter loading:	fibres/100 graticule areas
Reported Concentration:	fibres/mL
Flowrate:	L/min

Terms

Dry	Sample is dried by heating prior to analysis
LOR	Limit of Reporting
COC	Chain of Custody
SRA	Sample Receipt Advice
ISO	International Standards Organisation
AS	Australian Standards
WA DOH	Reference document for the NEPM. Government of Western Australia, Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia (2009), including supporting document Recommended Procedures for Laboratory Analysis of Asbestos in Soil (2011)
NEPM	National Environment Protection (Assessment of Site Contamination) Measure, 2013 (as amended)
ACM	Asbestos Containing Materials. Asbestos contained within a non-asbestos matrix, typically presented in bonded and/or sound condition. For the purposes of the NEPM, ACM is generally restricted to those materials that do not pass a 7mm x 7mm sieve.
AF	Asbestos Fines. Asbestos containing materials, including friable, weathered and bonded materials, able to pass a 7mm x 7mm sieve. Considered under the NEPM as equivalent to “non-bonded / friable”.
FA	Fibrous Asbestos. Asbestos containing materials in a friable and/or severely weathered condition. For the purposes of the NEPM, FA is generally restricted to those materials that do not pass a 7mm x 7mm sieve.
Friable	Asbestos-containing materials of any size that may be broken or crumbled by hand pressure. For the purposes of the NEPM, this includes both AF and FA. It is outside of the laboratory’s remit to assess degree of friability.
Trace Analysis	Analytical procedure used to detect the presence of respirable fibres in the matrix.

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
N/A	Not applicable

Asbestos Counter/Identifier:

Authorised by:

Sayeed Abu Senior Analyst-Asbestos (NSW)

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 – 50 005 085 521 e.mail : EnviroSales@eurofins.com web : www.eurofins.com.au

Sample Receipt Advice

Company name:	**GHD Pty Ltd WOLLONGONG**
Contact name:	Iain Lindley
Project name:	CONTAMINATION ASSESSMENT-EAST COAST GAS PIPELINE PROJECT-PORT KEMBLA
Project ID:	21277-TASK 3J FOR CONTAMINATION
COC number:	Not provided
Turn around time:	5 Day
Date/Time received:	Oct 11, 2018 6:00 PM
Eurofins | mgt reference:	**622247**

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:

Nibha Vaidya on Phone : +61 (2) 9900 8415 or by e.mail: NibhaVaidya@eurofins.com

Results will be delivered electronically via e.mail to Iain Lindley - iain.lindley@ghd.com.

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Email: enquiries.melb@mgtlabmark.com.au

CHAIN OF CUSTODY RECORD

CLIENT DETAILS

Company Name :	GHD Pty Ltd	Contact Name:	Iain Lindley 0459 353 385	Purchase Order :	COC Number :
Office Address :	Level 11, 200 Crown Street	Project Manager :	Colee Quayle 0403 242 431	PROJECT Number : 2127477 - Task 3J for Contamination	Eurofins | mgt quote ID :
	Wollongong, NSW 2500	Email for results :	iain.lindley@ghd.com	PROJECT Name : Contamination Assessment - East Coast Gas Pipeline Project, Port Kembla	Data output format: ESDAT

Special Directions & Comments :

Eurofins | mgt DI water batch number:

	Sample ID	Depth (m)	Date	Matrix	B7: TRH, BTEX, PAH, Metals (8)	B15 : OCP, OPP, PCB	TCLP for PAH and heavy metals	Asbestos ID	BTEX	TPH C6-C9, BTEX	pH field screen (ph f and pH fox)	TBT	Dioxins	Cyanide	Ammonia	VOCs	pH	Hold
1	BH23	6.0-6.45	5/10/2018	Soil							x							
2	BH23	1.50-1.95	5/10/2018	Soil				x										
3	BH23	9.00-9.45	5/10/2018	Soil							x							
4	BH22	6.0-6.45	8/10/2018	Soil							x							
5	BH22	7.5-7.95	8/10/2018	Soil							x							
6	BH22	1.0	8/10/2018	Soil	x													
7	BH22	3.0-3.45	8/10/2018	Soil														x
8	BH22	12.012.45	8/10/2018	Soil														x
9	BH24	1.5-2.0	9/10/2018	Soil														x
10																		
11																		
12																		
13																		
14																		
15																		
16																		

Some common holding times (with correct preservation).
For further information contact the lab

Waters		Soils	
BTEX, MAH, VOC	14 days	BTEX, MAH, VOC	14 days
TRH, PAH, Phenols, Pesticides	7 days	TRH, PAH, Phenols, Pesticides	14 days
Heavy Metals	6 months	Heavy Metals	6 months
Mercury, CrVI	28 days	Mercury, CrVI	28 days
Microbiological testing	24 hours	Microbiological testing	72 hours
BOD, Nitrate, Nitrite, Total N	2 days	Anions	28 days
Solids - TSS, TDS etc	7 days	SPOCAS, pH Field and FOX, CrS	24 hours
Ferrous iron	7 days	ASLP, TCLP	7 days

Containers:

Jar	Zip lock	ASS	Amber 1L	Plastic			
		X					
	X						
		X					
		X					
		X					
X							
X							
X							
X							

Sample comments:

GHD Staff	Courier	Laboratory Staff	Turn around time	Method Of Shipment	Temperature on arrival:
Relinquished By: Jarrad Mawbey	Received By:	Received By: UONG	1 DAY ☐ 2 DAY ☐ 3 DAY ☐	☐ Courier	5.43 °C
Date & Time 10/10/2018	Date & Time:	Date & Time: 11/10 6.00pm	5 DAY ☑ 10 DAY ☐ Other:	☑ Hand Delivered - Elvis (Eurofins) picked up samples	Report number: 622247
Signature: J. Mawbey	Signature:	Signature:		☐ Postal Courier Consignment # :	

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Site # 23736

Company Name: GHD Pty Ltd WOLLONGONG
Address: Level 3, 200 Crown St
Wollongong
NSW 2500

Order No.:
Report #: 622247
Phone: 02 4222 2300
Fax: 02 4222 2301

Received: Oct 11, 2018 6:00 PM
Due: Oct 18, 2018
Priority: 5 Day
Contact Name: Iain Lindley

Project Name: CONTAMINATION ASSESSMENT-EAST COAST GAS PIPELINE PROJECT-PORT KEMBLA
Project ID: 2127477-TASK 3J FOR CONTAMINATION

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos - AS4964	HOLD	Acid Sulfate Soils Field pH Test	Moisture Set	Eurofins | mgt Suite B7
Melbourne Laboratory - NATA Site # 1254 & 14271							X		X	X
Sydney Laboratory - NATA Site # 18217						X				
Brisbane Laboratory - NATA Site # 20794								X		
Perth Laboratory - NATA Site # 23736										
External Laboratory										
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**					
1	BH23 6.0-6.45	Oct 05, 2018		Soil	S18-Oc14834			X		
2	BH23 1.50-1.95	Oct 05, 2018		Soil	S18-Oc14835	X				
3	BH23 9.00-9.45	Oct 05, 2018		Soil	S18-Oc14836			X		
4	BH22 6.0-6.45	Oct 08, 2018		Soil	S18-Oc14837			X		
5	BH22 7.5-7.95	Oct 08, 2018		Soil	S18-Oc14838			X		
6	BH22 1.0	Oct 08, 2018		Soil	S18-Oc14839				X	X
7	BH22 3.0-3.45	Oct 08, 2018		Soil	S18-Oc14840		X			
8	BH22 12.0-	Oct 08, 2018		Soil	S18-Oc14841		X			

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Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos - AS4964	HOLD	Acid Sulfate Soils Field pH Test	Moisture Set	Eurofins | mgt Suite B7
Melbourne Laboratory - NATA Site # 1254 & 14271							X		X	X
Sydney Laboratory - NATA Site # 18217						X				
Brisbane Laboratory - NATA Site # 20794								X		
Perth Laboratory - NATA Site # 23736										
	12.45									
9	BH24 1.5-2.0	Oct 09, 2018		Soil	S18-Oc14842		X			
Test Counts						1	3	4	1	1

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30 years Testing For Life 1987–2017
Celebrating 30 years Testing and Protecting Human Health

Certificate of Analysis

GHD Pty Ltd WOLLONGONG
Level 3, 200 Crown St
Wollongong
NSW 2500

NATA Accredited
Accreditation Number 1261
Site Number 18217

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: **Iain Lindley**

Report **622923-W-V2**
Project name CONTAMINATION ASSESSMENT-EAST COAST GAS PIPELINE PROJECT-PORT KEMBLA
Project ID 2127477-TASK 3J FOR CONTAMINATION
Received Date Oct 17, 2018

Client Sample ID			**WB1**
Sample Matrix			**Water**
Eurofins | mgt Sample No.			**S18-Oc20058**
Date Sampled			**Oct 12, 2018**
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
BTEX			
Benzene	0.001	mg/L	< 0.001
Toluene	0.001	mg/L	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002
o-Xylene	0.001	mg/L	< 0.001
Xylenes - Total	0.003	mg/L	< 0.003
4-Bromofluorobenzene (surr.)	1	%	124
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene[N02]	0.01	mg/L	< 0.01
TRH C6-C10	0.02	mg/L	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	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
TRH >C10-C40 (total)*	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
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001
Fluoranthene	0.001	mg/L	< 0.001
Fluorene	0.001	mg/L	< 0.001

Client Sample ID			WB1
Sample Matrix			**Water**
Eurofins | mgt Sample No.			**S18-Oc20058**
Date Sampled			**Oct 12, 2018**
Test/Reference	LOR	Unit	
Polycyclic Aromatic Hydrocarbons			
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	%	99
p-Terphenyl-d14 (surr.)	1	%	58
Heavy Metals			
Arsenic	0.001	mg/L	< 0.001
Cadmium	0.0002	mg/L	< 0.0002
Chromium	0.001	mg/L	< 0.001
Copper	0.001	mg/L	< 0.001
Lead	0.001	mg/L	< 0.001
Mercury	0.0001	mg/L	< 0.0001
Nickel	0.001	mg/L	< 0.001
Zinc	0.005	mg/L	< 0.005

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
Eurofins | mgt Suite B7			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Oct 22, 2018	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Melbourne	Oct 18, 2018	14 Day
- Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Oct 18, 2018	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Oct 22, 2018	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Polycyclic Aromatic Hydrocarbons	Melbourne	Oct 22, 2018	7 Day
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Metals M8	Melbourne	Oct 22, 2018	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			

eurofins | mgt

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Site # 1254 & 14271

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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
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name:	GHD Pty Ltd WOLLONGONG	**Order No.:**		**Received:**	Oct 17, 2018 11:38 AM
Address:	Level 3, 200 Crown St Wollongong NSW 2500	**Report #:** **Phone:** **Fax:**	622923 02 4222 2300 02 4222 2301	**Due:** **Priority:** **Contact Name:**	Oct 24, 2018 5 Day Iain Lindley
Project Name:	CONTAMINATION ASSESSMENT-EAST COAST GAS PIPELINE PROJECT-PORT KEMBLA				
Project ID:	2127477-TASK 3J FOR CONTAMINATION				

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						HOLD	Moisture Set	Eurofins | mgt Suite B7
Melbourne Laboratory - NATA Site # 1254 & 14271						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	BH24 4.5-4.95	Oct 09, 2018		Soil	S18-Oc20050		X	X
2	BH25 1.5-1.95	Oct 11, 2018		Soil	S18-Oc20051		X	X
3	BH26 0.0-0.1	Oct 12, 2018		Soil	S18-Oc20052		X	X
4	BH26 0.5-1.0	Oct 12, 2018		Soil	S18-Oc20053		X	X
5	BH26 2.5-3.0	Oct 12, 2018		Soil	S18-Oc20054		X	X
6	DUP1	Oct 09, 2018		Soil	S18-Oc20055		X	X
7	DUP4	Oct 12, 2018		Soil	S18-Oc20056		X	X
8	WB1	Oct 12, 2018		Water	S18-Oc20058			X
9	BH25 4.0-4.5	Oct 11, 2018		Soil	S18-Oc20059	X		

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Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						HOLD	Moisture Set	Eurofins | mgt Suite B7
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X
Sydney Laboratory - NATA Site # 18217								
Brisbane Laboratory - NATA Site # 20794								
Perth Laboratory - NATA Site # 23736								
10	BH26 4.5-4.95	Oct 12, 2018		Soil	S18-Oc20060	X		
11	DUP2	Oct 11, 2018		Soil	S18-Oc20061	X		
12	DUP3	Oct 11, 2018		Soil	S18-Oc20062	X		
13	TRIP1	Oct 11, 2018		Soil	S18-Oc20063	X		
14	TRIP2	Oct 12, 2018		Soil	S18-Oc20064	X		
Test Counts						6	7	8

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.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

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							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	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							
Heavy Metals							
Arsenic	mg/L	< 0.001			0.001	Pass	
Cadmium	mg/L	< 0.0002			0.0002	Pass	
Chromium	mg/L	< 0.001			0.001	Pass	
Copper	mg/L	< 0.001			0.001	Pass	
Lead	mg/L	< 0.001			0.001	Pass	
Mercury	mg/L	< 0.0001			0.0001	Pass	
Nickel	mg/L	< 0.001			0.001	Pass	
Zinc	mg/L	< 0.005			0.005	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	107			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
TRH C10-C14	%	104			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	104			70-130	Pass	
Toluene	%	93			70-130	Pass	
Ethylbenzene	%	75			70-130	Pass	
m&p-Xylenes	%	71			70-130	Pass	
Xylenes - Total	%	78			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	76			70-130	Pass	
TRH C6-C10	%	109			70-130	Pass	
TRH >C10-C16	%	94			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	130			70-130	Pass	
Acenaphthylene	%	89			70-130	Pass	
Anthracene	%	104			70-130	Pass	
Benz(a)anthracene	%	107			70-130	Pass	
Benzo(a)pyrene	%	87			70-130	Pass	
Benzo(b&j)fluoranthene	%	127			70-130	Pass	
Benzo(g.h.i)perylene	%	92			70-130	Pass	
Benzo(k)fluoranthene	%	93			70-130	Pass	
Chrysene	%	127			70-130	Pass	
Dibenz(a.h)anthracene	%	94			70-130	Pass	
Fluoranthene	%	108			70-130	Pass	
Fluorene	%	94			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	92			70-130	Pass	
Naphthalene	%	102			70-130	Pass	
Phenanthrene	%	91			70-130	Pass	
Pyrene	%	109			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	98			80-120	Pass	
Cadmium	%	94			80-120	Pass	
Chromium	%	94			80-120	Pass	
Copper	%	93			80-120	Pass	
Lead	%	94			80-120	Pass	
Mercury	%	92			75-125	Pass	
Nickel	%	93			80-120	Pass	
Zinc	%	99			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	M18-Oc19471	NCP	%	112			70-130	Pass	
TRH C10-C14	M18-Oc17855	NCP	%	115			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	M18-Oc19471	NCP	%	116			70-130	Pass	
Toluene	M18-Oc19471	NCP	%	117			70-130	Pass	
Ethylbenzene	M18-Oc19471	NCP	%	106			70-130	Pass	
m&p-Xylenes	M18-Oc19471	NCP	%	99			70-130	Pass	
o-Xylene	M18-Oc19471	NCP	%	112			70-130	Pass	
Xylenes - Total	M18-Oc19471	NCP	%	103			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	M18-Oc19471	NCP	%	84			70-130	Pass	
TRH C6-C10	M18-Oc19471	NCP	%	111			70-130	Pass	
TRH >C10-C16	M18-Oc17855	NCP	%	100			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	M18-Oc21293	NCP	%	116			70-130	Pass	
Acenaphthylene	M18-Oc21293	NCP	%	117			70-130	Pass	
Anthracene	M18-Oc21293	NCP	%	95			70-130	Pass	
Benz(a)anthracene	M18-Oc21293	NCP	%	93			70-130	Pass	
Benzo(a)pyrene	M18-Oc21293	NCP	%	114			70-130	Pass	
Benzo(b&j)fluoranthene	M18-Oc21293	NCP	%	109			70-130	Pass	
Benzo(g.h.i)perylene	M18-Oc21293	NCP	%	80			70-130	Pass	
Benzo(k)fluoranthene	M18-Oc21293	NCP	%	127			70-130	Pass	
Chrysene	M18-Oc21293	NCP	%	109			70-130	Pass	
Dibenz(a.h)anthracene	M18-Oc21293	NCP	%	79			70-130	Pass	
Fluoranthene	M18-Oc21293	NCP	%	89			70-130	Pass	
Fluorene	M18-Oc21293	NCP	%	124			70-130	Pass	
Indeno(1.2.3-cd)pyrene	M18-Oc21293	NCP	%	80			70-130	Pass	
Naphthalene	M18-Oc21293	NCP	%	96			70-130	Pass	
Phenanthrene	M18-Oc21293	NCP	%	120			70-130	Pass	
Pyrene	M18-Oc21293	NCP	%	91			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	M18-Oc20915	NCP	%	96			75-125	Pass	
Cadmium	M18-Oc20915	NCP	%	85			75-125	Pass	
Chromium	M18-Oc20915	NCP	%	91			75-125	Pass	
Copper	M18-Oc20915	NCP	%	86			75-125	Pass	
Lead	M18-Oc20915	NCP	%	85			75-125	Pass	
Mercury	M18-Oc20915	NCP	%	87			70-130	Pass	
Nickel	M18-Oc20915	NCP	%	87			75-125	Pass	
Zinc	M18-Oc20915	NCP	%	92			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 C10-C14	M18-Oc17854	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH C15-C28	M18-Oc17854	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36	M18-Oc17854	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	M18-Oc17854	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH >C16-C34	M18-Oc17854	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH >C34-C40	M18-Oc17854	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	M18-Oc21292	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Acenaphthylene	M18-Oc21292	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Anthracene	M18-Oc21292	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benz(a)anthracene	M18-Oc21292	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(a)pyrene	M18-Oc21292	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(b&j)fluoranthene	M18-Oc21292	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(g.h.i)perylene	M18-Oc21292	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(k)fluoranthene	M18-Oc21292	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	

Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Chrysene	M18-Oc21292	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Dibenz(a.h)anthracene	M18-Oc21292	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluoranthene	M18-Oc21292	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluorene	M18-Oc21292	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	M18-Oc21292	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Naphthalene	M18-Oc21292	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Phenanthrene	M18-Oc21292	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Pyrene	M18-Oc21292	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M18-Oc20915	NCP	mg/L	0.004	0.004	<1	30%	Pass	
Cadmium	M18-Oc20915	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium	M18-Oc20915	NCP	mg/L	0.012	0.012	2.0	30%	Pass	
Copper	M18-Oc20915	NCP	mg/L	0.005	0.005	6.0	30%	Pass	
Lead	M18-Oc20915	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Mercury	M18-Oc20915	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel	M18-Oc20915	NCP	mg/L	0.007	0.008	12	30%	Pass	
Zinc	M18-Oc20915	NCP	mg/L	0.041	0.040	3.0	30%	Pass	

Comments

This report has been revised (V2) to report repeat test result of chromium for sample S18-Oc20058.

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

Nibha Vaidya	Analytical Services Manager
Chris Bennett	Senior Analyst-Metal (VIC)
Harry Bacalis	Senior Analyst-Volatile (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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Sample Receipt Advice

Company name:	**GHD Pty Ltd WOLLONGONG**
Contact name:	Iain Lindley
Project name:	CONTAMINATION ASSESSMENT-EAST COAST GAS PIPELINE PROJECT-PORT KEMBLA
Project ID:	21277-TASK 3J FOR CONTAMINATION
COC number:	Not provided
Turn around time:	5 Day
Date/Time received:	Oct 17, 2018 11:38 AM
Eurofins | mgt reference:	**622923**

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).

Notes

Trip3 sent to ALS for analysis.

Contact notes

If you have any questions with respect to these samples please contact:

Nibha Vaidya on Phone : +61 (2) 9900 8415 or by e.mail: NibhaVaidya@eurofins.com

Results will be delivered electronically via e.mail to Iain Lindley - iain.lindley@ghd.com.

eurofins mgt

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☐ **Melbourne**
2 Kingston Town Close, Oakleigh, VIC 3166
Phone: +613 8564 5000 Fax: +613 8564 5090
Email: enquiries.melb@mgtlabmark.com.au

CHAIN OF CUSTODY RECORD

CLIENT DETAILS

Company Name : GHD Pty Ltd	Contact Name: Iain Lindley 0459 353 385	Purchase Order :	COC Number :
Office Address : Level 11, 200 Crown Street	Project Manager : Colee Quayle 0403 242 431	PROJECT Number : 2127477 - Task 3J for Contamination	Eurofins | mgt quote ID :
Wollongong, NSW 2500	Email for results : iain.lindley@ghd.com	PROJECT Name : Contamination Assessment - East Coast Gas Pipeline Project, Port Kembla	Data output format: ESDAT

Special Directions & Comments :

Eurofins | mgt DI water batch number:

	Sample ID	Depth (m)	Date	Matrix	B7: TRH, BTEX, PAH, Metals (8)	B15 : OCP, OPP, PCB	TCLP for PAH and heavy metals	Asbestos ID	BTEX	TPH C6-C9, BTEX	pH field screen (ph f and pH fox)	TBT	Dioxins	Cyanide	Ammonia	VOCs	pH	Hold
1	BH24	4.50-4.95	9/10/2018	Soil	X													
2	BH25	1.50-1.95	11/10/2018	Soil	X													
3	BH25	4.0-4.5	11/10/2018	Soil														X
4	BH26	0.0-0.1	12/10/2018	Soil	X													
5	BH26	0.5-1.0	12/10/2018	Soil	X													
6	BH26	2.5-3.0	12/10/2018	Soil	X													
7	BH26	4.5-4.95	12/10/2018	Soil														X
8	DUP1	-	9/10/2018	Soil	X													
0	DUP2	-	11/10/2018	Soil														X
10	DUP3	-	12/10/2018	Soil														X
11	DUP4	-	12/10/2018	Soil	X													
12	TRIP1	-	11/10/2018	Soil														X
13	TRIP2	-	12/10/2018	Soil														X
14	TRIP3	-	12/10/2018	Soil	X													
15	WB1	-	12/10/2018	Water	X													
16																		

Some common holding times (with correct preservation). For further information contact the lab

Waters		Soils	
BTEX, MAH, VOC	14 days	BTEX, MAH, VOC	14 days
TRH, PAH, Phenols, Pesticides	7 days	TRH, PAH, Phenols, Pesticides	14 days
Heavy Metals	6 months	Heavy Metals	6 months
Mercury, CrVI	28 days	Mercury, CrVI	28 days
Microbiological testing	24 hours	Microbiological testing	72 hours
BOD, Nitrate, Nitrite, Total N	2 days	Anions	28 days
Solids - TSS, TDS etc	7 days	SPOCAS, pH Field and FOX, CrS	24 hours
Ferrous iron	7 days	ASLP, TCLP	7 days

Containers:								Sample comments:
Jar	Zip lock	ASS	Amber 1L	Plastic	Vials			
X								
X								
X								
X								
X								
X								
X								
X								
X								
X								
X								
X								
X								
X								
			X	X	X			

GHD Staff	Courier	Laboratory Staff	Turn around time	Method Of Shipment	Temperature on arrival:
Relinquished By: Adam Hunt	Received By:	Received By: VLONG	1 DAY ☐ 2 DAY ☐ 3 DAY ☐	☑ Courier ☐ Hand Delivered ☐ Postal	9.6°C
Date & Time 16/10/2018	Date & Time:	Date & Time: 17/10/18 8am	5 DAY ☑ 10 DAY ☐ Other:	Courier Consignment # :	Report number: 622923
Signature: A. Hunt	Signature:	Signature:			

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NATA # 1261
Site # 23736

Company Name: GHD Pty Ltd WOLLONGONG
Address: Level 3, 200 Crown St
Wollongong
NSW 2500

Order No.:
Report #: 622923
Phone: 02 4222 2300
Fax: 02 4222 2301

Received: Oct 17, 2018 11:38 AM
Due: Oct 24, 2018
Priority: 5 Day
Contact Name: Iain Lindley

Project Name: CONTAMINATION ASSESSMENT-EAST COAST GAS PIPELINE PROJECT-PORT KEMBLA
Project ID: 2127477-TASK 3J FOR CONTAMINATION

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						HOLD	Moisture Set	Eurofins | mgt Suite B7
Melbourne Laboratory - NATA Site # 1254 & 14271						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	BH24 4.5-4.95	Oct 09, 2018		Soil	S18-Oc20050		X	X
2	BH25 1.5-1.95	Oct 11, 2018		Soil	S18-Oc20051		X	X
3	BH26 0.0-0.1	Oct 12, 2018		Soil	S18-Oc20052		X	X
4	BH26 0.5-1.0	Oct 12, 2018		Soil	S18-Oc20053		X	X
5	BH26 2.5-3.0	Oct 12, 2018		Soil	S18-Oc20054		X	X
6	DUP1	Oct 09, 2018		Soil	S18-Oc20055		X	X
7	DUP4	Oct 12, 2018		Soil	S18-Oc20056		X	X
8	WB1	Oct 12, 2018		Water	S18-Oc20058			X
9	BH25 4.0-4.5	Oct 11, 2018		Soil	S18-Oc20059	X		

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Company Name:	GHD Pty Ltd WOLLONGONG	**Order No.:**		**Received:**	Oct 17, 2018 11:38 AM
Address:	Level 3, 200 Crown St Wollongong NSW 2500	**Report #:** **Phone:** **Fax:**	622923 02 4222 2300 02 4222 2301	**Due:** **Priority:** **Contact Name:**	Oct 24, 2018 5 Day Iain Lindley
Project Name:	CONTAMINATION ASSESSMENT-EAST COAST GAS PIPELINE PROJECT-PORT KEMBLA				
Project ID:	2127477-TASK 3J FOR CONTAMINATION				

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						HOLD	Moisture Set	Eurofins | mgt Suite B7
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X
Sydney Laboratory - NATA Site # 18217								
Brisbane Laboratory - NATA Site # 20794								
Perth Laboratory - NATA Site # 23736								
10	BH26 4.5-4.95	Oct 12, 2018		Soil	S18-Oc20060	X		
11	DUP2	Oct 11, 2018		Soil	S18-Oc20061	X		
12	DUP3	Oct 11, 2018		Soil	S18-Oc20062	X		
13	TRIP1	Oct 11, 2018		Soil	S18-Oc20063	X		
14	TRIP2	Oct 12, 2018		Soil	S18-Oc20064	X		
Test Counts						6	7	8