

Certificate of Analysis

GHD Melbourne
Level 8, 180 Lonsdale St
Melbourne
VIC 3000



NATA Accredited
Accreditation Number 1261
Site Number 1254

Accredited for compliance with ISO/IEC 17025 – Testing
 The results of the tests, calibrations and/or
 measurements included in this document are traceable
 to Australian/national standards.

Attention: Timothy Anderson

Report 584938-W-V2
Project name BULLEEN VIC 3105
Project ID 31/35006/0813
Received Date Feb 14, 2018

Client Sample ID			NEL-BH040 A / 120218	NEL-BH040 / 120218	NEL-BH070 / 120218	NEL-BH072 / 120218
Sample Matrix			Water	Water	Water	Water
Eurofins mgt Sample No.			M18-Fe16849	M18-Fe16850	M18-Fe16851	M18-Fe16852
Date Sampled			Feb 12, 2018	Feb 12, 2018	Feb 12, 2018	Feb 12, 2018
Test/Reference	LOR	Unit				
Ammonia (as N)	0.01	mg/L	0.41	0.57	0.66	0.51
Chloride	1	mg/L	3600	3900	3100	2800
Conductivity (at 25°C)	1	uS/cm	12000	13000	11000	9800
Nitrate & Nitrite (as N)	0.05	mg/L	< 0.05	0.11	< 0.05	0.43
Nitrate (as N)	0.02	mg/L	< 0.02	0.10	< 0.02	0.43
Nitrite (as N)	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
pH (at 25°C)	0.1	pH Units	7.3	7.3	7.5	7.3
Phosphate total (as P)	0.05	mg/L	0.18	0.16	0.08	0.43
Phosphorus reactive (as P)	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
Sulphate (as SO4)	5	mg/L	300	360	270	190
Total Dissolved Solids	10	mg/L	6100	7000	5000	4700
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	0.6	0.6	0.8	0.5
Total Nitrogen (as N)	0.2	mg/L	0.6	0.7	0.8	0.9
Total Organic Carbon	5	mg/L	< 5	< 5	< 5	< 5
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	510	560	500	550
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	< 10	< 10	< 10
Hydroxide Alkalinity (as CaCO3)	10	mg/L	< 10	< 10	< 10	< 10
Total Alkalinity (as CaCO3)	20	mg/L	510	560	500	550
Alkali Metals						
Calcium	0.5	mg/L	150	140	160	100
Magnesium	0.5	mg/L	310	350	300	230
Potassium	0.5	mg/L	12	19	19	17
Sodium	0.5	mg/L	1900	2200	1700	1600

Client Sample ID			RB01 / 120218	NEL-BH059 / 130218	NEL-BH095 / 130218	NEL-BH044 / 130218
Sample Matrix			Water	Water	Water	Water
Eurofins mgt Sample No.			M18-Fe16853	M18-Fe16854	M18-Fe16855	M18-Fe16856
Date Sampled			Feb 12, 2018	Feb 13, 2018	Feb 13, 2018	Feb 13, 2018
Test/Reference	LOR	Unit				
Ammonia (as N)	0.01	mg/L	< 0.01	0.08	< 0.01	< 0.01
Chloride	1	mg/L	2.1	3300	1500	1500
Conductivity (at 25°C)	1	uS/cm	1.6	12000	6100	6900
Nitrate & Nitrite (as N)	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
Nitrate (as N)	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Nitrite (as N)	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
pH (at 25°C)	0.1	pH Units	4.7	7.4	7.7	8.6
Phosphate total (as P)	0.05	mg/L	< 0.05	0.08	0.09	0.10
Phosphorus reactive (as P)	0.05	mg/L	< 0.05	< 0.05	< 0.05	0.06
Sulphate (as SO ₄)	5	mg/L	< 5	320	270	170
Total Dissolved Solids	10	mg/L	< 10	6000	2500	2700
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	< 0.2	< 0.2	< 0.2	< 0.2
Total Nitrogen (as N)	0.2	mg/L	< 0.2	< 0.2	< 0.2	< 0.2
Total Organic Carbon	5	mg/L	< 5	< 5	< 5	< 5
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO ₃)	20	mg/L	< 20	460	490	820
Carbonate Alkalinity (as CaCO ₃)	10	mg/L	< 10	< 10	< 10	65
Hydroxide Alkalinity (as CaCO ₃)	10	mg/L	< 10	< 10	< 10	< 10
Total Alkalinity (as CaCO ₃)	20	mg/L	< 20	460	490	890
Alkali Metals						
Calcium	0.5	mg/L	< 0.5	100	74	36
Magnesium	0.5	mg/L	< 0.5	270	72	97
Potassium	0.5	mg/L	< 0.5	23	35	24
Sodium	0.5	mg/L	< 0.5	2000	1100	1400

Client Sample ID			NEL-BH031 / 130218	RB02 / 130218
Sample Matrix			Water	Water
Eurofins mgt Sample No.			M18-Fe16857	M18-Fe16858
Date Sampled			Feb 13, 2018	Feb 13, 2018
Test/Reference	LOR	Unit		
Ammonia (as N)	0.01	mg/L	< 0.01	< 0.01
Chloride	1	mg/L	4900	2.4
Conductivity (at 25°C)	1	uS/cm	16000	2.1
Nitrate & Nitrite (as N)	0.05	mg/L	< 0.05	< 0.05
Nitrate (as N)	0.02	mg/L	< 0.02	< 0.02
Nitrite (as N)	0.02	mg/L	< 0.02	< 0.02
pH (at 25°C)	0.1	pH Units	8.3	4.7
Phosphate total (as P)	0.05	mg/L	0.08	< 0.05
Phosphorus reactive (as P)	0.05	mg/L	< 0.05	< 0.05
Sulphate (as SO ₄)	5	mg/L	520	< 5
Total Dissolved Solids	10	mg/L	9900	< 10
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	< 0.2	< 0.2
Total Nitrogen (as N)	0.2	mg/L	< 0.2	< 0.2
Total Organic Carbon	5	mg/L	< 5	< 5

Client Sample ID			NEL-BH031 / 130218	RB02 / 130218
Sample Matrix			Water	Water
Eurofins mgt Sample No.			M18-Fe16857	M18-Fe16858
Date Sampled			Feb 13, 2018	Feb 13, 2018
Test/Reference	LOR	Unit		
Alkalinity (speciated)				
Bicarbonate Alkalinity (as CaCO ₃)	20	mg/L	470	< 20
Carbonate Alkalinity (as CaCO ₃)	10	mg/L	< 10	< 10
Hydroxide Alkalinity (as CaCO ₃)	10	mg/L	< 10	< 10
Total Alkalinity (as CaCO ₃)	20	mg/L	470	< 20
Alkali Metals				
Calcium	0.5	mg/L	140	< 0.5
Magnesium	0.5	mg/L	470	< 0.5
Potassium	0.5	mg/L	48	< 0.5
Sodium	0.5	mg/L	3000	< 0.5

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.

A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Eurofins mgt Suite B19E: Total N, TKN, NOx, NO2, NO3, NH3, Total P, Reactive P			
Ammonia (as N) - Method: APHA 4500-NH3 Ammonia Nitrogen by FIA	Melbourne	Feb 16, 2018	28 Day
Nitrate & Nitrite (as N) - Method: APHA 4500-NO3/NO2 Nitrate-Nitrite Nitrogen by FIA	Melbourne	Feb 16, 2018	28 Day
Nitrate (as N) - Method: APHA 4500-NO3 Nitrate Nitrogen by FIA	Melbourne	Feb 16, 2018	7 Day
Nitrite (as N) - Method: APHA 4500-NO2 Nitrite Nitrogen by FIA	Melbourne	Feb 16, 2018	2 Day
Phosphate total (as P) - Method: APHA 4500-P E. Phosphorous	Melbourne	Feb 16, 2018	28 Day
Phosphorus reactive (as P) - Method: APHA4500-PO4	Melbourne	Feb 16, 2018	2 Day
Total Kjeldahl Nitrogen (as N) - Method: APHA 4500 TKN	Melbourne	Feb 16, 2018	7 Day
Eurofins mgt Suite B11E: Cl/SO4/Alkalinity			
Chloride - Method: LTM-INO-4090 Chloride by Discrete Analyser	Melbourne	Feb 16, 2018	28 Day
Sulphate (as SO4) - Method: LTM-INO-4110 Sulfate by Discrete Analyser	Melbourne	Feb 16, 2018	28 Day
Alkalinity (speciated) - Method: APHA 2320 Alkalinity by Titration	Melbourne	Feb 16, 2018	14 Day
Conductivity (at 25°C) - Method: LTM-INO-4030	Melbourne	Feb 16, 2018	28 Day
pH (at 25°C) - Method: LTM-GEN-7090 pH in water by ISE	Melbourne	Feb 16, 2018	0 Hours
Total Dissolved Solids - Method: LTM-INO-4170 Total Dissolved Solids in Water	Melbourne	Feb 16, 2018	7 Day
Total Organic Carbon - Method: APHA 5310B Total Organic Carbon	Melbourne	Feb 20, 2018	28 Day
Eurofins mgt Suite B11C: Na/K/Ca/Mg - Method: LTM-MET-3010 Alkali Metals by ICP-AES	Melbourne	Feb 16, 2018	180 Day

Sample Receipt Advice

Company name: **GHD Pty Ltd VIC**
Contact name: **Timothy Anderson**
Project name: **BULLEEN VIC 3105**
Project ID: **31/35006/0813**
COC number: **Not provided**
Turn around time: **5 Day**
Date/Time received: **Feb 14, 2018 10:08 AM**
Eurofins | mgt reference: **584938**

Sample information

- ☒ A detailed list of analytes logged into our LIMS, is included in the attached summary table.
- ☒ All samples have been received as described on the above COC.
- ☒ COC has been completed correctly.
- ☒ Attempt to chill was evident.
- ☒ Appropriately preserved sample containers have been used.
- ☒ All samples were received in good condition.
- ☒ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
- ☒ Appropriate sample containers have been used.
- ☒ Sample containers for volatile analysis received with zero headspace.
- ☒ Split sample sent to requested external lab.
- ☒ Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

Contact notes

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

Mary Makarios on Phone : +61 3 8564 5000 or by e.mail: MaryMakarios@eurofins.com

Results will be delivered electronically via e.mail to Timothy Anderson - timothy.anderson@ghd.com.

Company Name: GHD Pty Ltd VIC
Address: Level 8, 180 Lonsdale St
Melbourne
VIC 3000

Project Name: BULLEEN VIC 3105
Project ID: 31/35006/0813

Order No.:
Report #: 584938
Phone: 8687 8000
Fax: 8687 8111

Received: Feb 14, 2018 10:08 AM
Due: Feb 21, 2018
Priority: 5 Day
Contact Name: Timothy Anderson

Eurofins | mgt Analytical Services Manager : Mary Makarios

Sample Detail						Conductivity (at 25°C)	pH (at 25°C)	Total Dissolved Solids	Total Organic Carbon	Eurofins mgt Suite B19E: Total N, TKN, NOx, NO2, NO3, NH3, Total P, Reactive P	Eurofins mgt Suite B11E: Cl/SO4/Alkalinity	Eurofins mgt Suite B11C: Na/K/Ca/Mg
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217												
Brisbane Laboratory - NATA Site # 20794												
Perth Laboratory - NATA Site # 23736												
External Laboratory												
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID							
1	NEL-BH040 A / 120218	Feb 12, 2018		Water	M18-Fe16849	X	X	X	X	X	X	X
2	NEL-BH040 / 120218	Feb 12, 2018		Water	M18-Fe16850	X	X	X	X	X	X	X
3	NEL-BH070 / 120218	Feb 12, 2018		Water	M18-Fe16851	X	X	X	X	X	X	X
4	NEL-BH072 / 120218	Feb 12, 2018		Water	M18-Fe16852	X	X	X	X	X	X	X
5	RB01 / 120218	Feb 12, 2018		Water	M18-Fe16853	X	X	X	X	X	X	X
6	NEL-BH059 / 130218	Feb 13, 2018		Water	M18-Fe16854	X	X	X	X	X	X	X

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Eurofins | mgt Analytical Services Manager : Mary Makarios

Sample Detail						Conductivity (at 25°C)	pH (at 25°C)	Total Dissolved Solids	Total Organic Carbon	Eurofins mgt Suite B19E: Total N, TKN, NOx, NO2, NO3, NH3, Total P, Reactive P	Eurofins mgt Suite B11E: Cl/SO4/Alkalinity	Eurofins mgt Suite B11C: Na/K/Ca/Mg
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217												
Brisbane Laboratory - NATA Site # 20794												
Perth Laboratory - NATA Site # 23736												
7	NEL-BH095 / 130218	Feb 13, 2018		Water	M18-Fe16855	X	X	X	X	X	X	X
8	NEL-BH044 / 130218	Feb 13, 2018		Water	M18-Fe16856	X	X	X	X	X	X	X
9	NEL-BH031 / 130218	Feb 13, 2018		Water	M18-Fe16857	X	X	X	X	X	X	X
10	RB02 / 130218	Feb 13, 2018		Water	M18-Fe16858	X	X	X	X	X	X	X
Test Counts						10	10	10	10	10	10	10

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. All biota results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the 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

ug/L: micrograms per litre

ppb: Parts per billion

org/100mL: Organisms per 100 millilitres

MPN/100mL: Most Probable Number of organisms per 100 millilitres

mg/L: milligrams per litre

ppm: Parts per million

%: Percentage

NTU: Nephelometric Turbidity Units

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	Quality Systems Manual ver 5.1 US Department of Defense
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.1 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " - " in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Ammonia (as N)	mg/L	< 0.01			0.01	Pass	
Chloride	mg/L	< 1			1	Pass	
Nitrate & Nitrite (as N)	mg/L	< 0.05			0.05	Pass	
Nitrate (as N)	mg/L	< 0.02			0.02	Pass	
Nitrite (as N)	mg/L	< 0.02			0.02	Pass	
Phosphate total (as P)	mg/L	< 0.05			0.05	Pass	
Phosphorus reactive (as P)	mg/L	< 0.05			0.05	Pass	
Sulphate (as SO ₄)	mg/L	< 5			5	Pass	
Total Dissolved Solids	mg/L	< 10			10	Pass	
Total Kjeldahl Nitrogen (as N)	mg/L	< 0.2			0.2	Pass	
Total Organic Carbon	mg/L	< 5			5	Pass	
Method Blank							
Alkalinity (speciated)							
Bicarbonate Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Carbonate Alkalinity (as CaCO ₃)	mg/L	< 10			10	Pass	
Hydroxide Alkalinity (as CaCO ₃)	mg/L	< 10			10	Pass	
Total Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Method Blank							
Alkali Metals							
Calcium	mg/L	< 0.5			0.5	Pass	
Magnesium	mg/L	< 0.5			0.5	Pass	
Potassium	mg/L	< 0.5			0.5	Pass	
Sodium	mg/L	< 0.5			0.5	Pass	
LCS - % Recovery							
Ammonia (as N)	%	101			70-130	Pass	
Chloride	%	123			70-130	Pass	
Nitrate & Nitrite (as N)	%	100			70-130	Pass	
Nitrate (as N)	%	100			70-130	Pass	
Nitrite (as N)	%	120			70-130	Pass	
Phosphate total (as P)	%	87			70-130	Pass	
Phosphorus reactive (as P)	%	106			70-130	Pass	
Sulphate (as SO ₄)	%	104			70-130	Pass	
Total Dissolved Solids	%	104			70-130	Pass	
Total Kjeldahl Nitrogen (as N)	%	99			70-130	Pass	
Total Organic Carbon	%	97			70-130	Pass	
LCS - % Recovery							
Alkalinity (speciated)							
Carbonate Alkalinity (as CaCO ₃)	%	81			70-130	Pass	
Total Alkalinity (as CaCO ₃)	%	97			70-130	Pass	
LCS - % Recovery							
Alkali Metals							
Calcium	%	110			70-130	Pass	
Magnesium	%	112			70-130	Pass	
Potassium	%	95			70-130	Pass	
Sodium	%	111			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
				Result 1					
Chloride	M18-Fe15900	NCP	%	129			70-130	Pass	
Phosphate total (as P)	M18-Fe17257	NCP	%	88			70-130	Pass	
Sulphate (as SO ₄)	P18-Fe15523	NCP	%	102			70-130	Pass	
Total Kjeldahl Nitrogen (as N)	M18-Fe17257	NCP	%	86			70-130	Pass	
Spike - % Recovery									
				Result 1					
Ammonia (as N)	M18-Fe16852	CP	%	98			70-130	Pass	
Nitrate & Nitrite (as N)	M18-Fe16852	CP	%	103			70-130	Pass	
Nitrate (as N)	M18-Fe16852	CP	%	103			70-130	Pass	
Nitrite (as N)	M18-Fe16852	CP	%	118			70-130	Pass	
Spike - % Recovery									
				Result 1					
Phosphorus reactive (as P)	M18-Fe16853	CP	%	122			70-130	Pass	
Spike - % Recovery									
Alkali Metals									
				Result 1					
Calcium	M18-Fe16858	CP	%	112			70-130	Pass	
Magnesium	M18-Fe16858	CP	%	105			70-130	Pass	
Potassium	M18-Fe16858	CP	%	101			70-130	Pass	
Sodium	M18-Fe16858	CP	%	104			70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
				Result 1	Result 2	RPD			
Total Dissolved Solids	M18-Fe15881	NCP	mg/L	7500	6200	18	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Ammonia (as N)	M18-Fe16852	CP	mg/L	0.51	0.51	1.0	30%	Pass	
Nitrate & Nitrite (as N)	M18-Fe16852	CP	mg/L	0.43	0.45	4.0	30%	Pass	
Nitrate (as N)	M18-Fe16852	CP	mg/L	0.43	0.45	4.0	30%	Pass	
Nitrite (as N)	M18-Fe16852	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Chloride	M18-Fe16853	CP	mg/L	2.1	2.4	9.0	30%	Pass	
Conductivity (at 25°C)	M18-Fe16853	CP	uS/cm	1.6	1.6	4.0	30%	Pass	
pH (at 25°C)	M18-Fe16853	CP	pH Units	4.7	4.7	pass	30%	Pass	
Phosphate total (as P)	M18-Fe16853	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
Phosphorus reactive (as P)	M18-Fe16853	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
Sulphate (as SO ₄)	M18-Fe16853	CP	mg/L	< 5	< 5	<1	30%	Pass	
Total Kjeldahl Nitrogen (as N)	M18-Fe16853	CP	mg/L	< 0.2	< 0.2	<1	30%	Pass	
Total Organic Carbon	M18-Fe16853	CP	mg/L	< 5	< 5	<1	30%	Pass	
Duplicate									
Alkalinity (speciated)									
				Result 1	Result 2	RPD			
Bicarbonate Alkalinity (as CaCO ₃)	M18-Fe16853	CP	mg/L	< 20	< 20	<1	30%	Pass	
Carbonate Alkalinity (as CaCO ₃)	M18-Fe16853	CP	mg/L	< 10	< 10	<1	30%	Pass	
Hydroxide Alkalinity (as CaCO ₃)	M18-Fe16853	CP	mg/L	< 10	< 10	<1	30%	Pass	
Total Alkalinity (as CaCO ₃)	M18-Fe16853	CP	mg/L	< 20	< 20	<1	30%	Pass	
Duplicate									
Alkali Metals									
				Result 1	Result 2	RPD			
Calcium	M18-Fe16858	CP	mg/L	< 0.5	< 0.5	<1	30%	Pass	
Magnesium	M18-Fe16858	CP	mg/L	< 0.5	< 0.5	<1	30%	Pass	
Potassium	M18-Fe16858	CP	mg/L	< 0.5	< 0.5	<1	30%	Pass	
Sodium	M18-Fe16858	CP	mg/L	< 0.5	< 0.5	<1	30%	Pass	

Comments

V2 - Sample ID amended NEL-BH040 S / 120218 to NEL-BH040 A / 120218, NEL-BH040 D / 120218 to NEL-BH040 / 120218.

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

Comments

Authorised By

Mary Makarios	Analytical Services Manager
Alex Petridis	Senior Analyst-Metal (VIC)
Michael Brancati	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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Certificate of Analysis

GHD Melbourne
Level 8, 180 Lonsdale St
Melbourne
VIC 3000



NATA Accredited
Accreditation Number 1261
Site Number 1254

Accredited for compliance with ISO/IEC 17025 – Testing
 The results of the tests, calibrations and/or
 measurements included in this document are traceable
 to Australian/national standards.

Attention: Timothy Anderson

Report 584987-W-V2
Project name BULLEEN VIC 3105
Project ID 31/35006/0813
Received Date Feb 15, 2018

Client Sample ID			NEL-BH038 / 140218	NEL-BH064 / 140218	NEL-BH062 B / 140218	NEL-BH062 / 140218
Sample Matrix			Water	Water	Water	Water
Eurofins mgt Sample No.			M18-Fe17257	M18-Fe17258	M18-Fe17259	M18-Fe17260
Date Sampled			Feb 14, 2018	Feb 14, 2018	Feb 14, 2018	Feb 14, 2018
Test/Reference	LOR	Unit				
Ammonia (as N)	0.01	mg/L	0.57	0.47	1.5	2.9
Chloride	1	mg/L	4700	3900	1600	3200
Conductivity (at 25°C)	1	uS/cm	15000	14000	5400	11000
Nitrate & Nitrite (as N)	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
Nitrate (as N)	0.02	mg/L	< 0.02	< 0.02	0.03	< 0.02
Nitrite (as N)	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
pH (at 25°C)	0.1	pH Units	8.2	8.3	8.3	8.3
Phosphate total (as P)	0.05	mg/L	0.65	0.12	0.39	0.10
Phosphorus reactive (as P)	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
Sulphate (as SO4)	5	mg/L	510	390	150	300
Total Dissolved Solids	10	mg/L	7100	5800	3000	6400
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	0.6	0.5	1.6	2.4
Total Nitrogen (as N)	0.2	mg/L	0.6	0.5	1.6	2.4
Total Organic Carbon	5	mg/L	< 5	< 5	< 5	< 5
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	290	480	370	300
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	< 10	< 10	< 10
Hydroxide Alkalinity (as CaCO3)	10	mg/L	< 10	< 10	< 10	< 10
Total Alkalinity (as CaCO3)	20	mg/L	290	490	370	300
Alkali Metals						
Calcium	0.5	mg/L	210	130	92	200
Magnesium	0.5	mg/L	550	350	150	310
Potassium	0.5	mg/L	25	24	7.1	17
Sodium	0.5	mg/L	2500	2300	920	1900

Client Sample ID			NEL-BH060 / 140218	RB03 / 140218
Sample Matrix			Water	Water
Eurofins mgt Sample No.			M18-Fe17261	M18-Fe17262
Date Sampled			Feb 14, 2018	Feb 14, 2018
Test/Reference	LOR	Unit		
Ammonia (as N)	0.01	mg/L	< 0.01	< 0.01
Chloride	1	mg/L	3100	< 1
Conductivity (at 25°C)	1	uS/cm	10000	< 1
Nitrate & Nitrite (as N)	0.05	mg/L	< 0.05	< 0.05
Nitrate (as N)	0.02	mg/L	< 0.02	< 0.02
Nitrite (as N)	0.02	mg/L	< 0.02	< 0.02
pH (at 25°C)	0.1	pH Units	8.4	4.8
Phosphate total (as P)	0.05	mg/L	0.09	< 0.05
Phosphorus reactive (as P)	0.05	mg/L	< 0.05	< 0.05
Sulphate (as SO ₄)	5	mg/L	300	< 5
Total Dissolved Solids	10	mg/L	5200	< 10
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	0.2	< 0.2
Total Nitrogen (as N)	0.2	mg/L	0.2	< 0.2
Total Organic Carbon	5	mg/L	< 5	< 5
Alkalinity (speciated)				
Bicarbonate Alkalinity (as CaCO ₃)	20	mg/L	700	< 20
Carbonate Alkalinity (as CaCO ₃)	10	mg/L	34	< 10
Hydroxide Alkalinity (as CaCO ₃)	10	mg/L	< 10	< 10
Total Alkalinity (as CaCO ₃)	20	mg/L	740	< 20
Alkali Metals				
Calcium	0.5	mg/L	110	< 0.5
Magnesium	0.5	mg/L	270	< 0.5
Potassium	0.5	mg/L	25	< 0.5
Sodium	0.5	mg/L	2100	< 0.5

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Eurofins mgt Suite B19E: Total N, TKN, NOx, NO2, NO3, NH3, Total P, Reactive P			
Ammonia (as N) - Method: APHA 4500-NH3 Ammonia Nitrogen by FIA	Melbourne	Feb 16, 2018	28 Day
Nitrate & Nitrite (as N) - Method: APHA 4500-NO3/NO2 Nitrate-Nitrite Nitrogen by FIA	Melbourne	Feb 16, 2018	28 Day
Nitrate (as N) - Method: APHA 4500-NO3 Nitrate Nitrogen by FIA	Melbourne	Feb 16, 2018	7 Day
Nitrite (as N) - Method: APHA 4500-NO2 Nitrite Nitrogen by FIA	Melbourne	Feb 16, 2018	2 Day
Phosphate total (as P) - Method: APHA 4500-P E. Phosphorous	Melbourne	Feb 16, 2018	28 Day
Phosphorus reactive (as P) - Method: APHA4500-PO4	Melbourne	Feb 16, 2018	2 Day
Total Kjeldahl Nitrogen (as N) - Method: APHA 4500 TKN	Melbourne	Feb 16, 2018	7 Day
Eurofins mgt Suite B11E: Cl/SO4/Alkalinity			
Chloride - Method: LTM-INO-4090 Chloride by Discrete Analyser	Melbourne	Feb 16, 2018	28 Day
Sulphate (as SO4) - Method: LTM-INO-4110 Sulfate by Discrete Analyser	Melbourne	Feb 16, 2018	28 Day
Alkalinity (speciated) - Method: APHA 2320 Alkalinity by Titration	Melbourne	Feb 16, 2018	14 Day
Conductivity (at 25°C) - Method: LTM-INO-4030	Melbourne	Feb 16, 2018	28 Day
pH (at 25°C) - Method: LTM-GEN-7090 pH in water by ISE	Melbourne	Feb 16, 2018	0 Hours
Total Dissolved Solids - Method: LTM-INO-4170 Total Dissolved Solids in Water	Melbourne	Feb 16, 2018	7 Day
Total Organic Carbon - Method: APHA 5310B Total Organic Carbon	Melbourne	Feb 16, 2018	28 Day
Eurofins mgt Suite B11C: Na/K/Ca/Mg - Method: LTM-MET-3010 Alkali Metals by ICP-AES	Melbourne	Feb 16, 2018	180 Day



Tel: (03) 8687 8000

Page 1

of 1

Special Instructions: As per quote #180206GHDV, dated 6 February 2018	
TURN AROUND TIME REQUIRED	
<input type="checkbox"/> 1 Working Day	<input type="checkbox"/> 2 Working Days <input type="checkbox"/> 3 Working Days <input type="checkbox"/> 4 Working Days <input checked="" type="checkbox"/> 5 Working Days (standard) Other _____
SAMPLE RECEIPT	
Relinquished by: Matthew Moore Organisation: GHD	Date: 15.2.18 Time: 9:00 Received by: Jalpa Patel Organisation: MCHT Date: 15/2/18 Time: 10:22AM
DELIVERED BY: COURIER/LAB <input checked="" type="checkbox"/> ID <input type="checkbox"/>	
SAMPLE STATUS <input checked="" type="checkbox"/> Security Sealed <input checked="" type="checkbox"/> Chilled <input type="checkbox"/> Frozen <input type="checkbox"/> Ambient	
ANALYTICAL SCHEDULE	
Relinquished by: Matthew Moore Organisation: GHD	Date: 15.2.18 Time: 9:00 Received by: _____ Organisation: _____ Date: _____ Time: _____
RECEIVED BY: FAX <input type="checkbox"/> HAND <input checked="" type="checkbox"/>	
RECEIVING LABORATORY TO CONFIRM RECEIPT OF ANALYTICAL SCHEDULE BY EMAIL TO: matthew.moore@ghd.com	

Checked By: _____ Date: _____

584987

Sample Receipt Advice

Company name: **GHD Pty Ltd VIC**
Contact name: **Timothy Anderson**
Project name: **BULLEEN VIC 3105**
Project ID: **31/35006/0813**
COC number: **Not provided**
Turn around time: **5 Day**
Date/Time received: **Feb 15, 2018 10:23 AM**
Eurofins | mgt reference: **584987**

Sample information

- ☒ A detailed list of analytes logged into our LIMS, is included in the attached summary table.
- ☒ All samples have been received as described on the above COC.
- ☒ COC has been completed correctly.
- ☒ Attempt to chill was evident.
- ☒ Appropriately preserved sample containers have been used.
- ☒ All samples were received in good condition.
- ☒ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
- ☒ Appropriate sample containers have been used.
- ☒ Sample containers for volatile analysis received with zero headspace.
- ☐ Split sample sent to requested external lab.
- ☐ Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

Contact notes

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

Mary Makarios on Phone : +61 3 8564 5000 or by e.mail: MaryMakarios@eurofins.com

Results will be delivered electronically via e.mail to Timothy Anderson - timothy.anderson@ghd.com.

Company Name: GHD Pty Ltd VIC
Address: Level 8, 180 Lonsdale St
Melbourne
VIC 3000

Project Name: BULLEEN VIC 3105
Project ID: 31/35006/0813

Order No.:
Report #: 584987
Phone: 8687 8000
Fax: 8687 8111

Received: Feb 15, 2018 10:23 AM
Due: Feb 22, 2018
Priority: 5 Day
Contact Name: Timothy Anderson

Eurofins | mgt Analytical Services Manager : Mary Makarios

Sample Detail						Conductivity (at 25°C)	pH (at 25°C)	Total Dissolved Solids	Total Organic Carbon	Eurofins mgt Suite B19E: Total N, TKN, NOx, NO2, NO3, NH3, Total P, Reactive P	Eurofins mgt Suite B11E: Cl/SO4/Alkalinity	Eurofins mgt Suite B11C: Na/K/Ca/Mg
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217												
Brisbane Laboratory - NATA Site # 20794												
Perth Laboratory - NATA Site # 23736												
External Laboratory												
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID							
1	NEL-BH038 / 140218	Feb 14, 2018		Water	M18-Fe17257	X	X	X	X	X	X	X
2	NEL-BH064 / 140218	Feb 14, 2018		Water	M18-Fe17258	X	X	X	X	X	X	X
3	NEL-BH062 B / 140218	Feb 14, 2018		Water	M18-Fe17259	X	X	X	X	X	X	X
4	NEL-BH062 / 140218	Feb 14, 2018		Water	M18-Fe17260	X	X	X	X	X	X	X
5	NEL-BH060 / 140218	Feb 14, 2018		Water	M18-Fe17261	X	X	X	X	X	X	X
6	RB03 / 140218	Feb 14, 2018		Water	M18-Fe17262	X	X	X	X	X	X	X

Company Name: GHD Pty Ltd VIC
Address: Level 8, 180 Lonsdale St
Melbourne
VIC 3000

Project Name: BULLEEN VIC 3105
Project ID: 31/35006/0813

Order No.:
Report #: 584987
Phone: 8687 8000
Fax: 8687 8111

Received: Feb 15, 2018 10:23 AM
Due: Feb 22, 2018
Priority: 5 Day
Contact Name: Timothy Anderson

Eurofins | mgt Analytical Services Manager : Mary Makarios

Sample Detail	Conductivity (at 25°C)	pH (at 25°C)	Total Dissolved Solids	Total Organic Carbon	Eurofins mgt Suite B19E: Total N, TKN, NOx, NO2, NO3, NH3, Total P, Reactive P	Eurofins mgt Suite B11E: Cl/SO4/Alkalinity	Eurofins mgt Suite B11C: Na/K/Ca/Mg
Melbourne Laboratory - NATA Site # 1254 & 14271	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							
Brisbane Laboratory - NATA Site # 20794							
Perth Laboratory - NATA Site # 23736							
Test Counts	6	6	6	6	6	6	6

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. All biota results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	Quality Systems Manual ver 5.1 US Department of Defense
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.1 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " - " in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Ammonia (as N)	mg/L	< 0.01			0.01	Pass	
Chloride	mg/L	< 1			1	Pass	
Nitrate & Nitrite (as N)	mg/L	< 0.05			0.05	Pass	
Nitrate (as N)	mg/L	< 0.02			0.02	Pass	
Nitrite (as N)	mg/L	< 0.02			0.02	Pass	
Phosphate total (as P)	mg/L	< 0.05			0.05	Pass	
Phosphorus reactive (as P)	mg/L	< 0.05			0.05	Pass	
Sulphate (as SO ₄)	mg/L	< 5			5	Pass	
Total Dissolved Solids	mg/L	< 10			10	Pass	
Total Kjeldahl Nitrogen (as N)	mg/L	< 0.2			0.2	Pass	
Total Organic Carbon	mg/L	< 5			5	Pass	
Method Blank							
Alkalinity (speciated)							
Bicarbonate Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Carbonate Alkalinity (as CaCO ₃)	mg/L	< 10			10	Pass	
Hydroxide Alkalinity (as CaCO ₃)	mg/L	< 10			10	Pass	
Total Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Method Blank							
Alkali Metals							
Calcium	mg/L	< 0.5			0.5	Pass	
Magnesium	mg/L	< 0.5			0.5	Pass	
Potassium	mg/L	< 0.5			0.5	Pass	
Sodium	mg/L	< 0.5			0.5	Pass	
LCS - % Recovery							
Ammonia (as N)	%	101			70-130	Pass	
Chloride	%	130			70-130	Pass	
Nitrate & Nitrite (as N)	%	100			70-130	Pass	
Nitrate (as N)	%	100			70-130	Pass	
Nitrite (as N)	%	120			70-130	Pass	
Phosphate total (as P)	%	87			70-130	Pass	
Phosphorus reactive (as P)	%	112			70-130	Pass	
Sulphate (as SO ₄)	%	104			70-130	Pass	
Total Dissolved Solids	%	91			70-130	Pass	
Total Kjeldahl Nitrogen (as N)	%	99			70-130	Pass	
Total Organic Carbon	%	97			70-130	Pass	
LCS - % Recovery							
Alkalinity (speciated)							
Carbonate Alkalinity (as CaCO ₃)	%	81			70-130	Pass	
Total Alkalinity (as CaCO ₃)	%	97			70-130	Pass	
LCS - % Recovery							
Alkali Metals							
Calcium	%	109			70-130	Pass	
Magnesium	%	111			70-130	Pass	
Potassium	%	99			70-130	Pass	
Sodium	%	106			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-Fe16852	NCP	%	98			70-130	Pass	
Chloride	M18-Fe17388	NCP	%	113			70-130	Pass	
Nitrate & Nitrite (as N)	M18-Fe16852	NCP	%	103			70-130	Pass	
Nitrate (as N)	M18-Fe16852	NCP	%	103			70-130	Pass	
Nitrite (as N)	M18-Fe16852	NCP	%	118			70-130	Pass	
Phosphate total (as P)	M18-Fe17257	CP	%	88			70-130	Pass	
Phosphorus reactive (as P)	M18-Fe19087	NCP	%	95			70-130	Pass	
Sulphate (as SO ₄)	P18-Fe17531	NCP	%	106			70-130	Pass	
Total Kjeldahl Nitrogen (as N)	M18-Fe17257	CP	%	86			70-130	Pass	
Spike - % Recovery									
Alkali Metals									
				Result 1					
Calcium	M18-Fe16183	NCP	%	124			70-130	Pass	
Magnesium	M18-Fe16183	NCP	%	116			70-130	Pass	
Potassium	M18-Fe16183	NCP	%	110			70-130	Pass	
Sodium	M18-Fe16183	NCP	%	124			70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
				Result 1	Result 2	RPD			
Ammonia (as N)	M18-Fe16852	NCP	mg/L	0.51	0.51	1.0	30%	Pass	
Chloride	M18-Fe17257	CP	mg/L	4700	4600	1.0	30%	Pass	
Conductivity (at 25°C)	M18-Fe17257	CP	uS/cm	15000	15000	1.0	30%	Pass	
Nitrate & Nitrite (as N)	M18-Fe16852	NCP	mg/L	0.43	0.45	4.0	30%	Pass	
Nitrate (as N)	M18-Fe16852	NCP	mg/L	0.43	0.45	4.0	30%	Pass	
Nitrite (as N)	M18-Fe16852	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
pH (at 25°C)	M18-Fe17257	CP	pH Units	8.2	8.2	pass	30%	Pass	
Phosphate total (as P)	M18-Fe16853	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
Phosphorus reactive (as P)	M18-Fe17257	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
Sulphate (as SO ₄)	M18-Fe17257	CP	mg/L	510	510	1.0	30%	Pass	
Total Dissolved Solids	M18-Fe17257	CP	mg/L	7100	6700	6.0	30%	Pass	
Total Kjeldahl Nitrogen (as N)	M18-Fe16853	NCP	mg/L	< 0.2	< 0.2	<1	30%	Pass	
Total Organic Carbon	M18-Fe17257	CP	mg/L	< 5	< 5	<1	30%	Pass	
Duplicate									
Alkalinity (speciated)									
				Result 1	Result 2	RPD			
Bicarbonate Alkalinity (as CaCO ₃)	M18-Fe17257	CP	mg/L	290	290	<1	30%	Pass	
Carbonate Alkalinity (as CaCO ₃)	M18-Fe17257	CP	mg/L	< 10	< 10	<1	30%	Pass	
Hydroxide Alkalinity (as CaCO ₃)	M18-Fe17257	CP	mg/L	< 10	< 10	<1	30%	Pass	
Total Alkalinity (as CaCO ₃)	M18-Fe17257	CP	mg/L	290	290	<1	30%	Pass	
Duplicate									
Alkali Metals									
				Result 1	Result 2	RPD			
Calcium	M18-Fe16437	NCP	mg/L	96	110	11	30%	Pass	
Magnesium	M18-Fe16437	NCP	mg/L	160	180	9.0	30%	Pass	
Potassium	M18-Fe16437	NCP	mg/L	25	27	8.0	30%	Pass	
Sodium	M18-Fe16437	NCP	mg/L	930	990	6.0	30%	Pass	

Comments

V2 - sample ID amendment: NEL-BH062 M / 140218 to NEL-BH062 B / 140218, NEL-BH062 D / 140218 to NEL-BH062 / 140218.

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

Comments

Authorised By

Mary Makarios	Analytical Services Manager
Alex Petridis	Senior Analyst-Metal (VIC)
Michael Brancati	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](#).

Eurofins | mgt shall not be liable for loss, cost, damages or expenses incurred by the client, or any other person or company, resulting from the use of any information or interpretation given in this report. In no case shall Eurofins | mgt be liable for consequential damages including, but not limited to, lost profits, damages for failure to meet deadlines and lost production arising from this report. This document shall not be reproduced except in full and relates only to the items tested. Unless indicated otherwise, the tests were performed on the samples as received.

CERTIFICATE OF ANALYSIS

Work Order : **EM1802989**
Client : **GHD PTY LTD**
Contact : **MR MATTHEW MOORE**
Address : **LEVEL 8, 180 LONSDALE ST**
MELBOURNE VIC, AUSTRALIA 3001
Telephone : **----**
Project : **31350060813**
Order number : **----**
C-O-C number : **----**
Sampler : **LS, MM**
Site : **----**
Quote number : **ME/124/18 - North East Link**
No. of samples received : **5**
No. of samples analysed : **5**

Page : 1 of 2
Laboratory : Environmental Division Melbourne
Contact : Shirley LeCornu
Address : 4 Westall Rd Springvale VIC Australia 3171
Telephone : +61-3-8549 9630
Date Samples Received : 14-Feb-2018 15:25
Date Analysis Commenced : 27-Feb-2018
Issue Date : 27-Feb-2018 11:47



Accreditation No. 825
 Accredited for compliance with
 ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Samantha Smith	Laboratory Coordinator	WRG Subcontracting, Springvale, VIC



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
 LOR = Limit of reporting
 ^ = This result is computed from individual analyte detections at or above the level of reporting
 ø = ALS is not NATA accredited for these tests.
 ~ = Indicates an estimated value.

- SRB (MM669) is conducted by ALS Scoresby NATA accreditation no. 992, site no. 989. NATA accreditation does not cover performance of this method.

Analytical Results

Sub-Matrix: **WATER**
 (Matrix: **WATER**)

Client sample ID

				NEL-BH038 / 140218	NEL-BH064 / 140218	NEL-BH062 M / 140218	NEL-BH062 D / 140218	NEL-BH060 / 140218
Client sampling date / time				14-Feb-2018 00:00	14-Feb-2018 00:00	14-Feb-2018 00:00	14-Feb-2018 00:00	14-Feb-2018 00:00
Compound	CAS Number	LOR	Unit	EM1802989-001	EM1802989-002	EM1802989-003	EM1802989-004	EM1802989-005
				Result	Result	Result	Result	Result
MM669: Sulphate Reducing Bacteria								
Sulphate Reducing Bacteria Population Estimate	----	20	pac/mL	27000	27000	27000	320	27000
Aggressivity	----	1	-	High	High	High	Medium	High



180 Latrobe Street, Melbourne VIC 3000

Tel: (03) 8687 8000

CHAIN OF CUSTODY

Page 1

of 1

Environmental Division
Melbourne
Work Order Reference
EM1802989



Telephones: 1-877-3-6549 9800

Special Instructions:										
TURN AROUND TIME REQUIRED										
<input type="checkbox"/> 1 Working Day	<input type="checkbox"/> 2 Working Days	<input type="checkbox"/> 3 Working Days	<input type="checkbox"/> 4 Working Days	<input checked="" type="checkbox"/> 5 Working Days (standard)	Other _____					
SAMPLE RECEIPT										
Relinquished by:	Matthew Moore	Date:	14-2-18	Received by:	<i>[Signature]</i>	Date:	14/2	DELIVERED BY:		SAMPLE STATUS
Organisation:	GHD	Time:	14:30	Organisation:	<i>[Signature]</i>	Time:	15:25	COURIER/LAB	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Security Sealed
								GHD	<input type="checkbox"/>	
ANALYTICAL SCHEDULE										
Relinquished by:	Matthew Moore	Date:	14-2-18	Received by:		Date:		RECEIVED BY:		<input checked="" type="checkbox"/> Chilled
Organisation:	GHD	Time:	14:30	Organisation:		Time:		FAX	<input type="checkbox"/>	<input type="checkbox"/> Frozen
								HAND	<input checked="" type="checkbox"/>	<input type="checkbox"/> Ambient
RECEIVING LABORATORY TO CONFIRM RECEIPT OF ANALYTICAL SCHEDULE BY EMAIL TO: matthew.moore5@ghd.com										

Checked By: _____ Date: _____

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : EM1802989

<p>Client : GHD PTY LTD</p> <p>Contact : MR MATTHEW MOORE</p> <p>Address : LEVEL 8, 180 LONSDALE ST MELBOURNE VIC, AUSTRALIA 3001</p> <p>E-mail : matthew.moore5@ghd.com</p> <p>Telephone : ----</p> <p>Facsimile : ----</p> <p>Project : 31350060813</p> <p>Order number : ----</p> <p>C-O-C number : ----</p> <p>Site : Bulleen, VIC 3105</p> <p>Sampler : LS, MM</p>	<p>Laboratory : Environmental Division Melbourne</p> <p>Contact : Shirley LeCornu</p> <p>Address : 4 Westall Rd Springvale VIC Australia 3171</p> <p>E-mail : shirley.lecornu@Alsglobal.com</p> <p>Telephone : +61-3-8549 9630</p> <p>Facsimile : +61-3-8549 9601</p> <p>Page : 1 of 3</p> <p>Quote number : EB2017GHDSE0022 (EN/005/17)</p> <p>QC Level : NEPM 2013 B3 & ALS QC Standard</p>
--	--

Dates

Date Samples Received : 14-Feb-2018 15:25	Issue Date : 14-Feb-2018
Client Requested Due : 21-Feb-2018	Scheduled Reporting Date : 01-Mar-2018
Date	

Delivery Details

Mode of Delivery : Carrier	Security Seal : Intact.
No. of coolers/boxes : 1	Temperature : 3.1°C - Ice present
Receipt Detail :	No. of samples received / analysed : 5 / 5

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- **The scheduled reporting date has been extended due to the time required to analyse for Sulphate Reducing Bacteria.**
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **Analytical work for this work order will be conducted at ALS Springvale.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**



Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

EM1802989-003 : [14-Feb-2018] : NEL-BH062 M / 140218

EM1802989-004 : [14-Feb-2018] : NEL-BH062 D / 140218

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - MM669 (Subcontracted) Sulphate Reducing Bacteria (BART)
EM1802989-001	14-Feb-2018 00:00	NEL-BH038 / 140218	✓
EM1802989-002	14-Feb-2018 00:00	NEL-BH064 / 140218	✓
EM1802989-003	14-Feb-2018 00:00	NEL-BH062 M / 140218	✓
EM1802989-004	14-Feb-2018 00:00	NEL-BH062 D / 140218	✓
EM1802989-005	14-Feb-2018 00:00	NEL-BH060 / 140218	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

ALL ACCOUNTS (Melbourne)

- Email ap-fss@ghd.com

[illegible][illegible][illegible]

QUALITY CONTROL REPORT

Work Order	: EM1802989	Page	: 1 of 3
Client	: GHD PTY LTD	Laboratory	: Environmental Division Melbourne
Contact	: MR MATTHEW MOORE	Contact	: Shirley LeCornu
Address	: LEVEL 8, 180 LONSDALE ST MELBOURNE VIC, AUSTRALIA 3001	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +61-3-8549 9630
Project	: 31350060813	Date Samples Received	: 14-Feb-2018
Order number	: ----	Date Analysis Commenced	: 27-Feb-2018
C-O-C number	: ----	Issue Date	: 27-Feb-2018
Sampler	: LS, MM		
Site	: ----		
Quote number	: ME/124/18 - North East Link		
No. of samples received	: 5		
No. of samples analysed	: 5		



This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Samantha Smith	Laboratory Coordinator	WRG Subcontracting, Springvale, VIC



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key :
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
= Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

- **No Laboratory Duplicate (DUP) Results are required to be reported.**



Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

- **No Method Blank (MB) or Laboratory Control Spike (LCS) Results are required to be reported.**

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

QA/QC Compliance Assessment to assist with Quality Review

Work Order : **EM1802989**

Page : 1 of 4

Client : **GHD PTY LTD**
Contact : **MR MATTHEW MOORE**
Project : **31350060813**
Site : **----**
Sampler : **LS, MM**
Order number : **----**

Laboratory : **Environmental Division Melbourne**
Telephone : **+61-3-8549 9630**
Date Samples Received : **14-Feb-2018**
Issue Date : **27-Feb-2018**
No. of samples received : **5**
No. of samples analysed : **5**

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**



Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix:

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation



Quality Control Parameter Frequency Compliance

- No Quality Control data available for this section.



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Sulphate Reducing Bacteria (BART)	MM669	WATER	Specialist microbiological analysis subcontracted to ALS Scoresby (NATA accreditation does not cover this service).

Certificate of Analysis

GHD Melbourne
Level 8, 180 Lonsdale St
Melbourne
VIC 3000



NATA Accredited
Accreditation Number 1261
Site Number 1254

Accredited for compliance with ISO/IEC 17025 – Testing
 The results of the tests, calibrations and/or
 measurements included in this document are traceable
 to Australian/national standards.

Attention: Timothy Anderson

Report 585222-W-V2
Project name BULLEEN VIC 3105
Project ID 31/35006/0813
Received Date Feb 16, 2018

Client Sample ID			NEL-BH098/150218 Water M18-Fe19085 Feb 15, 2018	NEL-BH097/150218 Water M18-Fe19086 Feb 15, 2018	NEL-BH004 A / 150218 Water M18-Fe19087 Feb 15, 2018	NEL-BH004 / 150218 Water M18-Fe19088 Feb 15, 2018
Sample Matrix						
Eurofins mgt Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
Ammonia (as N)	0.01	mg/L	< 0.01	0.10	0.16	1.0
Chloride	1	mg/L	2800	3800	740	3100
Conductivity (at 25°C)	1	uS/cm	7200	10000	2600	8000
Nitrate & Nitrite (as N)	0.05	mg/L	< 0.05	0.08	< 0.05	< 0.05
Nitrate (as N)	0.02	mg/L	< 0.02	0.08	< 0.02	< 0.02
Nitrite (as N)	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
pH (at 25°C)	0.1	pH Units	7.2	7.7	8.1	8.0
Phosphate total (as P)	0.05	mg/L	0.07	0.14	0.30	0.15
Phosphorus reactive (as P)	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
Sulphate (as SO4)	5	mg/L	420	520	87	350
Total Dissolved Solids	10	mg/L	5300	6800	1700	5700
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	< 0.2	0.3	0.5	1.3
Total Nitrogen (as N)	0.2	mg/L	< 0.2	0.4	0.5	1.3
Total Organic Carbon	5	mg/L	< 5	< 5	< 5	< 5
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	250	760	660	430
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	< 10	< 10	< 10
Hydroxide Alkalinity (as CaCO3)	10	mg/L	< 10	< 10	< 10	< 10
Total Alkalinity (as CaCO3)	20	mg/L	250	760	660	430
Alkali Metals						
Calcium	0.5	mg/L	83	110	33	150
Magnesium	0.5	mg/L	230	460	50	350
Potassium	0.5	mg/L	27	55	< 5	18
Sodium	0.5	mg/L	1600	2900	630	2100

Client Sample ID			RB04/150218
Sample Matrix			Water
Eurofins mgt Sample No.			M18-Fe19089
Date Sampled			Feb 15, 2018
Test/Reference	LOR	Unit	
Ammonia (as N)	0.01	mg/L	< 0.01
Chloride	1	mg/L	< 1
Conductivity (at 25°C)	1	uS/cm	< 1
Nitrate & Nitrite (as N)	0.05	mg/L	< 0.05
Nitrate (as N)	0.02	mg/L	< 0.02
Nitrite (as N)	0.02	mg/L	< 0.02
pH (at 25°C)	0.1	pH Units	4.5
Phosphate total (as P)	0.05	mg/L	< 0.05
Phosphorus reactive (as P)	0.05	mg/L	< 0.05
Sulphate (as SO ₄)	5	mg/L	< 5
Total Dissolved Solids	10	mg/L	< 10
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	< 0.2
Total Nitrogen (as N)	0.2	mg/L	< 0.2
Total Organic Carbon	5	mg/L	< 5
Alkalinity (speciated)			
Bicarbonate Alkalinity (as CaCO ₃)	20	mg/L	< 20
Carbonate Alkalinity (as CaCO ₃)	10	mg/L	< 10
Hydroxide Alkalinity (as CaCO ₃)	10	mg/L	< 10
Total Alkalinity (as CaCO ₃)	20	mg/L	< 20
Alkali Metals			
Calcium	0.5	mg/L	< 0.5
Magnesium	0.5	mg/L	< 0.5
Potassium	0.5	mg/L	< 0.5
Sodium	0.5	mg/L	< 0.5

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.

A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Eurofins mgt Suite B19E: Total N, TKN, NOx, NO2, NO3, NH3, Total P, Reactive P			
Ammonia (as N) - Method: APHA 4500-NH3 Ammonia Nitrogen by FIA	Melbourne	Feb 19, 2018	28 Day
Nitrate & Nitrite (as N) - Method: APHA 4500-NO3/NO2 Nitrate-Nitrite Nitrogen by FIA	Melbourne	Feb 19, 2018	28 Day
Nitrate (as N) - Method: APHA 4500-NO3 Nitrate Nitrogen by FIA	Melbourne	Feb 19, 2018	7 Day
Nitrite (as N) - Method: APHA 4500-NO2 Nitrite Nitrogen by FIA	Melbourne	Feb 19, 2018	2 Day
Phosphate total (as P) - Method: APHA 4500-P E. Phosphorous	Melbourne	Feb 19, 2018	28 Day
Phosphorus reactive (as P) - Method: APHA4500-PO4	Melbourne	Feb 19, 2018	2 Day
Total Kjeldahl Nitrogen (as N) - Method: APHA 4500 TKN	Melbourne	Feb 19, 2018	7 Day
Eurofins mgt Suite B11E: Cl/SO4/Alkalinity			
Chloride - Method: LTM-INO-4090 Chloride by Discrete Analyser	Melbourne	Feb 19, 2018	28 Day
Sulphate (as SO4) - Method: LTM-INO-4110 Sulfate by Discrete Analyser	Melbourne	Feb 19, 2018	28 Day
Alkalinity (speciated) - Method: APHA 2320 Alkalinity by Titration	Melbourne	Feb 19, 2018	14 Day
Conductivity (at 25°C) - Method: LTM-INO-4030	Melbourne	Feb 19, 2018	28 Day
pH (at 25°C) - Method: LTM-GEN-7090 pH in water by ISE	Melbourne	Feb 19, 2018	0 Hours
Total Dissolved Solids - Method: LTM-INO-4170 Total Dissolved Solids in Water	Melbourne	Feb 19, 2018	7 Day
Total Organic Carbon - Method: APHA 5310B Total Organic Carbon	Melbourne	Feb 19, 2018	28 Day
Eurofins mgt Suite B11C: Na/K/Ca/Mg - Method: LTM-MET-3010 Alkali Metals by ICP-AES	Melbourne	Feb 19, 2018	180 Day



180 Latrobe Street, Melbourne VIC 3000

Tel: (03) 8687 8000

Page

of

Checked By: _____ Date: _____

Sample Receipt Advice

Company name: **GHD Pty Ltd VIC**
Contact name: **Timothy Anderson**
Project name: **BULLEEN VIC 3105**
Project ID: **31/35006/0813**
COC number: **Not provided**
Turn around time: **5 Day**
Date/Time received: **Feb 16, 2018 11:22 AM**
Eurofins | mgt reference: **585222**

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

RB03 received as RB04.

Contact notes

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

Mary Makarios on Phone : +61 3 8564 5000 or by e.mail: MaryMakarios@eurofins.com

Results will be delivered electronically via e.mail to Timothy Anderson - timothy.anderson@ghd.com.

Company Name: GHD Pty Ltd VIC
Address: Level 8, 180 Lonsdale St
Melbourne
VIC 3000

Project Name: BULLEEN VIC 3105
Project ID: 31/35006/0813

Order No.:
Report #: 585222
Phone: 8687 8000
Fax: 8687 8111

Received: Feb 16, 2018 11:22 AM
Due: Feb 23, 2018
Priority: 5 Day
Contact Name: Timothy Anderson

Eurofins | mgt Analytical Services Manager : Mary Makarios

Sample Detail						Conductivity (at 25°C)	pH (at 25°C)	Total Dissolved Solids	Total Organic Carbon	Eurofins mgt Suite B19E: Total N, TKN, NOx, NO2, NO3, NH3, Total P, Reactive P	Eurofins mgt Suite B11E: Cl/SO4/Alkalinity	Eurofins mgt Suite B11C: Na/K/Ca/Mg
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217												
Brisbane Laboratory - NATA Site # 20794												
Perth Laboratory - NATA Site # 23736												
External Laboratory												
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID							
1	NEL-BH098/150218	Feb 15, 2018		Water	M18-Fe19085	X	X	X	X	X	X	X
2	NEL-BH097/150218	Feb 15, 2018		Water	M18-Fe19086	X	X	X	X	X	X	X
3	NEL-BH004 A / 150218	Feb 15, 2018		Water	M18-Fe19087	X	X	X	X	X	X	X
4	NEL-BH004 / 150218	Feb 15, 2018		Water	M18-Fe19088	X	X	X	X	X	X	X
5	RB04/150218	Feb 15, 2018		Water	M18-Fe19089	X	X	X	X	X	X	X
Test Counts						5	5	5	5	5	5	5

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. All biota results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the 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

ug/L: micrograms per litre

ppb: Parts per billion

org/100mL: Organisms per 100 millilitres

MPN/100mL: Most Probable Number of organisms per 100 millilitres

mg/L: milligrams per litre

ppm: Parts per million

%: Percentage

NTU: Nephelometric Turbidity Units

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	Quality Systems Manual ver 5.1 US Department of Defense
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.1 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " - " in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Ammonia (as N)	mg/L	< 0.01			0.01	Pass	
Chloride	mg/L	< 1			1	Pass	
Nitrate & Nitrite (as N)	mg/L	< 0.05			0.05	Pass	
Nitrate (as N)	mg/L	< 0.02			0.02	Pass	
Nitrite (as N)	mg/L	< 0.02			0.02	Pass	
Phosphate total (as P)	mg/L	< 0.05			0.05	Pass	
Phosphorus reactive (as P)	mg/L	< 0.05			0.05	Pass	
Sulphate (as SO ₄)	mg/L	< 5			5	Pass	
Total Dissolved Solids	mg/L	< 10			10	Pass	
Total Kjeldahl Nitrogen (as N)	mg/L	< 0.2			0.2	Pass	
Total Organic Carbon	mg/L	< 5			5	Pass	
Method Blank							
Alkalinity (speciated)							
Bicarbonate Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Carbonate Alkalinity (as CaCO ₃)	mg/L	< 10			10	Pass	
Hydroxide Alkalinity (as CaCO ₃)	mg/L	< 10			10	Pass	
Total Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Method Blank							
Alkali Metals							
Calcium	mg/L	< 0.5			0.5	Pass	
Magnesium	mg/L	< 0.5			0.5	Pass	
Potassium	mg/L	< 0.5			0.5	Pass	
Sodium	mg/L	< 0.5			0.5	Pass	
LCS - % Recovery							
Ammonia (as N)	%	113			70-130	Pass	
Chloride	%	118			70-130	Pass	
Nitrate & Nitrite (as N)	%	94			70-130	Pass	
Nitrate (as N)	%	94			70-130	Pass	
Nitrite (as N)	%	125			70-130	Pass	
Phosphate total (as P)	%	91			70-130	Pass	
Phosphorus reactive (as P)	%	112			70-130	Pass	
Sulphate (as SO ₄)	%	112			70-130	Pass	
Total Dissolved Solids	%	117			70-130	Pass	
Total Kjeldahl Nitrogen (as N)	%	106			70-130	Pass	
Total Organic Carbon	%	99			70-130	Pass	
LCS - % Recovery							
Alkalinity (speciated)							
Carbonate Alkalinity (as CaCO ₃)	%	94			70-130	Pass	
Total Alkalinity (as CaCO ₃)	%	101			70-130	Pass	
LCS - % Recovery							
Alkali Metals							
Calcium	%	118			70-130	Pass	
Magnesium	%	114			70-130	Pass	
Potassium	%	111			70-130	Pass	
Sodium	%	116			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-Fe19597	NCP	%	113			70-130	Pass	
Chloride	S18-Fe19147	NCP	%	103			70-130	Pass	
Nitrate & Nitrite (as N)	M18-Fe19597	NCP	%	92			70-130	Pass	
Nitrate (as N)	M18-Fe19597	NCP	%	92			70-130	Pass	
Nitrite (as N)	M18-Fe19597	NCP	%	126			70-130	Pass	
Phosphate total (as P)	M18-Fe18882	NCP	%	96			70-130	Pass	
Sulphate (as SO4)	S18-Fe18897	NCP	%	88			70-130	Pass	
Total Kjeldahl Nitrogen (as N)	M18-Fe18882	NCP	%	96			70-130	Pass	
Spike - % Recovery									
Alkali Metals									
				Result 1					
Calcium	M18-Fe19086	CP	%	120			70-130	Pass	
Magnesium	M18-Fe19086	CP	%	108			70-130	Pass	
Potassium	M18-Fe19086	CP	%	108			70-130	Pass	
Sodium	M18-Fe19086	CP	%	107			70-130	Pass	
Spike - % Recovery									
				Result 1					
Phosphorus reactive (as P)	M18-Fe19087	CP	%	95			70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
				Result 1	Result 2	RPD			
Ammonia (as N)	A18-Fe18701	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Chloride	S18-Fe19147	NCP	mg/L	55	53	4.0	30%	Pass	
Conductivity (at 25°C)	M18-Fe20041	NCP	uS/cm	5000	5000	1.0	30%	Pass	
Nitrate & Nitrite (as N)	A18-Fe18701	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
Nitrate (as N)	A18-Fe18701	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Nitrite (as N)	A18-Fe18701	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
pH (at 25°C)	M18-Fe20041	NCP	pH Units	8.0	7.9	pass	30%	Pass	
Phosphate total (as P)	M18-Fe19085	CP	mg/L	0.07	0.06	8.0	30%	Pass	
Sulphate (as SO4)	S18-Fe19147	NCP	mg/L	27	27	<1	30%	Pass	
Total Kjeldahl Nitrogen (as N)	M18-Fe19085	CP	mg/L	< 0.2	< 0.2	<1	30%	Pass	
Duplicate									
Alkalinity (speciated)									
				Result 1	Result 2	RPD			
Bicarbonate Alkalinity (as CaCO3)	M18-Fe20041	NCP	mg/L	820	810	1.0	30%	Pass	
Carbonate Alkalinity (as CaCO3)	M18-Fe20041	NCP	mg/L	< 10	< 10	<1	30%	Pass	
Hydroxide Alkalinity (as CaCO3)	M18-Fe20041	NCP	mg/L	< 10	< 10	<1	30%	Pass	
Total Alkalinity (as CaCO3)	M18-Fe20041	NCP	mg/L	820	810	1.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Total Dissolved Solids	M18-Fe19086	CP	mg/L	6800	7000	4.0	30%	Pass	
Total Organic Carbon	M18-Fe19086	CP	mg/L	< 5	< 5	<1	30%	Pass	
Duplicate									
Alkali Metals									
				Result 1	Result 2	RPD			
Calcium	M18-Fe19086	CP	mg/L	110	110	3.0	30%	Pass	
Magnesium	M18-Fe19086	CP	mg/L	460	450	3.0	30%	Pass	
Potassium	M18-Fe19086	CP	mg/L	55	54	3.0	30%	Pass	
Sodium	M18-Fe19086	CP	mg/L	2900	2800	3.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Phosphorus reactive (as P)	M18-Fe19087	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass	

Comments

V2 - sample ID amendment: NEL-BH004 S / 150218 to NEL-BH004 A / 150218, NEL-BH004 D / 150218 to NEL-BH004 / 150218.

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

Comments

Authorised By

Mary Makarios	Analytical Services Manager
Alex Petridis	Senior Analyst-Metal (VIC)
Michael Brancati	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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CERTIFICATE OF ANALYSIS

Work Order : **EM1803079**
Client : **GHD PTY LTD**
Contact : **MR MATTHEW MOORE**
Address : **LEVEL 8, 180 LONSDALE ST**
MELBOURNE VIC, AUSTRALIA 3001
Telephone : **----**
Project : **31350060813**
Order number : **----**
C-O-C number : **----**
Sampler : **LS, MM**
Site : **----**
Quote number : **ME/124/18 - North East Link**
No. of samples received : **4**
No. of samples analysed : **4**

Page : 1 of 2
Laboratory : Environmental Division Melbourne
Contact : Shirley LeCornu
Address : 4 Westall Rd Springvale VIC Australia 3171
Telephone : +61-3-8549 9630
Date Samples Received : 15-Feb-2018 16:10
Date Analysis Commenced : 27-Feb-2018
Issue Date : 27-Feb-2018 11:46



Accreditation No. 825
 Accredited for compliance with
 ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Samantha Smith	Laboratory Coordinator	WRG Subcontracting, Springvale, VIC



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
 LOR = Limit of reporting
 ^ = This result is computed from individual analyte detections at or above the level of reporting
 ø = ALS is not NATA accredited for these tests.
 ~ = Indicates an estimated value.

- SRB (MM669) is conducted by ALS Scoresby NATA accreditation no. 992, site no. 989. NATA accreditation does not cover performance of this method.

Analytical Results

Sub-Matrix: **WATER**
 (Matrix: **WATER**)

Client sample ID

				NEL-BH098 / 150218	NEL-BH097 / 150218	NEL-BH004 S / 150218	NEL-BH004 D / 150218	----
Client sampling date / time				15-Feb-2018 00:00	15-Feb-2018 00:00	15-Feb-2018 00:00	15-Feb-2018 00:00	----
Compound	CAS Number	LOR	Unit	EM1803079-001	EM1803079-002	EM1803079-003	EM1803079-004	-----
				Result	Result	Result	Result	----
MM669: Sulphate Reducing Bacteria								
Sulphate Reducing Bacteria Population Estimate	----	20	pac/mL	320	120000	120000	320	----
Aggressivity	----	1	-	Medium	High	High	Medium	----



180 Latrobe Street, Melbourne VIC 3000

Tel: (03) 8687 8000

Page

of

Telephone 1-613-854-9960

Special Instructions:

RECEIVING LABORATORY TO CONFIRM RECEIPT OF ANALYTICAL SCHEDULE BY EMAIL TO: matthew.moore5@ghd.com

Checked By: _____ Date: _____

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : EM1803079

Client	: GHD PTY LTD	Laboratory	: Environmental Division Melbourne
Contact	: MR MATTHEW MOORE	Contact	: Shirley LeCornu
Address	: LEVEL 8, 180 LONSDALE ST MELBOURNE VIC, AUSTRALIA 3001	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: matthew.moore5@ghd.com	E-mail	: shirley.lecornu@Alsglobal.com
Telephone	: ----	Telephone	: +61-3-8549 9630
Facsimile	: ----	Facsimile	: +61-3-8549 9601
Project	: 31350060813	Page	: 1 of 3
Order number	: ----	Quote number	: EB2017GHDSE0022 (EN/005/17)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Bulleen, VIC 3105		
Sampler	: LS, MM		

Dates

Date Samples Received	: 15-Feb-2018 16:10	Issue Date	: 16-Feb-2018
Client Requested Due Date	: 22-Feb-2018	Scheduled Reporting Date	: 22-Feb-2018

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 1	Temperature	: 5.6°C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 4 / 4

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **Analytical work for this work order will be conducted at ALS Scoresby.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**



Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- No sample container / preservation non-compliance exists.

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

EM1803079-003 : [15-Feb-2018] : NEL-BH004 S / 150218

EM1803079-004 : [15-Feb-2018] : NEL-BH004 D / 150218

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - MM669 (Subcontracted) Sulphate Reducing Bacteria (BART)
EM1803079-001	15-Feb-2018 00:00	NEL-BH098 / 150218	✓
EM1803079-002	15-Feb-2018 00:00	NEL-BH097 / 150218	✓
EM1803079-003	15-Feb-2018 00:00	NEL-BH004 S / 150218	✓
EM1803079-004	15-Feb-2018 00:00	NEL-BH004 D / 150218	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

QUALITY CONTROL REPORT

Work Order	: EM1803079	Page	: 1 of 3
Client	: GHD PTY LTD	Laboratory	: Environmental Division Melbourne
Contact	: MR MATTHEW MOORE	Contact	: Shirley LeCornu
Address	: LEVEL 8, 180 LONSDALE ST MELBOURNE VIC, AUSTRALIA 3001	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +61-3-8549 9630
Project	: 31350060813	Date Samples Received	: 15-Feb-2018
Order number	: ----	Date Analysis Commenced	: 27-Feb-2018
C-O-C number	: ----	Issue Date	: 27-Feb-2018
Sampler	: LS, MM		
Site	: ----		
Quote number	: ME/124/18 - North East Link		
No. of samples received	: 4		
No. of samples analysed	: 4		



This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Samantha Smith	Laboratory Coordinator	WRG Subcontracting, Springvale, VIC



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
 CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
 LOR = Limit of reporting
 RPD = Relative Percentage Difference
 # = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

- **No Laboratory Duplicate (DUP) Results are required to be reported.**



Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

- **No Method Blank (MB) or Laboratory Control Spike (LCS) Results are required to be reported.**

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**
-

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: EM1803079	Page	: 1 of 4
Client	: GHD PTY LTD	Laboratory	: Environmental Division Melbourne
Contact	: MR MATTHEW MOORE	Telephone	: +61-3-8549 9630
Project	: 31350060813	Date Samples Received	: 15-Feb-2018
Site	: ----	Issue Date	: 27-Feb-2018
Sampler	: LS, MM	No. of samples received	: 4
Order number	: ----	No. of samples analysed	: 4

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO** Method Blank value outliers occur.
- **NO** Duplicate outliers occur.
- **NO** Laboratory Control outliers occur.
- **NO** Matrix Spike outliers occur.
- For all regular sample matrices, **NO** surrogate recovery outliers occur.

Outliers : Analysis Holding Time Compliance

- **NO** Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- **NO** Quality Control Sample Frequency Outliers exist.



Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix:

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation



Quality Control Parameter Frequency Compliance

- No Quality Control data available for this section.



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Sulphate Reducing Bacteria (BART)	MM669	WATER	Specialist microbiological analysis subcontracted to ALS Scoresby (NATA accreditation does not cover this service).

Certificate of Analysis

GHD Melbourne
 Level 8, 180 Lonsdale St
 Melbourne
 VIC 3000



NATA Accredited
 Accreditation Number 1261
 Site Number 1254

Accredited for compliance with ISO/IEC 17025 – Testing
 The results of the tests, calibrations and/or
 measurements included in this document are traceable
 to Australian/national standards.

Attention: Timothy Anderson

Report 585329-W-V2
 Project name BULLEEN VIC 3105
 Project ID 31/35006/0813
 Received Date Feb 16, 2018

Client Sample ID			QC1/160218	NEL-BH125/160218	NEL-BH091/160218	NEL-BH062 A / 160218
Sample Matrix			Water	Water	Water	Water
Eurofins mgt Sample No.			M18-Fe20055	M18-Fe20056	M18-Fe20057	M18-Fe20058
Date Sampled			Feb 16, 2018	Feb 16, 2018	Feb 16, 2018	Feb 16, 2018
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05	< 0.05	0.58	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1	< 0.1	0.4	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C10-36 (Total)	0.1	mg/L	< 0.1	< 0.1	0.98	< 0.1
BTEX						
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	0.009
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Xylenes - Total	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
4-Bromofluorobenzene (surr.)	1	%	125	125	121	122
Volatile Organics						
1.1-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.1-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.1.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.2-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.2.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dibromoethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2.3-Trichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2.4-Trimethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3.5-Trimethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.4-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Butanone (MEK)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Propanone (Acetone)	0.001	mg/L	< 0.005	< 0.005	< 0.001	< 0.001
4-Chlorotoluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
4-Methyl-2-pentanone (MIBK)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Allyl chloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001

Client Sample ID			QC1/160218	NEL-BH125/160218	NEL-BH091/160218	NEL-BH062 A / 160218
Sample Matrix			Water	Water	Water	Water
Eurofins mgt Sample No.			M18-Fe20055	M18-Fe20056	M18-Fe20057	M18-Fe20058
Date Sampled			Feb 16, 2018	Feb 16, 2018	Feb 16, 2018	Feb 16, 2018
Test/Reference	LOR	Unit				
Volatile Organics						
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromodichloromethane	0.001	mg/L	< 0.001	< 0.001	0.001	< 0.001
Bromoform	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Carbon disulfide	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Carbon Tetrachloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chloroform	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
cis-1,2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
cis-1,3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibromomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dichlorodifluoromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Iodomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Isopropyl benzene (Cumene)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Methylene Chloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Styrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Tetrachloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	0.009
trans-1,2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
trans-1,3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trichlorofluoromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Vinyl chloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Xylenes - Total	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Total MAH*	0.003	mg/L	< 0.003	< 0.003	< 0.003	0.009
Vic EPA IWRG 621 CHC (Total)*	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Vic EPA IWRG 621 Other CHC (Total)*	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Bromofluorobenzene (surr.)	1	%	125	125	121	122
Toluene-d8 (surr.)	1	%	105	105	103	106
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C6-C10 less BTEX (F1) ^{N04}	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C10-C16 less Naphthalene (F2) ^{N01}	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1	< 0.1	0.5	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1

Client Sample ID			QC1/160218 Water M18-Fe20055 Feb 16, 2018	NEL- BH125/160218 Water M18-Fe20056 Feb 16, 2018	NEL- BH091/160218 Water M18-Fe20057 Feb 16, 2018	NEL-BH062 A / 160218 Water M18-Fe20058 Feb 16, 2018
Sample Matrix						
Eurofins mgt Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene ^{N07}	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g,h,i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibenz(a,h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Fluorobiphenyl (surr.)	1	%	68	61	88	72
p-Terphenyl-d14 (surr.)	1	%	70	78	93	96
Organochlorine Pesticides						
Chlordanes - Total	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
4.4'-DDD	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
4.4'-DDE	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
4.4'-DDT	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
a-BHC	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Aldrin	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
b-BHC	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
d-BHC	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Dieldrin	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endosulfan I	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endosulfan II	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endosulfan sulphate	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endrin	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endrin aldehyde	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endrin ketone	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
g-BHC (Lindane)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Heptachlor	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Heptachlor epoxide	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Hexachlorobenzene	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Methoxychlor	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Toxaphene	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Aldrin and Dieldrin (Total)*	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
DDT + DDE + DDD (Total)*	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Vic EPA IWRG 621 OCP (Total)*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Vic EPA IWRG 621 Other OCP (Total)*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibutylchlorendate (surr.)	1	%	84	102	74	81
Tetrachloro-m-xylene (surr.)	1	%	131	150	94	92

Client Sample ID			QC1/160218 Water	NEL- BH125/160218 Water	NEL- BH091/160218 Water	NEL-BH062 A / 160218 Water
Sample Matrix			M18-Fe20055	M18-Fe20056	M18-Fe20057	M18-Fe20058
Eurofins mgt Sample No.			Feb 16, 2018	Feb 16, 2018	Feb 16, 2018	Feb 16, 2018
Date Sampled						
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Azinphos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Bolstar	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Chlorfenvinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Chlorpyrifos	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Chlorpyrifos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Coumaphos	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Demeton-S	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Demeton-O	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Diazinon	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dichlorvos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dimethoate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Disulfoton	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
EPN	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethoprop	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fenitrothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fensulfothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fenthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Malathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Merphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Methyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Mevinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Monocrotophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Naled	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Omethoate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Phorate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Pirimiphos-methyl	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Pyrazophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ronnel	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Terbufos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Tetrachlorvinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Tokuthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Trichloronate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Triphenylphosphate (surr.)	1	%	98	90	106	77
Polychlorinated Biphenyls						
Aroclor-1016	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1221	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1232	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1242	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1248	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1254	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1260	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Total PCB*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibutylchloredate (surr.)	1	%	84	102	74	81
Tetrachloro-m-xylene (surr.)	1	%	131	150	94	92

Client Sample ID			QC1/160218	NEL-BH125/160218	NEL-BH091/160218	NEL-BH062 A / 160218
Sample Matrix			Water	Water	Water	Water
Eurofins mgt Sample No.			M18-Fe20055	M18-Fe20056	M18-Fe20057	M18-Fe20058
Date Sampled			Feb 16, 2018	Feb 16, 2018	Feb 16, 2018	Feb 16, 2018
Test/Reference	LOR	Unit				
Phenols (Halogenated)						
2-Chlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2,4-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2,4,5-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2,4,6-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2,6-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
4-Chloro-3-methylphenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Pentachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Tetrachlorophenols - Total	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
Total Halogenated Phenol*	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Phenols (non-Halogenated)						
2-Cyclohexyl-4,6-dinitrophenol	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
2-Methyl-4,6-dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
2-Methylphenol (o-Cresol)	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2-Nitrophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2,4-Dimethylphenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2,4-Dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	< 0.006	< 0.006	< 0.006	< 0.006
4-Nitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
Dinoseb	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
Phenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Total Non-Halogenated Phenol*	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
Phenol-d6 (surr.)	1	%	44	38	84	50
Semivolatile Organics						
2-Methyl-4,6-dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
1-Chloronaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1-Naphthylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1,2-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1,2,3-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1,2,3,4-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1,2,3,5-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1,2,4-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1,2,4,5-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1,3-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1,3,5-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1,4-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Chloronaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Chlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2-Methylnaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Methylphenol (o-Cresol)	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2-Naphthylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Nitroaniline	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Nitrophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2-Picoline	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2,3,4,6-Tetrachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2,4-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2,4-Dimethylphenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2,4-Dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
2,4-Dinitrotoluene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2,4,5-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01

Client Sample ID			QC1/160218 Water M18-Fe20055 Feb 16, 2018	NEL- BH125/160218 Water M18-Fe20056 Feb 16, 2018	NEL- BH091/160218 Water M18-Fe20057 Feb 16, 2018	NEL-BH062 A / 160218 Water M18-Fe20058 Feb 16, 2018
Sample Matrix						
Eurofins mgt Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
Semivolatile Organics						
2,4,6-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2,6-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2,6-Dinitrotoluene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	< 0.006	< 0.006	< 0.006	< 0.006
3-Methylcholanthrene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
3,3'-Dichlorobenzidine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Aminobiphenyl	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Bromophenyl phenyl ether	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Chloro-3-methylphenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
4-Chlorophenyl phenyl ether	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Nitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
4,4'-DDD	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4,4'-DDE	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4,4'-DDT	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
7,12-Dimethylbenz(a)anthracene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
a-BHC	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acetophenone	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aldrin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aniline	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
b-BHC	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene ^{N07}	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g,h,i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzyl chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-chloroethoxy)methane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-chloroisopropyl)ether	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-ethylhexyl)phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Butyl benzyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
d-BHC	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Di-n-butyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Di-n-octyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dibenz(a,h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibenz(a,j)acridine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dibenzofuran	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dieldrin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Diethyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dimethyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dimethylaminoazobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Diphenylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan I	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan II	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan sulphate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endrin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005

Client Sample ID			QC1/160218 Water	NEL- BH125/160218 Water	NEL- BH091/160218 Water	NEL-BH062 A / 160218 Water
Sample Matrix			M18-Fe20055	M18-Fe20056	M18-Fe20057	M18-Fe20058
Eurofins mgt Sample No.			Feb 16, 2018	Feb 16, 2018	Feb 16, 2018	Feb 16, 2018
Date Sampled						
Test/Reference	LOR	Unit				
Semivolatile Organics						
Endrin aldehyde	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endrin ketone	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
g-BHC (Lindane)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Heptachlor	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Heptachlor epoxide	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobutadiene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorocyclopentadiene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachloroethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Methoxychlor	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosodibutylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosodipropylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosopiperidine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Nitrobenzene	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
Pentachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Pentachloronitrobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.02	< 0.005
Pentachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Phenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Pronamide	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trifluralin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Phenol-d6 (surr.)	1	%	44	38	84	50
Nitrobenzene-d5 (surr.)	1	%	121	111	120	54
2-Fluorobiphenyl (surr.)	1	%	68	61	88	72
2.4.6-Tribromophenol (surr.)	1	%	28	31	36	37
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
Perfluoropentanoic acid (PFPeA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	^{N09} 0.06
Perfluorohexanoic acid (PFHxA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	^{N09} 0.25
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	^{N09} 0.05
Perfluorooctanoic acid (PFOA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	^{N09} 0.02	^{N09} 0.06
Perfluorononanoic acid (PFNA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorodecanoic acid (PFDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluoroundecanoic acid (PFUnA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorododecanoic acid (PFDoA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorotridecanoic acid (PFTTrDA) ^{N15}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
13C4-PFBA (surr.)	1	%	37	33	61	62
13C5-PFPeA (surr.)	1	%	77	71	87	82
13C5-PFHxA (surr.)	1	%	81	79	108	68
13C4-PFHpA (surr.)	1	%	90	86	107	82
13C8-PFOA (surr.)	1	%	96	95	113	85
13C5-PFNA (surr.)	1	%	82	82	113	79
13C6-PFDA (surr.)	1	%	61	60	64	53

Client Sample ID			QC1/160218	NEL-BH125/160218	NEL-BH091/160218	NEL-BH062 A / 160218
Sample Matrix			Water	Water	Water	Water
Eurofins mgt Sample No.			M18-Fe20055	M18-Fe20056	M18-Fe20057	M18-Fe20058
Date Sampled			Feb 16, 2018	Feb 16, 2018	Feb 16, 2018	Feb 16, 2018
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
13C2-PFUnDA (surr.)	1	%	42	43	44	36
13C2-PFDoDA (surr.)	1	%	36	40	34	32
13C2-PFTeDA (surr.)	1	%	19	21	17	15
Perfluoroalkane sulfonamides (PFASAs)						
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
13C8-FOSA (surr.)	1	%	46	47	58	43
D3-N-MeFOSA (surr.)	1	%	34	30	35	23
D5-N-EtFOSA (surr.)	1	%	30	27	29	19
D7-N-MeFOSE (surr.)	1	%	22	23	25	18
D9-N-EtFOSE (surr.)	1	%	23	22	23	17
D5-N-EtFOSAA (surr.)	1	%	56	60	54	40
D3-N-MeFOSAA (surr.)	1	%	44	46	55	43
Perfluoroalkane sulfonic acids & Perfluoroalkane sulfonates (PFSA)						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	N090.38
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.01	ug/L	< 0.01	< 0.01	< 0.01	N090.32
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	N091.1
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.01	ug/L	< 0.01	< 0.01	< 0.01	N090.02
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	N090.13
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
13C3-PFBS (surr.)	1	%	92	92	95	83
18O2-PFHxS (surr.)	1	%	95	100	95	77
13C8-PFOS (surr.)	1	%	77	78	80	76
n:2 Fluorotelomer sulfonic acids						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTS) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTS) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTS) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTS) ^{N15}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
13C2-4:2 FTS (surr.)	1	%	68	68	188	53
13C2-6:2 FTS (surr.)	1	%	79	80	197	54
13C2-8:2 FTS (surr.)	1	%	57	53	86	44
PFASs Summations						
Sum (PFHxS + PFOS)*	0.01	ug/L	< 0.01	< 0.01	< 0.01	1.23
Sum of US EPA PFAS (PFOS + PFOA)*	0.01	ug/L	< 0.01	< 0.01	0.02	0.19
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	< 0.01	< 0.01	0.02	1.29
Sum of WA DER PFAS (n=10)*	0.05	ug/L	< 0.05	< 0.05	< 0.05	2.03
Sum of PFASs (n=28)*	0.1	ug/L	< 0.1	< 0.1	< 0.1	2.37

Client Sample ID			QC1/160218	NEL-BH125/160218	NEL-BH091/160218	NEL-BH062 A / 160218
Sample Matrix			Water	Water	Water	Water
Eurofins mgt Sample No.			M18-Fe20055	M18-Fe20056	M18-Fe20057	M18-Fe20058
Date Sampled			Feb 16, 2018	Feb 16, 2018	Feb 16, 2018	Feb 16, 2018
Test/Reference	LOR	Unit				
Ammonia (as N)	0.01	mg/L	0.02	0.02	< 0.01	1.4
Chloride	1	mg/L	200	200	2400	600
Conductivity (at 25°C)	1	uS/cm	1500	1600	8100	2000
Nitrate & Nitrite (as N)	0.05	mg/L	< 0.05	< 0.05	0.11	< 0.05
Nitrate (as N)	0.02	mg/L	< 0.02	< 0.02	0.11	< 0.02
Nitrite (as N)	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
pH (at 25°C)	0.1	pH Units	7.2	7.7	8.2	7.5
Phosphate total (as P)	0.05	mg/L	0.18	0.21	0.40	0.67
Phosphorus reactive (as P)	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
Sulphate (as SO4)	5	mg/L	170	170	61	< 5
Total Dissolved Solids	10	mg/L	930	910	3900	1300
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	0.3	0.5	< 0.2	1.5
Total Nitrogen (as N)	0.2	mg/L	0.3	0.5	< 0.2	1.5
Total Organic Carbon	5	mg/L	8.2	< 5	< 5	< 5
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	430	470	1000	1000
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	< 10	< 10	< 10
Hydroxide Alkalinity (as CaCO3)	10	mg/L	< 10	< 10	< 10	< 10
Total Alkalinity (as CaCO3)	20	mg/L	430	470	1000	1000
Heavy Metals						
Arsenic	0.001	mg/L	0.004	0.004	0.001	0.001
Beryllium	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Boron	0.05	mg/L	0.12	0.11	0.27	0.12
Cadmium	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium	0.001	mg/L	0.002	0.002	0.002	0.004
Cobalt	0.001	mg/L	0.002	0.002	0.012	0.002
Copper	0.001	mg/L	0.003	0.003	0.005	0.004
Lead	0.001	mg/L	< 0.001	< 0.001	< 0.001	0.002
Manganese	0.005	mg/L	0.92	0.87	0.27	0.57
Mercury	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel	0.001	mg/L	0.016	0.015	0.016	0.020
Selenium	0.001	mg/L	< 0.001	< 0.001	0.009	< 0.001
Zinc	0.005	mg/L	0.013	0.008	0.008	0.021
Alkali Metals						
Calcium	0.5	mg/L	32	33	67	44
Magnesium	0.5	mg/L	50	55	140	45
Potassium	0.5	mg/L	3.0	3.1	48	3.1
Sodium	0.5	mg/L	270	280	2000	390

Client Sample ID			RB05 /160218
Sample Matrix			Water
Eurofins mgt Sample No.			M18-Fe20059
Date Sampled			Feb 16, 2018
Test/Reference	LOR	Unit	
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
Dibutylchloroendate (surr.)	1	%	69
Tetrachloro-m-xylene (surr.)	1	%	89
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

Client Sample ID			RB05 /160218
Sample Matrix			Water
Eurofins mgt Sample No.			M18-Fe20059
Date Sampled			Feb 16, 2018
Test/Reference	LOR	Unit	
Organophosphorus Pesticides			
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	%	87
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
Dibutylchloredate (surr.)	1	%	69
Tetrachloro-m-xylene (surr.)	1	%	89
Phenols (Halogenated)			
2-Chlorophenol	0.003	mg/L	< 0.003
2,4-Dichlorophenol	0.003	mg/L	< 0.003
2,4,5-Trichlorophenol	0.01	mg/L	< 0.01
2,4,6-Trichlorophenol	0.01	mg/L	< 0.01
2,6-Dichlorophenol	0.003	mg/L	< 0.003
4-Chloro-3-methylphenol	0.01	mg/L	< 0.01
Pentachlorophenol	0.01	mg/L	< 0.01
Tetrachlorophenols - Total	0.03	mg/L	< 0.03
Total Halogenated Phenol*	0.01	mg/L	< 0.01
Phenols (non-Halogenated)			
2-Cyclohexyl-4,6-dinitrophenol	0.1	mg/L	< 0.1
2-Methyl-4,6-dinitrophenol	0.03	mg/L	< 0.03
2-Methylphenol (o-Cresol)	0.003	mg/L	< 0.003
2-Nitrophenol	0.01	mg/L	< 0.01
2,4-Dimethylphenol	0.003	mg/L	< 0.003
2,4-Dinitrophenol	0.03	mg/L	< 0.03
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	< 0.006
4-Nitrophenol	0.03	mg/L	< 0.03
Dinoseb	0.1	mg/L	< 0.1
Phenol	0.003	mg/L	< 0.003
Total Non-Halogenated Phenol*	0.1	mg/L	< 0.1
Phenol-d6 (surr.)	1	%	62

Client Sample ID			RB05 /160218
Sample Matrix			Water
Eurofins mgt Sample No.			M18-Fe20059
Date Sampled			Feb 16, 2018
Test/Reference	LOR	Unit	
Semivolatile Organics			
2-Methyl-4,6-dinitrophenol	0.03	mg/L	< 0.03
1-Chloronaphthalene	0.005	mg/L	< 0.005
1-Naphthylamine	0.005	mg/L	< 0.005
1,2-Dichlorobenzene	0.005	mg/L	< 0.005
1,2,3-Trichlorobenzene	0.005	mg/L	< 0.005
1,2,3,4-Tetrachlorobenzene	0.005	mg/L	< 0.005
1,2,3,5-Tetrachlorobenzene	0.005	mg/L	< 0.005
1,2,4-Trichlorobenzene	0.005	mg/L	< 0.005
1,2,4,5-Tetrachlorobenzene	0.005	mg/L	< 0.005
1,3-Dichlorobenzene	0.005	mg/L	< 0.005
1,3,5-Trichlorobenzene	0.005	mg/L	< 0.005
1,4-Dichlorobenzene	0.005	mg/L	< 0.005
2-Chloronaphthalene	0.005	mg/L	< 0.005
2-Chlorophenol	0.003	mg/L	< 0.003
2-Methylnaphthalene	0.005	mg/L	< 0.005
2-Methylphenol (o-Cresol)	0.003	mg/L	< 0.003
2-Naphthylamine	0.005	mg/L	< 0.005
2-Nitroaniline	0.005	mg/L	< 0.005
2-Nitrophenol	0.01	mg/L	< 0.01
2-Picoline	0.005	mg/L	< 0.005
2,3,4,6-Tetrachlorophenol	0.01	mg/L	< 0.01
2,4-Dichlorophenol	0.003	mg/L	< 0.003
2,4-Dimethylphenol	0.003	mg/L	< 0.003
2,4-Dinitrophenol	0.03	mg/L	< 0.03
2,4-Dinitrotoluene	0.005	mg/L	< 0.005
2,4,5-Trichlorophenol	0.01	mg/L	< 0.01
2,4,6-Trichlorophenol	0.01	mg/L	< 0.01
2,6-Dichlorophenol	0.003	mg/L	< 0.003
2,6-Dinitrotoluene	0.005	mg/L	< 0.005
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	< 0.006
3-Methylcholanthrene	0.005	mg/L	< 0.005
3,3'-Dichlorobenzidine	0.005	mg/L	< 0.005
4-Aminobiphenyl	0.005	mg/L	< 0.005
4-Bromophenyl phenyl ether	0.005	mg/L	< 0.005
4-Chloro-3-methylphenol	0.01	mg/L	< 0.01
4-Chlorophenyl phenyl ether	0.005	mg/L	< 0.005
4-Nitrophenol	0.03	mg/L	< 0.03
4,4'-DDD	0.005	mg/L	< 0.005
4,4'-DDE	0.005	mg/L	< 0.005
4,4'-DDT	0.005	mg/L	< 0.005
7,12-Dimethylbenz(a)anthracene	0.005	mg/L	< 0.005
a-BHC	0.005	mg/L	< 0.005
Acenaphthene	0.001	mg/L	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001
Acetophenone	0.005	mg/L	< 0.005
Aldrin	0.005	mg/L	< 0.005
Aniline	0.005	mg/L	< 0.005
Anthracene	0.001	mg/L	< 0.001
b-BHC	0.005	mg/L	< 0.005

Client Sample ID			RB05 /160218
Sample Matrix			Water
Eurofins mgt Sample No.			M18-Fe20059
Date Sampled			Feb 16, 2018
Test/Reference	LOR	Unit	
Semivolatile Organics			
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
Benzyl chloride	0.005	mg/L	< 0.005
Bis(2-chloroethoxy)methane	0.005	mg/L	< 0.005
Bis(2-chloroisopropyl)ether	0.005	mg/L	< 0.005
Bis(2-ethylhexyl)phthalate	0.005	mg/L	< 0.005
Butyl benzyl phthalate	0.005	mg/L	< 0.005
Chrysene	0.001	mg/L	< 0.001
d-BHC	0.005	mg/L	< 0.005
Di-n-butyl phthalate	0.005	mg/L	< 0.005
Di-n-octyl phthalate	0.005	mg/L	< 0.005
Dibenz(a,h)anthracene	0.001	mg/L	< 0.001
Dibenz(a,j)acridine	0.005	mg/L	< 0.005
Dibenzofuran	0.005	mg/L	< 0.005
Dieldrin	0.005	mg/L	< 0.005
Diethyl phthalate	0.005	mg/L	< 0.005
Dimethyl phthalate	0.005	mg/L	< 0.005
Dimethylaminoazobenzene	0.005	mg/L	< 0.005
Diphenylamine	0.005	mg/L	< 0.005
Endosulfan I	0.005	mg/L	< 0.005
Endosulfan II	0.005	mg/L	< 0.005
Endosulfan sulphate	0.005	mg/L	< 0.005
Endrin	0.005	mg/L	< 0.005
Endrin aldehyde	0.005	mg/L	< 0.005
Endrin ketone	0.005	mg/L	< 0.005
Fluoranthene	0.001	mg/L	< 0.001
Fluorene	0.001	mg/L	< 0.001
g-BHC (Lindane)	0.005	mg/L	< 0.005
Heptachlor	0.005	mg/L	< 0.005
Heptachlor epoxide	0.005	mg/L	< 0.005
Hexachlorobenzene	0.005	mg/L	< 0.005
Hexachlorobutadiene	0.005	mg/L	< 0.005
Hexachlorocyclopentadiene	0.005	mg/L	< 0.005
Hexachloroethane	0.005	mg/L	< 0.005
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001
Methoxychlor	0.005	mg/L	< 0.005
N-Nitrosodibutylamine	0.005	mg/L	< 0.005
N-Nitrosodipropylamine	0.005	mg/L	< 0.005
N-Nitrosopiperidine	0.005	mg/L	< 0.005
Naphthalene	0.001	mg/L	< 0.001
Nitrobenzene	0.05	mg/L	< 0.05
Pentachlorobenzene	0.005	mg/L	< 0.005
Pentachloronitrobenzene	0.005	mg/L	< 0.005
Pentachlorophenol	0.01	mg/L	< 0.01
Phenanthrene	0.001	mg/L	< 0.001
Phenol	0.003	mg/L	< 0.003

Client Sample ID			RB05 /160218
Sample Matrix			Water
Eurofins mgt Sample No.			M18-Fe20059
Date Sampled			Feb 16, 2018
Test/Reference	LOR	Unit	
Semivolatile Organics			
Pronamide	0.005	mg/L	< 0.005
Pyrene	0.001	mg/L	< 0.001
Trifluralin	0.005	mg/L	< 0.005
Phenol-d6 (surr.)	1	%	62
Nitrobenzene-d5 (surr.)	1	%	65
2-Fluorobiphenyl (surr.)	1	%	87
2,4,6-Tribromophenol (surr.)	1	%	41
Ammonia (as N)	0.01	mg/L	< 0.01
Chloride	1	mg/L	< 1
Conductivity (at 25°C)	1	uS/cm	< 1
Nitrate & Nitrite (as N)	0.05	mg/L	< 0.05
Nitrate (as N)	0.02	mg/L	< 0.02
Nitrite (as N)	0.02	mg/L	< 0.02
pH (at 25°C)	0.1	pH Units	4.8
Phosphate total (as P)	0.05	mg/L	< 0.05
Phosphorus reactive (as P)	0.05	mg/L	< 0.05
Sulphate (as SO4)	5	mg/L	< 5
Total Dissolved Solids	10	mg/L	< 10
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	< 0.2
Total Nitrogen (as N)	0.2	mg/L	< 0.2
Total Organic Carbon	5	mg/L	< 5
Alkalinity (speciated)			
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	< 20
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10
Hydroxide Alkalinity (as CaCO3)	10	mg/L	< 10
Total Alkalinity (as CaCO3)	20	mg/L	< 20
Heavy Metals			
Arsenic	0.001	mg/L	< 0.001
Beryllium	0.001	mg/L	< 0.001
Boron	0.05	mg/L	< 0.05
Cadmium	0.0002	mg/L	< 0.0002
Chromium	0.001	mg/L	< 0.001
Cobalt	0.001	mg/L	< 0.001
Copper	0.001	mg/L	< 0.001
Lead	0.001	mg/L	< 0.001
Manganese	0.005	mg/L	< 0.005
Mercury	0.0001	mg/L	< 0.0001
Nickel	0.001	mg/L	< 0.001
Selenium	0.001	mg/L	< 0.001
Zinc	0.005	mg/L	< 0.005
Alkali Metals			
Calcium	0.5	mg/L	< 0.5
Magnesium	0.5	mg/L	< 0.5
Potassium	0.5	mg/L	< 0.5
Sodium	0.5	mg/L	< 0.5

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.

A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C36	Melbourne	Feb 22, 2018	7 Day
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: TRH C6-C40 - LTM-ORG-2010	Melbourne	Feb 21, 2018	7 Day
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: TRH C6-C40 - LTM-ORG-2010	Melbourne	Feb 22, 2018	7 Day
BTEX and Naphthalene			
BTEX - Method: TRH C6-C40 - LTM-ORG-2010	Melbourne	Feb 21, 2018	14 Day
Volatile Organics - Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices	Melbourne	Feb 21, 2018	7 Days
Polycyclic Aromatic Hydrocarbons - Method: LTM-ORG-2130 PAH and Phenols in Water by GCMS	Melbourne	Feb 22, 2018	7 Day
Organochlorine Pesticides - Method: LTM-ORG-2220 OCP & PCB in Soil and Water	Melbourne	Feb 22, 2018	7 Day
Organophosphorus Pesticides - Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS	Melbourne	Feb 22, 2018	7 Day
Polychlorinated Biphenyls - Method: LTM-ORG-2220 OCP & PCB in Soil and Water	Melbourne	Feb 22, 2018	7 Days
Semivolatile Organics - Method: LTM-ORG-2190 SVOC in Water & Soil by GC-MS	Melbourne	Feb 22, 2018	7 Day
Conductivity (at 25°C) - Method: LTM-INO-4030	Melbourne	Feb 21, 2018	28 Day
pH (at 25°C) - Method: LTM-GEN-7090 pH in water by ISE	Melbourne	Feb 21, 2018	0 Hours
Total Dissolved Solids - Method: LTM-INO-4170 Total Dissolved Solids in Water	Melbourne	Feb 21, 2018	7 Day
Total Organic Carbon - Method: APHA 5310B Total Organic Carbon	Melbourne	Feb 22, 2018	28 Day
NEPM 2013 Metals without Cr6+ (As, Be, B, Cd, Co, Cr, Cu, Hg, Pb, Ni, Mn, Se, Zn) - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Melbourne	Feb 21, 2018	180 Days
Eurofins mgt Suite B11C: Na/K/Ca/Mg - Method: LTM-MET-3010 Alkali Metals by ICP-AES	Melbourne	Feb 21, 2018	180 Day
Phenols (IWRG 621)			
Phenols (Halogenated) - Method: LTM-ORG-2130 PAH and Phenols in Water by GCMS	Melbourne	Feb 22, 2018	7 Days
Phenols (non-Halogenated) - Method: LTM-ORG-2130 PAH and Phenols in Water by GCMS	Melbourne	Feb 22, 2018	7 Day
Per- and Polyfluorinated Alkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs) - Method: LTM-ORG-2100 Per- and Polyfluorinated Alkyl Substances by LC-MS/MS	Brisbane	Feb 22, 2018	14 Day
Perfluoroalkane sulfonamides (PFASAs) - Method: LTM-ORG-2100 Determination of Per- and Polyfluoro Alkyl Substances (PFAS) in Aqueous and Soil Samples by LC-MS/MS	Brisbane	Feb 22, 2018	14 Day
Perfluoroalkane sulfonic acids & Perfluoroalkane sulfonates (PFSAs) - Method: LTM-ORG-2100 Per- and Polyfluorinated Alkyl Substances by LC-MS/MS	Brisbane	Feb 22, 2018	14 Day
n:2 Fluorotelomer sulfonic acids - Method: LTM-ORG-2100 Per- and Polyfluorinated Alkyl Substances by LC-MS/MS	Brisbane	Feb 22, 2018	14 Day
Eurofins mgt Suite B19E: Total N, TKN, NOx, NO2, NO3, NH3, Total P, Reactive P			
Ammonia (as N) - Method: APHA 4500-NH3 Ammonia Nitrogen by FIA	Melbourne	Feb 21, 2018	28 Day

Description	Testing Site	Extracted	Holding Time
Nitrate & Nitrite (as N)	Melbourne	Feb 21, 2018	28 Day
- Method: APHA 4500-NO3/NO2 Nitrate-Nitrite Nitrogen by FIA			
Nitrate (as N)	Melbourne	Feb 21, 2018	7 Day
- Method: APHA 4500-NO3 Nitrate Nitrogen by FIA			
Nitrite (as N)	Melbourne	Feb 21, 2018	2 Day
- Method: APHA 4500-NO2 Nitrite Nitrogen by FIA			
Phosphate total (as P)	Melbourne	Feb 21, 2018	28 Day
- Method: APHA 4500-P E. Phosphorous			
Phosphorus reactive (as P)	Melbourne	Feb 21, 2018	2 Day
- Method: APHA4500-PO4			
Total Kjeldahl Nitrogen (as N)	Melbourne	Feb 21, 2018	7 Day
- Method: APHA 4500 TKN			
Eurofins mgt Suite B11E: Cl/SO4/Alkalinity			
Chloride	Melbourne	Feb 21, 2018	28 Day
- Method: LTM-INO-4090 Chloride by Discrete Analyser			
Sulphate (as SO4)	Melbourne	Feb 21, 2018	28 Day
- Method: LTM-INO-4110 Sulfate by Discrete Analyser			
Alkalinity (speciated)	Melbourne	Feb 21, 2018	14 Day
- Method: APHA 2320 Alkalinity by Titration			

Company Name: GHD Pty Ltd VIC
Address: Level 8, 180 Lonsdale St
Melbourne
VIC 3000

Project Name: BULLEEN VIC 3105
Project ID: 31/35006/0813

Order No.:
Report #: 585329
Phone: 8687 8000
Fax: 8687 8111

Received: Feb 16, 2018 4:06 PM
Due: Feb 23, 2018
Priority: 5 Day
Contact Name: Timothy Anderson

Eurofins | mgt Analytical Services Manager : Mary Makarios

Sample Detail						Conductivity (at 25°C)	pH (at 25°C)	Total Dissolved Solids	Total Organic Carbon	Polyyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Organophosphorus Pesticides	Polychlorinated Biphenyls	Phenols (IWRG 621)	BTEX and Naphthalene	Volatile Organics	Semivolatile Organics	Total Recoverable Hydrocarbons	NEPM 2013 Metals without Cr+6 (As, Be, B, Cd, Co, Cr, Cu, Hg, Pb, Ni, Mn, Se, Zn)	Eurofins mgt Suite B19E: Total N, TKN, NOx, NO2, NO3, NH3, Total P, Reactive P	Eurofins mgt Suite B11E: C/SCd/Alkalinity (PFASs)	Per- and Polyfluorinated Alkyl Substances (PFASs)	Eurofins mgt Suite B11C: Na/K/Ca/Mg
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X
Sydney Laboratory - NATA Site # 18217																							
Brisbane Laboratory - NATA Site # 20794																						X	
Perth Laboratory - NATA Site # 23736																							
External Laboratory																							
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID																		
1	QC1/160218	Feb 16, 2018		Water	M18-Fe20055	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
2	NEL-BH125/160218	Feb 16, 2018		Water	M18-Fe20056	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
3	NEL-BH091/160218	Feb 16, 2018		Water	M18-Fe20057	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
4	NEL-BH062 A / 160218	Feb 16, 2018		Water	M18-Fe20058	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5	RB05 /160218	Feb 16, 2018		Water	M18-Fe20059	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Test Counts						5	5	5	5	4	5	5	5	5	4	4	5	4	5	5	5	4	5

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. All biota results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	Quality Systems Manual ver 5.1 US Department of Defense
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.1 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " - " in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
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							
Phenols (Halogenated)							
2-Chlorophenol	mg/L	< 0.003			0.003	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
2,4-Dichlorophenol	mg/L	< 0.003			0.003	Pass	
2,4,5-Trichlorophenol	mg/L	< 0.01			0.01	Pass	
2,4,6-Trichlorophenol	mg/L	< 0.01			0.01	Pass	
2,6-Dichlorophenol	mg/L	< 0.003			0.003	Pass	
4-Chloro-3-methylphenol	mg/L	< 0.01			0.01	Pass	
Pentachlorophenol	mg/L	< 0.01			0.01	Pass	
Tetrachlorophenols - Total	mg/L	< 0.03			0.03	Pass	
Method Blank							
Phenols (non-Halogenated)							
2-Cyclohexyl-4,6-dinitrophenol	mg/L	< 0.1			0.1	Pass	
2-Methyl-4,6-dinitrophenol	mg/L	< 0.03			0.03	Pass	
2-Methylphenol (o-Cresol)	mg/L	< 0.003			0.003	Pass	
2-Nitrophenol	mg/L	< 0.01			0.01	Pass	
2,4-Dimethylphenol	mg/L	< 0.003			0.003	Pass	
2,4-Dinitrophenol	mg/L	< 0.03			0.03	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/L	< 0.006			0.006	Pass	
4-Nitrophenol	mg/L	< 0.03			0.03	Pass	
Dinoseb	mg/L	< 0.1			0.1	Pass	
Phenol	mg/L	< 0.003			0.003	Pass	
Method Blank							
Semivolatile Organics							
1-Chloronaphthalene	mg/L	< 0.005			0.005	Pass	
1-Naphthylamine	mg/L	< 0.005			0.005	Pass	
1,2-Dichlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,3-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,3,4-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,3,5-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,4-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,4,5-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1,3-Dichlorobenzene	mg/L	< 0.005			0.005	Pass	
1,3,5-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1,4-Dichlorobenzene	mg/L	< 0.005			0.005	Pass	
2-Chloronaphthalene	mg/L	< 0.005			0.005	Pass	
2-Methylnaphthalene	mg/L	< 0.005			0.005	Pass	
2-Naphthylamine	mg/L	< 0.005			0.005	Pass	
2-Nitroaniline	mg/L	< 0.005			0.005	Pass	
2-Picoline	mg/L	< 0.005			0.005	Pass	
2,3,4,6-Tetrachlorophenol	mg/L	< 0.01			0.01	Pass	
2,4-Dinitrotoluene	mg/L	< 0.005			0.005	Pass	
2,6-Dinitrotoluene	mg/L	< 0.005			0.005	Pass	
3-Methylcholanthrene	mg/L	< 0.005			0.005	Pass	
3,3'-Dichlorobenzidine	mg/L	< 0.005			0.005	Pass	
4-Aminobiphenyl	mg/L	< 0.005			0.005	Pass	
4-Bromophenyl phenyl ether	mg/L	< 0.005			0.005	Pass	
4-Chlorophenyl phenyl ether	mg/L	< 0.005			0.005	Pass	
4,4'-DDD	mg/L	< 0.005			0.005	Pass	
4,4'-DDE	mg/L	< 0.005			0.005	Pass	
4,4'-DDT	mg/L	< 0.005			0.005	Pass	
7,12-Dimethylbenz(a)anthracene	mg/L	< 0.005			0.005	Pass	
a-BHC	mg/L	< 0.005			0.005	Pass	
Acetophenone	mg/L	< 0.005			0.005	Pass	
Aldrin	mg/L	< 0.005			0.005	Pass	
Aniline	mg/L	< 0.005			0.005	Pass	
b-BHC	mg/L	< 0.005			0.005	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Benzyl chloride	mg/L	< 0.005			0.005	Pass	
Bis(2-chloroethoxy)methane	mg/L	< 0.005			0.005	Pass	
Bis(2-chloroisopropyl)ether	mg/L	< 0.005			0.005	Pass	
Bis(2-ethylhexyl)phthalate	mg/L	< 0.005			0.005	Pass	
Butyl benzyl phthalate	mg/L	< 0.005			0.005	Pass	
d-BHC	mg/L	< 0.005			0.005	Pass	
Di-n-butyl phthalate	mg/L	< 0.005			0.005	Pass	
Di-n-octyl phthalate	mg/L	< 0.005			0.005	Pass	
Dibenz(a,j)acridine	mg/L	< 0.005			0.005	Pass	
Dibenzofuran	mg/L	< 0.005			0.005	Pass	
Dieldrin	mg/L	< 0.005			0.005	Pass	
Diethyl phthalate	mg/L	< 0.005			0.005	Pass	
Dimethyl phthalate	mg/L	< 0.005			0.005	Pass	
Dimethylaminoazobenzene	mg/L	< 0.005			0.005	Pass	
Diphenylamine	mg/L	< 0.005			0.005	Pass	
Endosulfan I	mg/L	< 0.005			0.005	Pass	
Endosulfan II	mg/L	< 0.005			0.005	Pass	
Endosulfan sulphate	mg/L	< 0.005			0.005	Pass	
Endrin	mg/L	< 0.005			0.005	Pass	
Endrin aldehyde	mg/L	< 0.005			0.005	Pass	
Endrin ketone	mg/L	< 0.005			0.005	Pass	
g-BHC (Lindane)	mg/L	< 0.005			0.005	Pass	
Heptachlor	mg/L	< 0.005			0.005	Pass	
Heptachlor epoxide	mg/L	< 0.005			0.005	Pass	
Hexachlorobenzene	mg/L	< 0.005			0.005	Pass	
Hexachlorobutadiene	mg/L	< 0.005			0.005	Pass	
Hexachlorocyclopentadiene	mg/L	< 0.005			0.005	Pass	
Hexachloroethane	mg/L	< 0.005			0.005	Pass	
Methoxychlor	mg/L	< 0.005			0.005	Pass	
N-Nitrosodibutylamine	mg/L	< 0.005			0.005	Pass	
N-Nitrosodipropylamine	mg/L	< 0.005			0.005	Pass	
N-Nitrosopiperidine	mg/L	< 0.005			0.005	Pass	
Nitrobenzene	mg/L	< 0.05			0.05	Pass	
Pentachlorobenzene	mg/L	< 0.005			0.005	Pass	
Pentachloronitrobenzene	mg/L	< 0.005			0.005	Pass	
Pronamide	mg/L	< 0.005			0.005	Pass	
Trifluralin	mg/L	< 0.005			0.005	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.05			0.05	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.01			0.01	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.01			0.01	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.01			0.01	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.01			0.01	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.01			0.01	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.01			0.01	Pass	
Perfluoroundecanoic acid (PFUnA)	ug/L	< 0.01			0.01	Pass	
Perfluorododecanoic acid (PFDoA)	ug/L	< 0.01			0.01	Pass	
Perfluorotridecanoic acid (PFTTrDA)	ug/L	< 0.01			0.01	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.01			0.01	Pass	
Method Blank							
Perfluoroalkane sulfonamides (PFASAs)							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.05			0.05	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.05			0.05	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	ug/L	< 0.05			0.05	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	ug/L	< 0.05			0.05	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.05			0.05	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.05			0.05	Pass	
Method Blank							
Perfluoroalkane sulfonic acids & Perfluoroalkane sulfonates (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.01			0.01	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.01			0.01	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.01			0.01	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.01			0.01	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.01			0.01	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.01			0.01	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTS)	ug/L	< 0.01			0.01	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTS)	ug/L	< 0.05			0.05	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTS)	ug/L	< 0.01			0.01	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTS)	ug/L	< 0.01			0.01	Pass	
Method Blank							
Ammonia (as N)	mg/L	< 0.01			0.01	Pass	
Chloride	mg/L	< 1			1	Pass	
Nitrate & Nitrite (as N)	mg/L	< 0.05			0.05	Pass	
Nitrate (as N)	mg/L	< 0.02			0.02	Pass	
Nitrite (as N)	mg/L	< 0.02			0.02	Pass	
Phosphate total (as P)	mg/L	< 0.05			0.05	Pass	
Phosphorus reactive (as P)	mg/L	< 0.05			0.05	Pass	
Sulphate (as SO ₄)	mg/L	< 5			5	Pass	
Total Dissolved Solids	mg/L	< 10			10	Pass	
Total Kjeldahl Nitrogen (as N)	mg/L	< 0.2			0.2	Pass	
Total Organic Carbon	mg/L	< 5			5	Pass	
Method Blank							
Alkalinity (speciated)							
Bicarbonate Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Carbonate Alkalinity (as CaCO ₃)	mg/L	< 10			10	Pass	
Hydroxide Alkalinity (as CaCO ₃)	mg/L	< 10			10	Pass	
Total Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/L	< 0.001			0.001	Pass	
Beryllium	mg/L	< 0.001			0.001	Pass	
Boron	mg/L	< 0.05			0.05	Pass	
Cadmium	mg/L	< 0.0002			0.0002	Pass	
Chromium	mg/L	< 0.001			0.001	Pass	
Cobalt	mg/L	< 0.001			0.001	Pass	
Copper	mg/L	< 0.001			0.001	Pass	
Lead	mg/L	< 0.001			0.001	Pass	
Manganese	mg/L	< 0.005			0.005	Pass	
Mercury	mg/L	< 0.0001			0.0001	Pass	
Nickel	mg/L	< 0.001			0.001	Pass	
Selenium	mg/L	< 0.001			0.001	Pass	
Zinc	mg/L	< 0.005			0.005	Pass	
Method Blank							
Alkali Metals							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Calcium	mg/L	< 0.5			0.5	Pass	
Magnesium	mg/L	< 0.5			0.5	Pass	
Potassium	mg/L	< 0.5			0.5	Pass	
Sodium	mg/L	< 0.5			0.5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	120			70-130	Pass	
TRH C10-C14	%	77			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	115			70-130	Pass	
Toluene	%	98			70-130	Pass	
Ethylbenzene	%	100			70-130	Pass	
m&p-Xylenes	%	101			70-130	Pass	
Xylenes - Total	%	102			70-130	Pass	
LCS - % Recovery							
Volatile Organics							
1.1-Dichloroethene	%	109			70-130	Pass	
1.1.1-Trichloroethane	%	104			70-130	Pass	
1.2-Dichlorobenzene	%	111			70-130	Pass	
1.2-Dichloroethane	%	117			70-130	Pass	
Trichloroethene	%	102			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	82			70-130	Pass	
TRH C6-C10	%	118			70-130	Pass	
TRH >C10-C16	%	75			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	100			70-130	Pass	
Acenaphthylene	%	103			70-130	Pass	
Anthracene	%	87			70-130	Pass	
Benz(a)anthracene	%	111			70-130	Pass	
Benzo(a)pyrene	%	105			70-130	Pass	
Benzo(b&j)fluoranthene	%	114			70-130	Pass	
Benzo(g,h,i)perylene	%	92			70-130	Pass	
Benzo(k)fluoranthene	%	117			70-130	Pass	
Chrysene	%	111			70-130	Pass	
Dibenz(a,h)anthracene	%	83			70-130	Pass	
Fluoranthene	%	107			70-130	Pass	
Fluorene	%	97			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	89			70-130	Pass	
Naphthalene	%	90			70-130	Pass	
Phenanthrene	%	99			70-130	Pass	
Pyrene	%	118			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	74			70-130	Pass	
4.4'-DDD	%	93			70-130	Pass	
4.4'-DDE	%	77			70-130	Pass	
4.4'-DDT	%	91			70-130	Pass	
a-BHC	%	88			70-130	Pass	
Aldrin	%	77			70-130	Pass	
b-BHC	%	89			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
d-BHC	%	106			70-130	Pass	
Dieldrin	%	75			70-130	Pass	
Endosulfan I	%	100			70-130	Pass	
Endosulfan II	%	85			70-130	Pass	
Endosulfan sulphate	%	90			70-130	Pass	
Endrin	%	98			70-130	Pass	
Endrin aldehyde	%	76			70-130	Pass	
Endrin ketone	%	98			70-130	Pass	
g-BHC (Lindane)	%	93			70-130	Pass	
Heptachlor	%	99			70-130	Pass	
Heptachlor epoxide	%	75			70-130	Pass	
Hexachlorobenzene	%	105			70-130	Pass	
Methoxychlor	%	80			70-130	Pass	
LCS - % Recovery							
Organophosphorus Pesticides							
Diazinon	%	84			70-130	Pass	
Dimethoate	%	71			70-130	Pass	
Ethion	%	91			70-130	Pass	
Fenitrothion	%	79			70-130	Pass	
Methyl parathion	%	79			70-130	Pass	
Mevinphos	%	83			70-130	Pass	
LCS - % Recovery							
Phenols (Halogenated)							
2-Chlorophenol	%	91			30-130	Pass	
2,4-Dichlorophenol	%	78			30-130	Pass	
2,4,5-Trichlorophenol	%	79			30-130	Pass	
2,4,6-Trichlorophenol	%	79			30-130	Pass	
2,6-Dichlorophenol	%	78			30-130	Pass	
4-Chloro-3-methylphenol	%	96			30-130	Pass	
Pentachlorophenol	%	77			30-130	Pass	
Tetrachlorophenols - Total	%	87			30-130	Pass	
LCS - % Recovery							
Phenols (non-Halogenated)							
2-Cyclohexyl-4,6-dinitrophenol	%	66			30-130	Pass	
2-Methyl-4,6-dinitrophenol	%	98			30-130	Pass	
2-Methylphenol (o-Cresol)	%	65			30-130	Pass	
2-Nitrophenol	%	85			30-130	Pass	
2,4-Dimethylphenol	%	58			30-130	Pass	
2,4-Dinitrophenol	%	36			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	%	70			30-130	Pass	
4-Nitrophenol	%	71			30-130	Pass	
Dinoseb	%	78			30-130	Pass	
Phenol	%	53			30-130	Pass	
LCS - % Recovery							
Semivolatile Organics							
1,2,4-Trichlorobenzene	%	90			70-130	Pass	
1,4-Dichlorobenzene	%	90			70-130	Pass	
2,4-Dinitrotoluene	%	95			70-130	Pass	
N-Nitrosodipropylamine	%	112			70-130	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	102			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	92			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	99			50-150	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluoroheptanoic acid (PFHpA)	%	98			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	98			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	96			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	110			50-150	Pass	
Perfluoroundecanoic acid (PFUnA)	%	97			50-150	Pass	
Perfluorododecanoic acid (PFDoA)	%	101			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	77			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	94			50-150	Pass	
LCS - % Recovery							
Perfluoroalkane sulfonamides (PFASAs)							
Perfluorooctane sulfonamide (FOSA)	%	89			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	101			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	94			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	%	84			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	%	98			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	91			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	90			50-150	Pass	
LCS - % Recovery							
Perfluoroalkane sulfonic acids & Perfluoroalkane sulfonates (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	%	97			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	89			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	89			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	103			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	118			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	72			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTS)	%	97			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTS)	%	103			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTS)	%	92			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTS)	%	61			50-150	Pass	
LCS - % Recovery							
Chloride	%	119			70-130	Pass	
Phosphate total (as P)	%	81			70-130	Pass	
Phosphorus reactive (as P)	%	110			70-130	Pass	
Sulphate (as SO ₄)	%	114			70-130	Pass	
Total Dissolved Solids	%	99			70-130	Pass	
Total Kjeldahl Nitrogen (as N)	%	89			70-130	Pass	
Total Organic Carbon	%	97			70-130	Pass	
LCS - % Recovery							
Alkalinity (speciated)							
Carbonate Alkalinity (as CaCO ₃)	%	88			70-130	Pass	
Total Alkalinity (as CaCO ₃)	%	92			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	92			80-120	Pass	
Beryllium	%	107			80-120	Pass	
Boron	%	111			80-120	Pass	
Cadmium	%	90			80-120	Pass	
Chromium	%	91			80-120	Pass	
Cobalt	%	91			80-120	Pass	
Copper	%	89			80-120	Pass	
Lead	%	93			80-120	Pass	
Manganese	%	96			80-120	Pass	

Test				Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Mercury				%	102			75-125	Pass	
Nickel				%	90			80-120	Pass	
Selenium				%	92			80-120	Pass	
Zinc				%	92			80-120	Pass	
LCS - % Recovery										
Alkali Metals										
Calcium				%	113			70-130	Pass	
Magnesium				%	116			70-130	Pass	
Potassium				%	105			70-130	Pass	
Sodium				%	108			70-130	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-Fe20942	NCP	%		107			70-130	Pass	
Spike - % Recovery										
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					Result 1					
TRH >C10-C16	M18-Fe20942	NCP	%		109			70-130	Pass	
Spike - % Recovery										
Organochlorine Pesticides					Result 1					
Chlordanes - Total	B18-Fe18834	NCP	%		91			70-130	Pass	
4,4'-DDD	B18-Fe18834	NCP	%		122			70-130	Pass	
4,4'-DDE	B18-Fe18834	NCP	%		82			70-130	Pass	
4,4'-DDT	B18-Fe18834	NCP	%		84			70-130	Pass	
a-BHC	B18-Fe18834	NCP	%		93			70-130	Pass	
Aldrin	B18-Fe18834	NCP	%		85			70-130	Pass	
b-BHC	B18-Fe18834	NCP	%		98			70-130	Pass	
d-BHC	B18-Fe18834	NCP	%		94			70-130	Pass	
Dieldrin	B18-Fe18834	NCP	%		96			70-130	Pass	
Endosulfan I	B18-Fe18834	NCP	%		113			70-130	Pass	
Endosulfan II	B18-Fe18834	NCP	%		108			70-130	Pass	
Endosulfan sulphate	B18-Fe18834	NCP	%		126			70-130	Pass	
Endrin	B18-Fe18834	NCP	%		112			70-130	Pass	
Endrin aldehyde	B18-Fe18834	NCP	%		116			70-130	Pass	
Endrin ketone	B18-Fe18834	NCP	%		117			70-130	Pass	
g-BHC (Lindane)	B18-Fe18834	NCP	%		94			70-130	Pass	
Heptachlor	B18-Fe18834	NCP	%		107			70-130	Pass	
Heptachlor epoxide	B18-Fe18834	NCP	%		97			70-130	Pass	
Hexachlorobenzene	B18-Fe18834	NCP	%		93			70-130	Pass	
Methoxychlor	B18-Fe18834	NCP	%		82			70-130	Pass	
Spike - % Recovery										
Perfluoroalkyl carboxylic acids (PFCAs)					Result 1					
Perfluorobutanoic acid (PFBA)	B18-Fe19385	NCP	%		99			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	B18-Fe19385	NCP	%		88			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	B18-Fe19385	NCP	%		97			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	B18-Fe19385	NCP	%		94			50-150	Pass	
Perfluorooctanoic acid (PFOA)	B18-Fe19385	NCP	%		93			50-150	Pass	
Perfluorononanoic acid (PFNA)	B18-Fe19385	NCP	%		92			50-150	Pass	
Perfluorodecanoic acid (PFDA)	B18-Fe19385	NCP	%		92			50-150	Pass	
Perfluoroundecanoic acid (PFUnA)	B18-Fe19385	NCP	%		96			50-150	Pass	
Perfluorododecanoic acid (PFDoA)	B18-Fe19385	NCP	%		99			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	B18-Fe19385	NCP	%		89			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	B18-Fe19385	NCP	%		92			50-150	Pass	
Spike - % Recovery										

Test	Lab Sample ID	QA Source	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Perfluoroalkane sulfonamides (PFASAs)				Result 1				
Perfluorooctane sulfonamide (FOSA)	B18-Fe19385	NCP	%	92		50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B18-Fe19385	NCP	%	91		50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B18-Fe19385	NCP	%	90		50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	B18-Fe19385	NCP	%	93		50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	B18-Fe19385	NCP	%	90		50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B18-Fe19385	NCP	%	85		50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B18-Fe19385	NCP	%	94		50-150	Pass	
Spike - % Recovery								
Perfluoroalkane sulfonic acids & Perfluoroalkane sulfonates (PFSAs)				Result 1				
Perfluorobutanesulfonic acid (PFBS)	B18-Fe19385	NCP	%	94		50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	B18-Fe19385	NCP	%	90		50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	B18-Fe19385	NCP	%	88		50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	B18-Fe19385	NCP	%	111		50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	B18-Fe19385	NCP	%	98		50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	B18-Fe19385	NCP	%	84		50-150	Pass	
Spike - % Recovery								
n:2 Fluorotelomer sulfonic acids				Result 1				
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTS)	B18-Fe19385	NCP	%	96		50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTS)	B18-Fe19385	NCP	%	94		50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTS)	B18-Fe19385	NCP	%	87		50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTS)	B18-Fe19385	NCP	%	81		50-150	Pass	
Spike - % Recovery								
				Result 1				
Ammonia (as N)	M18-Fe25109	NCP	%	96		70-130	Pass	
Chloride	M18-Fe21951	NCP	%	96		70-130	Pass	
Nitrate & Nitrite (as N)	M18-Fe25109	NCP	%	87		70-130	Pass	
Nitrate (as N)	M18-Fe25109	NCP	%	87		70-130	Pass	
Nitrite (as N)	M18-Fe25109	NCP	%	125		70-130	Pass	
Phosphorus reactive (as P)	M18-Fe19777	NCP	%	84		70-130	Pass	
Sulphate (as SO ₄)	M18-Fe21662	NCP	%	91		70-130	Pass	
Spike - % Recovery								
Alkalinity (speciated)				Result 1				
Carbonate Alkalinity (as CaCO ₃)	S18-Fe25861	NCP	%	81		70-130	Pass	
Total Alkalinity (as CaCO ₃)	S18-Fe25861	NCP	%	92		70-130	Pass	
Spike - % Recovery								
Heavy Metals				Result 1				
Arsenic	M18-Fe21637	NCP	%	97		75-125	Pass	
Beryllium	M18-Fe21637	NCP	%	96		75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Boron	M18-Fe21637	NCP	%	96			75-125	Pass	
Cadmium	M18-Fe21637	NCP	%	98			75-125	Pass	
Chromium	M18-Fe21637	NCP	%	98			75-125	Pass	
Cobalt	M18-Fe21637	NCP	%	98			75-125	Pass	
Copper	M18-Fe21637	NCP	%	102			75-125	Pass	
Lead	M18-Fe21637	NCP	%	101			75-125	Pass	
Manganese	M18-Fe21637	NCP	%	99			75-125	Pass	
Mercury	M18-Fe21637	NCP	%	99			70-130	Pass	
Nickel	M18-Fe21637	NCP	%	98			75-125	Pass	
Selenium	M18-Fe21637	NCP	%	93			75-125	Pass	
Zinc	M18-Fe21637	NCP	%	107			75-125	Pass	
Spike - % Recovery									
Alkali Metals				Result 1					
Calcium	M18-Fe23370	NCP	%	116			70-130	Pass	
Magnesium	M18-Fe23370	NCP	%	110			70-130	Pass	
Potassium	M18-Fe23370	NCP	%	104			70-130	Pass	
Sodium	M18-Fe23370	NCP	%	109			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	M18-Fe20056	CP	%	111			70-130	Pass	
Pyrene	M18-Fe20056	CP	%	88			70-130	Pass	
Spike - % Recovery									
Phenols (Halogenated)				Result 1					
2-Chlorophenol	M18-Fe20056	CP	%	101			30-130	Pass	
4-Chloro-3-methylphenol	M18-Fe20056	CP	%	98			30-130	Pass	
Pentachlorophenol	M18-Fe20056	CP	%	69			30-130	Pass	
Spike - % Recovery									
Phenols (non-Halogenated)				Result 1					
Phenol	M18-Fe20056	CP	%	61			30-130	Pass	
Spike - % Recovery									
Semivolatile Organics				Result 1					
1,2,4-Trichlorobenzene	M18-Fe20056	CP	%	105			70-130	Pass	
1,4-Dichlorobenzene	M18-Fe20056	CP	%	109			70-130	Pass	
2,4-Dinitrotoluene	M18-Fe20056	CP	%	95			70-130	Pass	
N-Nitrosodipropylamine	M18-Fe20056	CP	%	98			70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C10-C14	M18-Fe20055	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH C15-C28	M18-Fe20055	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36	M18-Fe20055	CP	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-Fe20055	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH >C16-C34	M18-Fe20055	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH >C34-C40	M18-Fe20055	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	M18-Fe14300	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
4,4'-DDD	M18-Fe14300	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
4,4'-DDE	M18-Fe14300	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
4,4'-DDT	M18-Fe14300	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
a-BHC	M18-Fe14300	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Aldrin	M18-Fe14300	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	

Duplicate								
Organochlorine Pesticides				Result 1	Result 2	RPD		
b-BHC	M18-Fe14300	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
d-BHC	M18-Fe14300	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Dieldrin	M18-Fe14300	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Endosulfan I	M18-Fe14300	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Endosulfan II	M18-Fe14300	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Endosulfan sulphate	M18-Fe14300	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Endrin	M18-Fe14300	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Endrin aldehyde	M18-Fe14300	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Endrin ketone	M18-Fe14300	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
g-BHC (Lindane)	M18-Fe14300	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Heptachlor	M18-Fe14300	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Heptachlor epoxide	M18-Fe14300	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Hexachlorobenzene	M18-Fe14300	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Methoxychlor	M18-Fe14300	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Toxaphene	M18-Fe14300	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
Organophosphorus Pesticides				Result 1	Result 2	RPD		
Azinphos-methyl	B18-Fe18833	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Bolstar	B18-Fe18833	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Chlorfenvinphos	B18-Fe18833	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Chlorpyrifos	B18-Fe18833	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass
Chlorpyrifos-methyl	B18-Fe18833	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Coumaphos	B18-Fe18833	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass
Demeton-S	B18-Fe18833	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass
Demeton-O	B18-Fe18833	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Diazinon	B18-Fe18833	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Dichlorvos	B18-Fe18833	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Dimethoate	B18-Fe18833	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Disulfoton	B18-Fe18833	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
EPN	B18-Fe18833	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Ethion	B18-Fe18833	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Ethoprop	B18-Fe18833	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Ethyl parathion	B18-Fe18833	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Fenitrothion	B18-Fe18833	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Fensulfthion	B18-Fe18833	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Fenthion	B18-Fe18833	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Malathion	B18-Fe18833	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Merphos	B18-Fe18833	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Methyl parathion	B18-Fe18833	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Mevinphos	B18-Fe18833	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Monocrotophos	B18-Fe18833	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Naled	B18-Fe18833	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Omethoate	B18-Fe18833	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Phorate	B18-Fe18833	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Pirimiphos-methyl	B18-Fe18833	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass
Pyrazophos	B18-Fe18833	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Ronnel	B18-Fe18833	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Terbufos	B18-Fe18833	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Tetrachlorvinphos	B18-Fe18833	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Tokuthion	B18-Fe18833	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Trichloronate	B18-Fe18833	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass

Duplicate								
Polychlorinated Biphenyls				Result 1	Result 2	RPD		
Aroclor-1016	M18-Fe14300	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Aroclor-1221	M18-Fe14300	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Aroclor-1232	M18-Fe14300	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Aroclor-1242	M18-Fe14300	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Aroclor-1248	M18-Fe14300	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Aroclor-1254	M18-Fe14300	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Aroclor-1260	M18-Fe14300	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Total PCB*	M18-Fe14300	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Duplicate								
Semivolatile Organics				Result 1	Result 2	RPD		
1-Chloronaphthalene	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1-Naphthylamine	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,2-Dichlorobenzene	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,2,3-Trichlorobenzene	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,2,3,4-Tetrachlorobenzene	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,2,3,5-Tetrachlorobenzene	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,2,4-Trichlorobenzene	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,2,4,5-Tetrachlorobenzene	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,3-Dichlorobenzene	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,3,5-Trichlorobenzene	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,4-Dichlorobenzene	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
2-Chloronaphthalene	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
2-Methylnaphthalene	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
2-Naphthylamine	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
2-Nitroaniline	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
2-Picoline	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
2,3,4,6-Tetrachlorophenol	M18-Fe14447	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass
2,4-Dinitrotoluene	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
2,6-Dinitrotoluene	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
3-Methylcholanthrene	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
3,3'-Dichlorobenzidine	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
4-Aminobiphenyl	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
4-Bromophenyl phenyl ether	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
4-Chlorophenyl phenyl ether	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
4,4'-DDD	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
4,4'-DDE	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
4,4'-DDT	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
7,12-Dimethylbenz(a)anthracene	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
a-BHC	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Acetophenone	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Aldrin	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Aniline	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
b-BHC	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Benzyl chloride	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Bis(2-chloroethoxy)methane	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Bis(2-chloroisopropyl)ether	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Bis(2-ethylhexyl)phthalate	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Butyl benzyl phthalate	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
d-BHC	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Di-n-butyl phthalate	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Di-n-octyl phthalate	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Dibenz(a,j)acridine	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Dibenzofuran	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Dieldrin	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass

Duplicate								
Semivolatile Organics				Result 1	Result 2	RPD		
Diethyl phthalate	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Dimethyl phthalate	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Dimethylaminoazobenzene	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Diphenylamine	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Endosulfan I	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Endosulfan II	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Endosulfan sulphate	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Endrin	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Endrin aldehyde	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Endrin ketone	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
g-BHC (Lindane)	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Heptachlor	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Heptachlor epoxide	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Hexachlorobenzene	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Hexachlorobutadiene	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Hexachlorocyclopentadiene	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Hexachloroethane	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Methoxychlor	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
N-Nitrosodibutylamine	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
N-Nitrosodipropylamine	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
N-Nitrosopiperidine	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Nitrobenzene	M18-Fe14447	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass
Pentachlorobenzene	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Pentachloronitrobenzene	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Pronamide	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Trifluralin	M18-Fe14447	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD		
Perfluorobutanoic acid (PFBA)	B18-Fe19384	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
Perfluoropentanoic acid (PFPeA)	B18-Fe19384	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorohexanoic acid (PFHxA)	B18-Fe19384	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoroheptanoic acid (PFHpA)	B18-Fe19384	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorooctanoic acid (PFOA)	B18-Fe19384	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorononanoic acid (PFNA)	B18-Fe19384	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorodecanoic acid (PFDA)	B18-Fe19384	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoroundecanoic acid (PFUnA)	B18-Fe19384	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorododecanoic acid (PFDoA)	B18-Fe19384	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorotridecanoic acid (PFTTrDA)	B18-Fe19384	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorotetradecanoic acid (PFTeDA)	B18-Fe19384	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
Perfluoroalkane sulfonamides (PFASAs)				Result 1	Result 2	RPD		
Perfluorooctane sulfonamide (FOSA)	B18-Fe19384	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B18-Fe19384	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B18-Fe19384	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	B18-Fe19384	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	B18-Fe19384	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B18-Fe19384	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B18-Fe19384	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass

Duplicate								
Perfluoroalkane sulfonic acids & Perfluoroalkane sulfonates (PFSA's)				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	B18-Fe19384	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	B18-Fe19384	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	B18-Fe19384	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	B18-Fe19384	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	B18-Fe19384	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	B18-Fe19384	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
n:2 Fluorotelomer sulfonic acids				Result 1	Result 2	RPD		
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTS)	B18-Fe19384	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTS)	B18-Fe19384	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTS)	B18-Fe19384	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTS)	B18-Fe19384	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
Ammonia (as N)	M18-Fe20046	NCP	mg/L	0.21	0.21	2.0	30%	Pass
Chloride	M18-Fe20050	NCP	mg/L	51	65	24	30%	Pass
Nitrate & Nitrite (as N)	M18-Fe20046	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass
Nitrate (as N)	M18-Fe20046	NCP	mg/L	0.04	0.04	4.0	30%	Pass
Nitrite (as N)	M18-Fe20046	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass
Phosphate total (as P)	M18-Fe21931	NCP	mg/L	0.15	0.13	13	30%	Pass
Phosphorus reactive (as P)	M18-Fe22713	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass
Sulphate (as SO ₄)	M18-Fe20050	NCP	mg/L	320	330	1.0	30%	Pass
Total Dissolved Solids	M18-Fe20054	NCP	mg/L	2900	2900	1.0	30%	Pass
Total Organic Carbon	M18-Fe20048	NCP	mg/L	< 25	< 25	<1	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	M18-Fe21959	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Beryllium	M18-Fe21959	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Boron	M18-Fe21959	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass
Cadmium	M18-Fe21959	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Chromium	M18-Fe21959	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Cobalt	M18-Fe21959	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Copper	M18-Fe21959	NCP	mg/L	< 0.001	0.001	20	30%	Pass
Lead	M18-Fe21959	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Manganese	M18-Fe21959	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Mercury	M18-Fe21959	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Nickel	M18-Fe21959	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Selenium	M18-Fe21959	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Zinc	M18-Fe21959	NCP	mg/L	0.011	0.011	4.0	30%	Pass
Duplicate								
Alkali Metals				Result 1	Result 2	RPD		
Calcium	M18-Fe21640	NCP	mg/L	20	19	2.0	30%	Pass
Magnesium	M18-Fe21640	NCP	mg/L	23	23	2.0	30%	Pass
Potassium	M18-Fe21640	NCP	mg/L	0.8	0.8	6.0	30%	Pass
Sodium	M18-Fe21640	NCP	mg/L	3.3	3.3	2.0	30%	Pass

Duplicate								
				Result 1	Result 2	RPD		
Conductivity (at 25°C)	M18-Fe20056	CP	uS/cm	1600	1600	<1	30%	Pass
pH (at 25°C)	M18-Fe20056	CP	pH Units	7.7	7.6	pass	30%	Pass
Duplicate								
Alkalinity (speciated)				Result 1	Result 2	RPD		
Bicarbonate Alkalinity (as CaCO ₃)	M18-Fe20056	CP	mg/L	470	450	4.0	30%	Pass
Carbonate Alkalinity (as CaCO ₃)	M18-Fe20056	CP	mg/L	< 10	< 10	<1	30%	Pass
Hydroxide Alkalinity (as CaCO ₃)	M18-Fe20056	CP	mg/L	< 10	< 10	<1	30%	Pass
Total Alkalinity (as CaCO ₃)	M18-Fe20056	CP	mg/L	470	450	4.0	30%	Pass

Comments

V2 - sample ID amendment: NEL-BH062 S / 160218 to NEL-BH062 A / 160218.

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

Comments

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
N09	Quantification of linear and branched isomers has been conducted as a single total response using the relative response factor for the corresponding linear/branched standard.
N11	Isotope dilution is used for calibration of each native compound for which an exact labelled analogue is available (Isotope Dilution Quantitation). The isotopically labelled analogues allow identification and recovery correction of the concentration of the associated native PFAS compounds.
N15	Where the native PFAS compound does not have labelled analogue then the quantification is made using the Extracted Internal Standard Analyte with the closest retention time to the analyte and no recovery correction has been made (Internal Standard Quantitation).

Authorised By

Mary Makarios	Analytical Services Manager
Alex Petridis	Senior Analyst-Metal (VIC)
Harry Bacalis	Senior Analyst-Volatile (VIC)
Jonathon Angell	Senior Analyst-Organic (QLD)
Joseph Edouard	Senior Analyst-Organic (VIC)
Michael Brancati	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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CERTIFICATE OF ANALYSIS

Work Order : **EM1803154**
Client : **GHD PTY LTD**
Contact : **MR MATTHEW MOORE**
Address : **LEVEL 8, 180 LONSDALE ST**
MELBOURNE VIC, AUSTRALIA 3001
Telephone : **----**
Project : **31350060813**
Order number : **----**
C-O-C number : **----**
Sampler : **M.MOORE & L.SPURR**
Site : **----**
Quote number : **ME/124/18 - North East Link**
No. of samples received : **5**
No. of samples analysed : **5**

Page : 1 of 15
Laboratory : Environmental Division Melbourne
Contact : Shirley LeCornu
Address : 4 Westall Rd Springvale VIC Australia 3171
Telephone : +61-3-8549 9630
Date Samples Received : 16-Feb-2018 15:45
Date Analysis Commenced : 16-Feb-2018
Issue Date : 27-Feb-2018 11:43



Accreditation No. 825
 Accredited for compliance with
 ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Franco Lentini		Sydney Organics, Smithfield, NSW
Samantha Smith	Laboratory Coordinator	WRG Subcontracting, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

Ø = ALS is not NATA accredited for these tests.

~ = Indicates an estimated value.

- Ionic Balance out of acceptable limits for sample #1 due to analytes not quantified in this report. Total major cations and total major anions have been confirmed by re-preparation and re-analysis.
- SRB (MM669) is conducted by ALS Scoresby NATA accreditation no. 992, site no. 989. NATA accreditation does not cover performance of this method.
- Ionic balances were calculated using: major anions - chloride, alkalinity and sulfate; and major cations - calcium, magnesium, potassium and sodium.
- ED045G: The presence of thiocyanate can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.
- ED041G: EM1803132-001 Poor matrix spike recovery for sulfate due to sample matrix. Confirmed by re-extraction and re-analysis.
- EP075: 'Sum of PAH' is the sum of the USEPA 16 priority PAHs
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenzo(a,h)anthracene (1.0), Benzo(g,h,i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Client sample ID

				QC2/160218	NEL-BH125/160218	NEL-BH091/160218	NEL-BH062S/160218	QC1/160218
Client sampling date / time				16-Feb-2018 00:00	16-Feb-2018 00:00	16-Feb-2018 00:00	16-Feb-2018 00:00	16-Feb-2018 00:00
Compound	CAS Number	LOR	Unit	EM1803154-001	EM1803154-002	EM1803154-003	EM1803154-004	EM1803154-005
				Result	Result	Result	Result	Result
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	7.12	----	----	----	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	1630	----	----	----	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	1030	----	----	----	----
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO ₃	DMO-210-001	1	mg/L	<1	----	----	----	----
Carbonate Alkalinity as CaCO ₃	3812-32-6	1	mg/L	<1	----	----	----	----
Bicarbonate Alkalinity as CaCO ₃	71-52-3	1	mg/L	448	----	----	----	----
Total Alkalinity as CaCO ₃	----	1	mg/L	448	----	----	----	----
ED041G: Sulfate (Turbidimetric) as SO₄ 2- by DA								
Sulfate as SO ₄ - Turbidimetric	14808-79-8	1	mg/L	179	----	----	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	204	----	----	----	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	22	----	----	----	----
Magnesium	7439-95-4	1	mg/L	40	----	----	----	----
Sodium	7440-23-5	1	mg/L	206	----	----	----	----
Potassium	7440-09-7	1	mg/L	4	----	----	----	----
EG020F: Dissolved Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	0.004	----	----	----	----
Boron	7440-42-8	0.05	mg/L	0.12	----	----	----	----
Barium	7440-39-3	0.001	mg/L	0.208	----	----	----	----
Beryllium	7440-41-7	0.001	mg/L	<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	----	----	----	----
Cobalt	7440-48-4	0.001	mg/L	0.002	----	----	----	----
Chromium	7440-47-3	0.001	mg/L	<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L	<0.001	----	----	----	----
Manganese	7439-96-5	0.001	mg/L	0.839	----	----	----	----
Nickel	7440-02-0	0.001	mg/L	0.014	----	----	----	----
Lead	7439-92-1	0.001	mg/L	<0.001	----	----	----	----
Selenium	7782-49-2	0.01	mg/L	<0.01	----	----	----	----
Vanadium	7440-62-2	0.01	mg/L	<0.01	----	----	----	----
Zinc	7440-66-6	0.005	mg/L	<0.005	----	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	QC2/160218	NEL-BH125/160218	NEL-BH091/160218	NEL-BH062S/160218	QC1/160218
Client sampling date / time					16-Feb-2018 00:00	16-Feb-2018 00:00	16-Feb-2018 00:00	16-Feb-2018 00:00	16-Feb-2018 00:00
Compound	CAS Number	LOR	Unit		EM1803154-001	EM1803154-002	EM1803154-003	EM1803154-004	EM1803154-005
					Result	Result	Result	Result	Result
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	----	----	----	----
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		0.08	----	----	----	----
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L		<0.01	----	----	----	----
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L		0.01	----	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		0.01	----	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L		<0.1	----	----	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L		<0.1	----	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L		0.04	----	----	----	----
EN055: Ionic Balance									
Total Anions	----	0.01	meq/L		18.4	----	----	----	----
Total Cations	----	0.01	meq/L		13.4	----	----	----	----
Ionic Balance	----	0.01	%		15.6	----	----	----	----
EP005: Total Organic Carbon (TOC)									
Total Organic Carbon	----	1	mg/L		13	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	1	µg/L		<1	----	----	----	----
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.5	µg/L		<0.5	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L		<0.5	----	----	----	----
beta-BHC	319-85-7	0.5	µg/L		<0.5	----	----	----	----
gamma-BHC	58-89-9	0.5	µg/L		<0.5	----	----	----	----
delta-BHC	319-86-8	0.5	µg/L		<0.5	----	----	----	----
Heptachlor	76-44-8	0.5	µg/L		<0.5	----	----	----	----
Aldrin	309-00-2	0.5	µg/L		<0.5	----	----	----	----
Heptachlor epoxide	1024-57-3	0.5	µg/L		<0.5	----	----	----	----
trans-Chlordane	5103-74-2	0.5	µg/L		<0.5	----	----	----	----



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Client sample ID

				QC2/160218	NEL-BH125/160218	NEL-BH091/160218	NEL-BH062S/160218	QC1/160218
Client sampling date / time				16-Feb-2018 00:00	16-Feb-2018 00:00	16-Feb-2018 00:00	16-Feb-2018 00:00	16-Feb-2018 00:00
Compound	CAS Number	LOR	Unit	EM1803154-001	EM1803154-002	EM1803154-003	EM1803154-004	EM1803154-005
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	----	----	----	----
cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	----	----	----	----
Dieldrin	60-57-1	0.5	µg/L	<0.5	----	----	----	----
4,4'-DDE	72-55-9	0.5	µg/L	<0.5	----	----	----	----
Endrin	72-20-8	0.5	µg/L	<0.5	----	----	----	----
beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	----	----	----	----
4,4'-DDD	72-54-8	0.5	µg/L	<0.5	----	----	----	----
Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	----	----	----	----
Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	----	----	----	----
4,4'-DDT	50-29-3	2.0	µg/L	<2.0	----	----	----	----
Endrin ketone	53494-70-5	0.5	µg/L	<0.5	----	----	----	----
Methoxychlor	72-43-5	2.0	µg/L	<2.0	----	----	----	----
^ Total Chlordane (sum)	----	0.5	µg/L	<0.5	----	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.5	µg/L	<0.5	----	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.5	µg/L	<0.5	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.5	µg/L	<0.5	----	----	----	----
Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	----	----	----	----
Monocrotophos	6923-22-4	2.0	µg/L	<2.0	----	----	----	----
Dimethoate	60-51-5	0.5	µg/L	<0.5	----	----	----	----
Diazinon	333-41-5	0.5	µg/L	<0.5	----	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	----	----	----	----
Parathion-methyl	298-00-0	2.0	µg/L	<2.0	----	----	----	----
Malathion	121-75-5	0.5	µg/L	<0.5	----	----	----	----
Fenthion	55-38-9	0.5	µg/L	<0.5	----	----	----	----
Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	----	----	----	----
Parathion	56-38-2	2.0	µg/L	<2.0	----	----	----	----
Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	----	----	----	----
Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	----	----	----	----
Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	----	----	----	----
Fenamiphos	22224-92-6	0.5	µg/L	<0.5	----	----	----	----
Prothiofos	34643-46-4	0.5	µg/L	<0.5	----	----	----	----
Ethion	563-12-2	0.5	µg/L	<0.5	----	----	----	----
Carbophenothion	786-19-6	0.5	µg/L	<0.5	----	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	QC2/160218	NEL-BH125/160218	NEL-BH091/160218	NEL-BH062S/160218	QC1/160218
Client sampling date / time					16-Feb-2018 00:00	16-Feb-2018 00:00	16-Feb-2018 00:00	16-Feb-2018 00:00	16-Feb-2018 00:00
Compound	CAS Number	LOR	Unit		EM1803154-001	EM1803154-002	EM1803154-003	EM1803154-004	EM1803154-005
					Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued									
Azinphos Methyl	86-50-0	0.5	µg/L		<0.5	----	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons									
Styrene	100-42-5	5	µg/L		<5	----	----	----	----
Isopropylbenzene	98-82-8	5	µg/L		<5	----	----	----	----
n-Propylbenzene	103-65-1	5	µg/L		<5	----	----	----	----
1,3,5-Trimethylbenzene	108-67-8	5	µg/L		<5	----	----	----	----
sec-Butylbenzene	135-98-8	5	µg/L		<5	----	----	----	----
1,2,4-Trimethylbenzene	95-63-6	5	µg/L		<5	----	----	----	----
tert-Butylbenzene	98-06-6	5	µg/L		<5	----	----	----	----
p-Isopropyltoluene	99-87-6	5	µg/L		<5	----	----	----	----
n-Butylbenzene	104-51-8	5	µg/L		<5	----	----	----	----
EP074B: Oxygenated Compounds									
Vinyl Acetate	108-05-4	50	µg/L		<50	----	----	----	----
2-Butanone (MEK)	78-93-3	50	µg/L		<50	----	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L		<50	----	----	----	----
2-Hexanone (MBK)	591-78-6	50	µg/L		<50	----	----	----	----
EP074C: Sulfonated Compounds									
Carbon disulfide	75-15-0	5	µg/L		<5	----	----	----	----
EP074D: Fumigants									
2,2-Dichloropropane	594-20-7	5	µg/L		<5	----	----	----	----
1,2-Dichloropropane	78-87-5	5	µg/L		<5	----	----	----	----
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L		<5	----	----	----	----
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L		<5	----	----	----	----
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L		<5	----	----	----	----
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	50	µg/L		<50	----	----	----	----
Chloromethane	74-87-3	50	µg/L		<50	----	----	----	----
Vinyl chloride	75-01-4	50	µg/L		<50	----	----	----	----
Bromomethane	74-83-9	50	µg/L		<50	----	----	----	----
Chloroethane	75-00-3	50	µg/L		<50	----	----	----	----
Trichlorofluoromethane	75-69-4	50	µg/L		<50	----	----	----	----
1,1-Dichloroethene	75-35-4	5	µg/L		<5	----	----	----	----
Iodomethane	74-88-4	5	µg/L		<5	----	----	----	----
trans-1,2-Dichloroethene	156-60-5	5	µg/L		<5	----	----	----	----



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Client sample ID

				QC2/160218	NEL-BH125/160218	NEL-BH091/160218	NEL-BH062S/160218	QC1/160218
Client sampling date / time				16-Feb-2018 00:00	16-Feb-2018 00:00	16-Feb-2018 00:00	16-Feb-2018 00:00	16-Feb-2018 00:00
Compound	CAS Number	LOR	Unit	EM1803154-001	EM1803154-002	EM1803154-003	EM1803154-004	EM1803154-005
				Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued								
1,1-Dichloroethane	75-34-3	5	µg/L	<5	----	----	----	----
cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	----	----	----	----
1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	----	----	----	----
1,1-Dichloropropylene	563-58-6	5	µg/L	<5	----	----	----	----
Carbon Tetrachloride	56-23-5	5	µg/L	<5	----	----	----	----
1,2-Dichloroethane	107-06-2	5	µg/L	<5	----	----	----	----
Trichloroethene	79-01-6	5	µg/L	<5	----	----	----	----
Dibromomethane	74-95-3	5	µg/L	<5	----	----	----	----
1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	----	----	----	----
1,3-Dichloropropane	142-28-9	5	µg/L	<5	----	----	----	----
Tetrachloroethene	127-18-4	5	µg/L	<5	----	----	----	----
1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	----	----	----	----
trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	----	----	----	----
cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	----	----	----	----
1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	----	----	----	----
1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	----	----	----	----
Pentachloroethane	76-01-7	5	µg/L	<5	----	----	----	----
1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	----	----	----	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	----	----	----	----
Bromobenzene	108-86-1	5	µg/L	<5	----	----	----	----
2-Chlorotoluene	95-49-8	5	µg/L	<5	----	----	----	----
4-Chlorotoluene	106-43-4	5	µg/L	<5	----	----	----	----
1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	----	----	----	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	----	----	----	----
Bromodichloromethane	75-27-4	5	µg/L	<5	----	----	----	----
Dibromochloromethane	124-48-1	5	µg/L	<5	----	----	----	----
Bromoform	75-25-2	5	µg/L	<5	----	----	----	----
EP075A: Phenolic Compounds								
Phenol	108-95-2	2	µg/L	<2	----	----	----	----
2-Chlorophenol	95-57-8	2	µg/L	<2	----	----	----	----
2-Methylphenol	95-48-7	2	µg/L	<2	----	----	----	----
3- & 4-Methylphenol	1319-77-3	4	µg/L	<4	----	----	----	----



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Client sample ID

				QC2/160218	NEL-BH125/160218	NEL-BH091/160218	NEL-BH062S/160218	QC1/160218
Client sampling date / time				16-Feb-2018 00:00	16-Feb-2018 00:00	16-Feb-2018 00:00	16-Feb-2018 00:00	16-Feb-2018 00:00
Compound	CAS Number	LOR	Unit	EM1803154-001	EM1803154-002	EM1803154-003	EM1803154-004	EM1803154-005
				Result	Result	Result	Result	Result
EP075A: Phenolic Compounds - Continued								
2-Nitrophenol	88-75-5	2	µg/L	<2	----	----	----	----
2,4-Dimethylphenol	105-67-9	2	µg/L	<2	----	----	----	----
2,4-Dichlorophenol	120-83-2	2	µg/L	<2	----	----	----	----
2,6-Dichlorophenol	87-65-0	2	µg/L	<2	----	----	----	----
4-Chloro-3-methylphenol	59-50-7	2	µg/L	<2	----	----	----	----
2,4,6-Trichlorophenol	88-06-2	2	µg/L	<2	----	----	----	----
2,4,5-Trichlorophenol	95-95-4	2	µg/L	<2	----	----	----	----
Pentachlorophenol	87-86-5	4	µg/L	<4	----	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	2	µg/L	<2	----	----	----	----
2-Methylnaphthalene	91-57-6	2	µg/L	<2	----	----	----	----
2-Chloronaphthalene	91-58-7	2	µg/L	<2	----	----	----	----
Acenaphthylene	208-96-8	2	µg/L	<2	----	----	----	----
Acenaphthene	83-32-9	2	µg/L	<2	----	----	----	----
Fluorene	86-73-7	2	µg/L	<2	----	----	----	----
Phenanthrene	85-01-8	2	µg/L	<2	----	----	----	----
Anthracene	120-12-7	2	µg/L	<2	----	----	----	----
Fluoranthene	206-44-0	2	µg/L	<2	----	----	----	----
Pyrene	129-00-0	2	µg/L	<2	----	----	----	----
N-2-Fluorenyl Acetamide	53-96-3	2	µg/L	<2	----	----	----	----
Benz(a)anthracene	56-55-3	2	µg/L	<2	----	----	----	----
Chrysene	218-01-9	2	µg/L	<2	----	----	----	----
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	4	µg/L	<4	----	----	----	----
7,12-Dimethylbenz(a)anthracene	57-97-6	2	µg/L	<2	----	----	----	----
Benzo(a)pyrene	50-32-8	2	µg/L	<2	----	----	----	----
3-Methylcholanthrene	56-49-5	2	µg/L	<2	----	----	----	----
Indeno(1,2,3.cd)pyrene	193-39-5	2	µg/L	<2	----	----	----	----
Dibenz(a,h)anthracene	53-70-3	2	µg/L	<2	----	----	----	----
Benzo(g,h,i)perylene	191-24-2	2	µg/L	<2	----	----	----	----
^ Sum of PAHs	----	2	µg/L	<2	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	2	µg/L	<2	----	----	----	----
EP075C: Phthalate Esters								
Dimethyl phthalate	131-11-3	2	µg/L	<2	----	----	----	----
Diethyl phthalate	84-66-2	2	µg/L	<2	----	----	----	----

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	QC2/160218	NEL-BH125/160218	NEL-BH091/160218	NEL-BH062S/160218	QC1/160218
Client sampling date / time					16-Feb-2018 00:00	16-Feb-2018 00:00	16-Feb-2018 00:00	16-Feb-2018 00:00	16-Feb-2018 00:00
Compound	CAS Number	LOR	Unit	EM1803154-001	EM1803154-002	EM1803154-003	EM1803154-004	EM1803154-005	
				Result	Result	Result	Result	Result	
EP075C: Phthalate Esters - Continued									
Di-n-butyl phthalate	84-74-2	2	µg/L	3	----	----	----	----	
Butyl benzyl phthalate	85-68-7	2	µg/L	<2	----	----	----	----	
bis(2-ethylhexyl) phthalate	117-81-7	10	µg/L	<10	----	----	----	----	
Di-n-octylphthalate	117-84-0	2	µg/L	<2	----	----	----	----	
EP075D: Nitrosamines									
N-Nitrosomethylethylamine	10595-95-6	2	µg/L	<2	----	----	----	----	
N-Nitrosodiethylamine	55-18-5	2	µg/L	<2	----	----	----	----	
N-Nitrosopyrrolidine	930-55-2	4	µg/L	<4	----	----	----	----	
N-Nitrosomorpholine	59-89-2	2	µg/L	<2	----	----	----	----	
N-Nitrosodi-n-propylamine	621-64-7	2	µg/L	<2	----	----	----	----	
N-Nitrosopiperidine	100-75-4	2	µg/L	<2	----	----	----	----	
N-Nitrosodibutylamine	924-16-3	2	µg/L	<2	----	----	----	----	
N-Nitrosodiphenyl & Diphenylamine	86-30-6 122-39-4	4	µg/L	<4	----	----	----	----	
Methapyrilene	91-80-5	2	µg/L	<2	----	----	----	----	
EP075E: Nitroaromatics and Ketones									
2-Picoline	109-06-8	2	µg/L	<2	----	----	----	----	
Acetophenone	98-86-2	2	µg/L	<2	----	----	----	----	
Nitrobenzene	98-95-3	2	µg/L	<2	----	----	----	----	
Isophorone	78-59-1	2	µg/L	<2	----	----	----	----	
2,6-Dinitrotoluene	606-20-2	4	µg/L	<4	----	----	----	----	
2,4-Dinitrotoluene	121-14-2	4	µg/L	<4	----	----	----	----	
1-Naphthylamine	134-32-7	2	µg/L	<2	----	----	----	----	
4-Nitroquinoline-N-oxide	56-57-5	2	µg/L	<2	----	----	----	----	
5-Nitro-o-toluidine	99-55-8	2	µg/L	<2	----	----	----	----	
Azobenzene	103-33-3	2	µg/L	<2	----	----	----	----	
1,3,5-Trinitrobenzene	99-35-4	2	µg/L	<2	----	----	----	----	
Phenacetin	62-44-2	2	µg/L	<2	----	----	----	----	
4-Aminobiphenyl	92-67-1	2	µg/L	<2	----	----	----	----	
Pentachloronitrobenzene	82-68-8	2	µg/L	<2	----	----	----	----	
Pronamide	23950-58-5	2	µg/L	<2	----	----	----	----	
Dimethylaminoazobenzene	60-11-7	2	µg/L	<2	----	----	----	----	
Chlorobenzilate	510-15-6	2	µg/L	<2	----	----	----	----	
EP075F: Haloethers									



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	QC2/160218	NEL-BH125/160218	NEL-BH091/160218	NEL-BH062S/160218	QC1/160218
Client sampling date / time					16-Feb-2018 00:00	16-Feb-2018 00:00	16-Feb-2018 00:00	16-Feb-2018 00:00	16-Feb-2018 00:00
Compound	CAS Number	LOR	Unit		EM1803154-001	EM1803154-002	EM1803154-003	EM1803154-004	EM1803154-005
					Result	Result	Result	Result	Result
EP075F: Haloethers - Continued									
Bis(2-chloroethyl) ether	111-44-4	2	µg/L		<2	----	----	----	----
Bis(2-chloroethoxy) methane	111-91-1	2	µg/L		<2	----	----	----	----
4-Chlorophenyl phenyl ether	7005-72-3	2	µg/L		<2	----	----	----	----
4-Bromophenyl phenyl ether	101-55-3	2	µg/L		<2	----	----	----	----
EP075G: Chlorinated Hydrocarbons									
1,3-Dichlorobenzene	541-73-1	2	µg/L		<2	----	----	----	----
1,4-Dichlorobenzene	106-46-7	2	µg/L		<2	----	----	----	----
1,2-Dichlorobenzene	95-50-1	2	µg/L		<2	----	----	----	----
Hexachloroethane	67-72-1	2	µg/L		<2	----	----	----	----
1,2,4-Trichlorobenzene	120-82-1	2	µg/L		<2	----	----	----	----
Hexachloropropylene	1888-71-7	2	µg/L		<2	----	----	----	----
Hexachlorobutadiene	87-68-3	2	µg/L		<2	----	----	----	----
Hexachlorocyclopentadiene	77-47-4	10	µg/L		<10	----	----	----	----
Pentachlorobenzene	608-93-5	2	µg/L		<2	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	4	µg/L		<4	----	----	----	----
EP075H: Anilines and Benzidines									
Aniline	62-53-3	2	µg/L		<2	----	----	----	----
4-Chloroaniline	106-47-8	2	µg/L		<2	----	----	----	----
2-Nitroaniline	88-74-4	4	µg/L		<4	----	----	----	----
3-Nitroaniline	99-09-2	4	µg/L		<4	----	----	----	----
Dibenzofuran	132-64-9	2	µg/L		<2	----	----	----	----
4-Nitroaniline	100-01-6	2	µg/L		<2	----	----	----	----
Carbazole	86-74-8	2	µg/L		<2	----	----	----	----
3,3'-Dichlorobenzidine	91-94-1	2	µg/L		<2	----	----	----	----
EP075I: Organochlorine Pesticides									
alpha-BHC	319-84-6	2	µg/L		<2	----	----	----	----
beta-BHC	319-85-7	2	µg/L		<2	----	----	----	----
gamma-BHC	58-89-9	2	µg/L		<2	----	----	----	----
delta-BHC	319-86-8	2	µg/L		<2	----	----	----	----
Heptachlor	76-44-8	2	µg/L		<2	----	----	----	----
Aldrin	309-00-2	2	µg/L		<2	----	----	----	----
Heptachlor epoxide	1024-57-3	2	µg/L		<2	----	----	----	----
alpha-Endosulfan	959-98-8	2	µg/L		<2	----	----	----	----
4,4'-DDE	72-55-9	2	µg/L		<2	----	----	----	----



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Client sample ID

				QC2/160218	NEL-BH125/160218	NEL-BH091/160218	NEL-BH062S/160218	QC1/160218
Client sampling date / time				16-Feb-2018 00:00	16-Feb-2018 00:00	16-Feb-2018 00:00	16-Feb-2018 00:00	16-Feb-2018 00:00
Compound	CAS Number	LOR	Unit	EM1803154-001	EM1803154-002	EM1803154-003	EM1803154-004	EM1803154-005
				Result	Result	Result	Result	Result
EP075I: Organochlorine Pesticides - Continued								
Dieldrin	60-57-1	2	µg/L	<2	----	----	----	----
Endrin	72-20-8	2	µg/L	<2	----	----	----	----
beta-Endosulfan	33213-65-9	2	µg/L	<2	----	----	----	----
4,4`-DDD	72-54-8	2	µg/L	<2	----	----	----	----
Endosulfan sulfate	1031-07-8	2	µg/L	<2	----	----	----	----
4,4`-DDT	50-29-3	4	µg/L	<4	----	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	4	µg/L	<4	----	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	4	µg/L	<4	----	----	----	----
EP075J: Organophosphorus Pesticides								
Dichlorvos	62-73-7	2	µg/L	<2	----	----	----	----
Dimethoate	60-51-5	2	µg/L	<2	----	----	----	----
Diazinon	333-41-5	2	µg/L	<2	----	----	----	----
Chlorpyrifos-methyl	5598-13-0	2	µg/L	<2	----	----	----	----
Malathion	121-75-5	2	µg/L	<2	----	----	----	----
Fenthion	55-38-9	2	µg/L	<2	----	----	----	----
Chlorpyrifos	2921-88-2	2	µg/L	<2	----	----	----	----
Pirimphos-ethyl	23505-41-1	2	µg/L	<2	----	----	----	----
Chlorfenvinphos	470-90-6	2	µg/L	<2	----	----	----	----
Prothiofos	34643-46-4	2	µg/L	<2	----	----	----	----
Ethion	563-12-2	2	µg/L	<2	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	----	----	----	----
C10 - C14 Fraction	----	50	µg/L	<50	----	----	----	----
C15 - C28 Fraction	----	100	µg/L	180	----	----	----	----
C29 - C36 Fraction	----	50	µg/L	<50	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L	180	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	----	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	----	----	----	----
>C10 - C16 Fraction	----	100	µg/L	<100	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L	140	----	----	----	----
>C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L	140	----	----	----	----



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Client sample ID

				QC2/160218	NEL-BH125/160218	NEL-BH091/160218	NEL-BH062S/160218	QC1/160218
Client sampling date / time				16-Feb-2018 00:00	16-Feb-2018 00:00	16-Feb-2018 00:00	16-Feb-2018 00:00	16-Feb-2018 00:00
Compound	CAS Number	LOR	Unit	EM1803154-001	EM1803154-002	EM1803154-003	EM1803154-004	EM1803154-005
				Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued								
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	----	----	----	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	----	----	----	----
Toluene	108-88-3	2	µg/L	<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	----	----	----	----
^ Total Xylenes	----	2	µg/L	<2	----	----	----	----
^ Sum of BTEX	----	1	µg/L	<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L	<5	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L	<0.02	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	----	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	----	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	QC2/160218	NEL-BH125/160218	NEL-BH091/160218	NEL-BH062S/160218	QC1/160218
Client sampling date / time					16-Feb-2018 00:00	16-Feb-2018 00:00	16-Feb-2018 00:00	16-Feb-2018 00:00	16-Feb-2018 00:00
Compound	CAS Number	LOR	Unit		EM1803154-001	EM1803154-002	EM1803154-003	EM1803154-004	EM1803154-005
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	----	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	----	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	QC2/160218	NEL-BH125/160218	NEL-BH091/160218	NEL-BH062S/160218	QC1/160218
Client sampling date / time					16-Feb-2018 00:00	16-Feb-2018 00:00	16-Feb-2018 00:00	16-Feb-2018 00:00	16-Feb-2018 00:00
Compound	CAS Number	LOR	Unit		EM1803154-001	EM1803154-002	EM1803154-003	EM1803154-004	EM1803154-005
					Result	Result	Result	Result	Result
EP231P: PFAS Sums - Continued									
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	----	----	----	----
MM669: Sulphate Reducing Bacteria									
Sulphate Reducing Bacteria Population Estimate	----	20	pac/mL		500000	500000	27000	6000	500000
Aggressivity	----	1	-		High	High	High	High	High
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	1	%		89.6	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.5	%		76.5	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.5	%		101	----	----	----	----
EP074S: VOC Surrogates									
1,2-Dichloroethane-D4	17060-07-0	5	%		89.8	----	----	----	----
Toluene-D8	2037-26-5	5	%		104	----	----	----	----
4-Bromofluorobenzene	460-00-4	5	%		93.6	----	----	----	----
EP075S: Acid Extractable Surrogates									
2-Fluorophenol	367-12-4	2	%		49.6	----	----	----	----
Phenol-d6	13127-88-3	2	%		24.6	----	----	----	----
2-Chlorophenol-D4	93951-73-6	2	%		58.5	----	----	----	----
2,4,6-Tribromophenol	118-79-6	2	%		67.6	----	----	----	----
EP075T: Base/Neutral Extractable Surrogates									
Nitrobenzene-D5	4165-60-0	2	%		69.2	----	----	----	----
1,2-Dichlorobenzene-D4	2199-69-1	2	%		63.6	----	----	----	----
2-Fluorobiphenyl	321-60-8	2	%		70.1	----	----	----	----
Anthracene-d10	1719-06-8	2	%		79.1	----	----	----	----
4-Terphenyl-d14	1718-51-0	2	%		119	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	2	%		105	----	----	----	----
Toluene-D8	2037-26-5	2	%		109	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		96.5	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		102	----	----	----	----
13C8-PFOA	----	0.02	%		73.9	----	----	----	----



Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	41	125
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	117
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	51	127
EP074S: VOC Surrogates			
1,2-Dichloroethane-D4	17060-07-0	72	132
Toluene-D8	2037-26-5	77	132
4-Bromofluorobenzene	460-00-4	67	131
EP075S: Acid Extractable Surrogates			
2-Fluorophenol	367-12-4	10	75
Phenol-d6	13127-88-3	10	65
2-Chlorophenol-D4	93951-73-6	21	103
2,4,6-Tribromophenol	118-79-6	22	120
EP075T: Base/Neutral Extractable Surrogates			
Nitrobenzene-D5	4165-60-0	24	116
1,2-Dichlorobenzene-D4	2199-69-1	23	99
2-Fluorobiphenyl	321-60-8	32	114
Anthracene-d10	1719-06-8	47	119
4-Terphenyl-d14	1718-51-0	44	124
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	73	129
Toluene-D8	2037-26-5	70	125
4-Bromofluorobenzene	460-00-4	71	129
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	130
13C8-PFOA	----	60	130



Tel: (03) 8687 8000

Page —1—

of 1

Environmental Division
Melbourne
Work Order Reference
EM1803154



Telephone : + 61-3-649 9600

Special Instructions:									
TURN AROUND TIME REQUIRED									
<input type="checkbox"/> 1 Working Day	<input type="checkbox"/> 2 Working Days	<input type="checkbox"/> 3 Working Days	<input type="checkbox"/> 4 Working Days	<input checked="" type="checkbox"/> 5 Working Days (standard)	Other _____				
SAMPLE RECEIPT									
Relinquished by: Matthew Moore	Date: 16.02.2018	Received by: <i>[Signature]</i>	Date: 16/2	DELIVERED BY:		SAMPLE STATUS			
Organisation: GHD	Time: 14:00	Organisation: <i>[Signature]</i>	Time: 15:00	COURIER/LAB <input checked="" type="checkbox"/>		<input checked="" type="checkbox"/> Security Sealed			
ANALYTICAL SCHEDULE									
Relinquished by: Matthew Moore	Date: 16.02.2018	Received by:	Date:	RECEIVED BY:		<input checked="" type="checkbox"/> Chilled			
Organisation: GHD	Time: 14:00	Organisation:	Time:	FAX <input type="checkbox"/>		<input type="checkbox"/> Frozen			
					HAND <input checked="" type="checkbox"/>		<input type="checkbox"/> Ambient		
RECEIVING LABORATORY TO CONFIRM RECEIPT OF ANALYTICAL SCHEDULE BY EMAIL TO: matthew.moore5@ghd.com									

Checked By: _____ Date: _____

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : EM1803154

Client	: GHD PTY LTD	Laboratory	: Environmental Division Melbourne
Contact	: MR MATTHEW MOORE	Contact	: Shirley LeCornu
Address	: LEVEL 8, 180 LONSDALE ST MELBOURNE VIC, AUSTRALIA 3001	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: matthew.moore5@ghd.com	E-mail	: shirley.lecornu@alsglobal.com
Telephone	: ----	Telephone	: +61-3-8549 9630
Facsimile	: ----	Facsimile	: +61-3-8549 9601
Project	: 31350060813	Page	: 1 of 3
Order number	: ----	Quote number	: EB2017GHDSE0022 (EN/005/17)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Bulleen, VIC 3105		
Sampler	: M.MOORE & L.SPURR		

Dates

Date Samples Received	: 16-Feb-2018 15:45	Issue Date	: 16-Feb-2018
Client Requested Due Date	: 02-Mar-2018	Scheduled Reporting Date	: 02-Mar-2018

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 3.9°C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 5 / 5

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- **The scheduled reporting date has been extended due to the test length of Sulphate Reducing Bacteria (10 working days).**
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **Analytical work for this work order will be conducted at ALS Springvale, ALS Scoresby & ALS Sydney.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**



Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- No sample container / preservation non-compliance exists.

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EA005P pH (PCT)	WATER - EA010P Electrical Conductivity (PCT)	WATER - EP231X PFAS - Full Suite (28 analytes)	WATER - NT-01 & 02 Ca, Mg, Na, K, Cl, SO ₄ , Alkalinity	WATER - NT-08 Total Nitrogen + NO ₂ + NO ₃ + NH ₃ + Total P	WATER - W-03 15 Metals (NEPM Suite)	WATER - W-13 OC/OP/PCB
EM1803154-001	16-Feb-2018 00:00	QC2/160218	✓	✓	✓	✓	✓	✓	✓

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EA015H Total Dissolved Solids - Standard Level	WATER - EP005 Total Organic Carbon (TOC)	WATER - MM664 (Subcontracted) Sulphate Reducing Bacteria by MPN	WATER - W-04 TRH/BTEXN	WATER - W-23 SVOC/VOC
EM1803154-001	16-Feb-2018 00:00	QC2/160218	✓	✓	✓	✓	✓
EM1803154-002	16-Feb-2018 00:00	NEL-BH125/160218			✓		
EM1803154-003	16-Feb-2018 00:00	NEL-BH091/160218			✓		
EM1803154-004	16-Feb-2018 00:00	NEL-BH062S/160218			✓		
EM1803154-005	16-Feb-2018 00:00	QC1/160218			✓		

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

ACCOUNTS PAYABLE (Brisbane)

Email ap-fss@ghd.com

Email ghdlabreports@ghd.com

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QUALITY CONTROL REPORT

Work Order	: EM1803154	Page	: 1 of 22
Client	: GHD PTY LTD	Laboratory	: Environmental Division Melbourne
Contact	: MR MATTHEW MOORE	Contact	: Shirley LeCornu
Address	: LEVEL 8, 180 LONSDALE ST MELBOURNE VIC, AUSTRALIA 3001	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +61-3-8549 9630
Project	: 31350060813	Date Samples Received	: 16-Feb-2018
Order number	: ----	Date Analysis Commenced	: 16-Feb-2018
C-O-C number	: ----	Issue Date	: 27-Feb-2018
Sampler	: M.MOORE & L.SPURR		
Site	: ----		
Quote number	: ME/124/18 - North East Link		
No. of samples received	: 5		
No. of samples analysed	: 5		



This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Franco Lentini		Sydney Organics, Smithfield, NSW
Samantha Smith	Laboratory Coordinator	WRG Subcontracting, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
= Indicates failed QC

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EA005P: pH by PC Titrator (QC Lot: 1443377)									
EM1803137-002	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	7.54	7.54	0.00	0% - 20%
EM1803155-003	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	7.27	7.29	0.275	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 1443375)									
EM1803137-002	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	11400	11300	1.14	0% - 20%
EM1803155-003	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	21800	22000	0.913	0% - 20%
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QC Lot: 1443474)									
EM1803113-001	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	1690	1640	2.94	0% - 20%
EM1803147-003	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	36400	38300	4.98	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 1443376)									
EM1803137-002	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.00	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.00	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	262	265	1.05	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	262	265	1.05	0% - 20%
EM1803155-003	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.00	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.00	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	1230	1230	0.00	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	1230	1230	0.00	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 1441599)									
EM1803146-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	2330	2490	6.63	0% - 20%
EM1803130-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	57	55	3.84	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 1441602)									
EM1803147-007	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	1310	1260	4.07	0% - 20%
EM1803130-001	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	1310	1300	0.796	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 1443853)									



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
ED093F: Dissolved Major Cations (QC Lot: 1443853) - continued									
EM1803040-015	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	71	72	0.00	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	118	119	0.00	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	235	237	0.819	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	5	5	0.00	No Limit
EM1803217-001	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	42	42	0.00	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	80	80	0.00	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	678	681	0.452	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	1	1	0.00	No Limit
EG020F: Dissolved Metals by ICP-MS (QC Lot: 1443855)									
EM1803223-003	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.001	0.001	0.00	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.005	0.004	0.00	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.022	0.021	8.05	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.00	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.00	No Limit
EM1803130-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.156	0.162	3.58	0% - 20%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	0.003	0.003	0.00	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.004	0.004	0.00	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.188	0.188	0.00	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.015	0.016	0.00	0% - 50%
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.018	0.020	13.6	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.00	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 1443854)									
EM1803223-003	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EM1803130-001	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 1443641)									
EM1803132-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.05	0.05	0.00	No Limit
EM1803150-007	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.10	0.10	0.00	No Limit
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 1441601)									
EM1803161-008	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EM1803130-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	0.01	0.01	0.00	No Limit
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 1443642)									
EM1803144-023	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EM1803150-007	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 1444267)									
EM1803166-005	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	2.8	2.8	0.00	0% - 20%
EM1803026-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.5	0.4	27.4	No Limit
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 1444268)									
EM1803166-005	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.36	0.40	12.2	0% - 20%
EM1803026-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.11	0.10	0.00	0% - 50%
EP005: Total Organic Carbon (TOC) (QC Lot: 1444130)									
EM1803130-001	Anonymous	EP005: Total Organic Carbon	----	1	mg/L	11	13	22.6	0% - 50%
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 1440613)									
EM1803098-001	Anonymous	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.00	No Limit
EM1803100-001	Anonymous	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.00	No Limit
EP074B: Oxygenated Compounds (QC Lot: 1440613)									
EM1803098-001	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.00	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.00	No Limit



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074B: Oxygenated Compounds (QC Lot: 1440613) - continued									
EM1803098-001	Anonymous	EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.00	No Limit
EM1803100-001	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.00	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.00	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.00	No Limit
EP074C: Sulfonated Compounds (QC Lot: 1440613)									
EM1803098-001	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.00	No Limit
EM1803100-001	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.00	No Limit
EP074D: Fumigants (QC Lot: 1440613)									
EM1803098-001	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.00	No Limit
EM1803100-001	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.00	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 1440613)									
EM1803098-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.00	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	23	23	0.00	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.00	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.00	No Limit



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074E: Halogenated Aliphatic Compounds (QC Lot: 1440613) - continued									
EM1803098-001	Anonymous	EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.00	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.00	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.00	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.00	No Limit
EM1803100-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.00	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.00	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.00	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.00	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.00	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.00	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 1440613)									
EM1803098-001	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.00	No Limit



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074F: Halogenated Aromatic Compounds (QC Lot: 1440613) - continued									
EM1803100-001	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.00	No Limit
EP074G: Trihalomethanes (QC Lot: 1440613)									
EM1803098-001	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.00	No Limit
EM1803100-001	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	110	113	2.14	0% - 20%
		EP074: Bromodichloromethane	75-27-4	5	µg/L	70	75	6.94	0% - 50%
		EP074: Dibromochloromethane	124-48-1	5	µg/L	37	38	3.57	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1440612)									
EM1803098-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	20	20	0.00	No Limit
EM1803100-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	110	120	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1441042)									
EM1803145-001	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.00	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1440612)									
EM1803098-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	20	20	0.00	No Limit
EM1803100-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	110	120	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1441042)									
EM1803145-001	Anonymous	EP071: >C10 - C16 Fraction	----	100	µg/L	<100	<100	0.00	No Limit
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.00	No Limit
EP080: BTEXN (QC Lot: 1440612)									
EM1803098-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.00	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
EM1803100-001	Anonymous	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
		EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080: BTEXN (QC Lot: 1440612) - continued									
EM1803100-001	Anonymous	EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.00	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 1446674)									
EM1803154-001	QC2/160218	EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.00	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.00	No Limit
ES1805160-030	Anonymous	EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.00	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.00	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 1446674)									
EM1803154-001	QC2/160218	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.00	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.00	No Limit
ES1805160-030	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.00	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.00	No Limit



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 1446674)									
EM1803154-001	QC2/160218	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.00	No Limit
ES1805160-030	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.00	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 1446674)									
EM1803154-001	QC2/160218	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.00	No Limit
ES1805160-030	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.00	No Limit

Page : 10 of 22
 Work Order : EM1803154
 Client : GHD PTY LTD
 Project : 31350060813



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 1446674) - continued									
ES1805160-030	Anonymous	EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.00	No Limit
EP231P: PFAS Sums (QC Lot: 1446674)									
EM1803154-001	QC2/160218	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.00	No Limit
ES1805160-030	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.00	No Limit



Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EA010P: Conductivity by PC Titrator (QCLot: 1443375)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	1412 µS/cm	101	85	119
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QCLot: 1443474)								
EA015H: Total Dissolved Solids @180°C	----	10	mg/L	<10 <10	2000 mg/L 293 mg/L	99.2 105	95 95	105 105
ED037P: Alkalinity by PC Titrator (QCLot: 1443376)								
ED037-P: Total Alkalinity as CaCO3	----	----	mg/L	----	200 mg/L	109	88	109
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 1441599)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	112	92	115
ED045G: Chloride by Discrete Analyser (QCLot: 1441602)								
ED045G: Chloride	16887-00-6	1	mg/L	<1 <1	10 mg/L 1000 mg/L	108 105	88 88	118 118
ED093F: Dissolved Major Cations (QCLot: 1443853)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	5 mg/L	104	93	110
ED093F: Magnesium	7439-95-4	1	mg/L	<1	5 mg/L	102	91	110
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	101	90	109
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	101	89	109
EG020F: Dissolved Metals by ICP-MS (QCLot: 1443855)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	95.7	91	107
EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	96.2	82	113
EG020A-F: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	94.1	84	106
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	93.4	84	104
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	90.2	83	103
EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	93.8	83	106
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	90.7	82	103
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	93.5	83	105
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	93.1	83	105
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	94.6	82	106
EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	96.2	82	109
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	93.5	83	106
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	97.1	85	109
EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	0.5 mg/L	104	84	116
EG035F: Dissolved Mercury by FIMS (QCLot: 1443854)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	95.2	81	114



Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EK055G: Ammonia as N by Discrete Analyser (QCLot: 1443641)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	106	80	115
EK057G: Nitrite as N by Discrete Analyser (QCLot: 1441601)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	98.8	94	107
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 1443642)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	110	89	114
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 1444267)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	5 mg/L	86.0	70	117
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 1444268)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	2.21 mg/L	97.5	70	120
EP005: Total Organic Carbon (TOC) (QCLot: 1444130)								
EP005: Total Organic Carbon	----	1	mg/L	<1	100 mg/L	93.5	81	109
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 1441044)								
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	10 µg/L	73.7	54	132
EP068A: Organochlorine Pesticides (OC) (QCLot: 1441045)								
EP068: alpha-BHC	319-84-6	0.5	µg/L	<0.5	5 µg/L	97.5	51	122
EP068: Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	5 µg/L	80.5	51	118
EP068: beta-BHC	319-85-7	0.5	µg/L	<0.5	5 µg/L	103	57	119
EP068: gamma-BHC	58-89-9	0.5	µg/L	<0.5	5 µg/L	103	51	121
EP068: delta-BHC	319-86-8	0.5	µg/L	<0.5	5 µg/L	110	58	114
EP068: Heptachlor	76-44-8	0.5	µg/L	<0.5	5 µg/L	86.9	47	113
EP068: Aldrin	309-00-2	0.5	µg/L	<0.5	5 µg/L	99.4	53	118
EP068: Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	5 µg/L	104	53	117
EP068: trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	5 µg/L	111	50	126
EP068: alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	5 µg/L	115	55	121
EP068: cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	5 µg/L	99.2	54	120
EP068: Dieldrin	60-57-1	0.5	µg/L	<0.5	5 µg/L	99.3	50	121
EP068: 4,4'-DDE	72-55-9	0.5	µg/L	<0.5	5 µg/L	106	54	120
EP068: Endrin	72-20-8	0.5	µg/L	<0.5	5 µg/L	105	45	122
EP068: beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	5 µg/L	111	55	120
EP068: 4,4'-DDD	72-54-8	0.5	µg/L	<0.5	5 µg/L	98.8	53	126
EP068: Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	5 µg/L	95.7	52	123
EP068: Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	5 µg/L	85.6	48	121
EP068: 4,4'-DDT	50-29-3	2	µg/L	<2.0	5 µg/L	98.7	46	120
EP068: Endrin ketone	53494-70-5	0.5	µg/L	<0.5	5 µg/L	96.6	56	118
EP068: Methoxychlor	72-43-5	2	µg/L	<2.0	5 µg/L	87.2	42	123
EP068B: Organophosphorus Pesticides (OP) (QCLot: 1441045)								
EP068: Dichlorvos	62-73-7	0.5	µg/L	<0.5	5 µg/L	93.3	45	123



Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EP068B: Organophosphorus Pesticides (OP) (QCLot: 1441045) - continued								
EP068: Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	5 µg/L	77.2	42	129
EP068: Monocrotophos	6923-22-4	2	µg/L	<2.0	5 µg/L	15.8	10	43
EP068: Dimethoate	60-51-5	0.5	µg/L	<0.5	5 µg/L	89.0	38	115
EP068: Diazinon	333-41-5	0.5	µg/L	<0.5	5 µg/L	106	54	121
EP068: Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	5 µg/L	118	56	118
EP068: Parathion-methyl	298-00-0	2	µg/L	<2.0	5 µg/L	99.8	43	115
EP068: Malathion	121-75-5	0.5	µg/L	<0.5	5 µg/L	75.8	50	120
EP068: Fenthion	55-38-9	0.5	µg/L	<0.5	5 µg/L	109	55	119
EP068: Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	5 µg/L	113	50	122
EP068: Parathion	56-38-2	2	µg/L	<2.0	5 µg/L	93.5	44	114
EP068: Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	5 µg/L	97.2	52	117
EP068: Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	5 µg/L	108	42	126
EP068: Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	5 µg/L	116	50	117
EP068: Fenamiphos	22224-92-6	0.5	µg/L	<0.5	5 µg/L	71.0	45	127
EP068: Prothiofos	34643-46-4	0.5	µg/L	<0.5	5 µg/L	110	52	120
EP068: Ethion	563-12-2	0.5	µg/L	<0.5	5 µg/L	107	49	118
EP068: Carbophenothion	786-19-6	0.5	µg/L	<0.5	5 µg/L	104	52	119
EP068: Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	5 µg/L	86.1	21	120
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 1440613)								
EP074: Styrene	100-42-5	5	µg/L	<5	20 µg/L	113	79	114
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	20 µg/L	110	72	116
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	20 µg/L	99.2	71	115
EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	20 µg/L	98.1	72	114
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	20 µg/L	100	72	114
EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	20 µg/L	97.9	74	112
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	20 µg/L	102	73	114
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	20 µg/L	105	70	115
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	20 µg/L	97.9	62	116
EP074B: Oxygenated Compounds (QCLot: 1440613)								
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	200 µg/L	105	73	126
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	200 µg/L	102	68	136
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	200 µg/L	95.9	76	127
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	200 µg/L	98.6	71	131
EP074C: Sulfonated Compounds (QCLot: 1440613)								
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	20 µg/L	107	55	123
EP074D: Fumigants (QCLot: 1440613)								
EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	20 µg/L	100	67	122
EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	20 µg/L	91.5	78	120

Method Blank (MB) Report

Spike

Spike Recovery (%)

Recovery Limits (%)

Method: Compound

CAS Number

LOR

Unit

Result

Concentration

LCS

Low

High

EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	20 µg/L	86.6	70	118
EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	20 µg/L	92.1	68	115
EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	20 µg/L	106	78	120

EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	200 µg/L	113	62	140
EP074: Chloromethane	74-87-3	50	µg/L	<50	200 µg/L	120	68	138
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	200 µg/L	106	64	139
EP074: Bromomethane	74-83-9	50	µg/L	<50	200 µg/L	94.0	48	130
EP074: Chloroethane	75-00-3	50	µg/L	<50	200 µg/L	104	71	130
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	200 µg/L	94.7	71	126
EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	20 µg/L	104	65	124
EP074: Iodomethane	74-88-4	5	µg/L	<5	20 µg/L	95.4	27	120
EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	20 µg/L	102	73	121
EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	20 µg/L	110	77	120
EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	20 µg/L	101	78	120
EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	20 µg/L	88.1	68	116
EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	20 µg/L	89.7	66	119
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	20 µg/L	89.8	66	119
EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	20 µg/L	82.8	79	118
EP074: Trichloroethene	79-01-6	5	µg/L	<5	20 µg/L	86.2	70	120
EP074: Dibromomethane	74-95-3	5	µg/L	<5	20 µg/L	88.4	75	115
EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	20 µg/L	94.9	87	114
EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	20 µg/L	104	84	116
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	20 µg/L	116	75	119
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	20 µg/L	95.8	75	112
EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	20 µg/L	91.5	63	119
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	20 µg/L	94.7	54	119
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	20 µg/L	102	81	125
EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	20 µg/L	99.3	81	125
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	20 µg/L	87.3	62	110
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	20 µg/L	83.0	63	106

EP074: Chlorobenzene	108-90-7	5	µg/L	<5	20 µg/L	110	82	114
EP074: Bromobenzene	108-86-1	5	µg/L	<5	20 µg/L	108	74	117
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	20 µg/L	101	71	114
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	20 µg/L	98.2	71	112
EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	20 µg/L	104	74	118

EP074G: Trihalomethanes (QCLot: 1440613)



Sub-Matrix: **WATER**

Method: Compound				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%)	
							Low	High
CAS Number	LOR	Unit	Result					
EP074G: Trihalomethanes (QCLot: 1440613) - continued								
EP074: Chloroform	67-66-3	5	µg/L	<5	20 µg/L	93.9	79	119
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	20 µg/L	88.6	70	112
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	20 µg/L	92.9	68	107
EP074: Bromoform	75-25-2	5	µg/L	<5	20 µg/L	95.5	62	108
EP075A: Phenolic Compounds (QCLot: 1441046)								
EP075: Phenol	108-95-2	2	µg/L	<2	10 µg/L	32.3	19	47
EP075: 2-Chlorophenol	95-57-8	2	µg/L	<2	10 µg/L	73.7	44	100
EP075: 2-Methylphenol	95-48-7	2	µg/L	<2	10 µg/L	70.4	38	94
EP075: 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2	10 µg/L	64.2	33	88
EP075: 2-Nitrophenol	88-75-5	2	µg/L	<2	10 µg/L	79.0	40	111
EP075: 2,4-Dimethylphenol	105-67-9	2	µg/L	<2	10 µg/L	80.6	44	110
EP075: 2,4-Dichlorophenol	120-83-2	2	µg/L	<2	10 µg/L	81.3	43	110
EP075: 2,6-Dichlorophenol	87-65-0	2	µg/L	<2	10 µg/L	72.8	49	104
EP075: 4-Chloro-3-methylphenol	59-50-7	2	µg/L	<2	10 µg/L	82.0	50	103
EP075: 2,4,6-Trichlorophenol	88-06-2	2	µg/L	<2	10 µg/L	66.2	48	107
EP075: 2,4,5-Trichlorophenol	95-95-4	2	µg/L	<2	10 µg/L	77.2	48	110
EP075: Pentachlorophenol	87-86-5	4	µg/L	<4	6 µg/L	28.5	25	113
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 1441046)								
EP075: Naphthalene	91-20-3	2	µg/L	<2	10 µg/L	79.8	51	102
EP075: 2-Methylnaphthalene	91-57-6	2	µg/L	<2	10 µg/L	81.8	50	107
EP075: 2-Chloronaphthalene	91-58-7	2	µg/L	<2	10 µg/L	82.6	47	111
EP075: Acenaphthylene	208-96-8	2	µg/L	<2	10 µg/L	84.0	49	110
EP075: Acenaphthene	83-32-9	2	µg/L	<2	10 µg/L	81.6	54	105
EP075: Fluorene	86-73-7	2	µg/L	<2	10 µg/L	85.1	54	108
EP075: Phenanthrene	85-01-8	2	µg/L	<2	10 µg/L	85.3	57	108
EP075: Anthracene	120-12-7	2	µg/L	<2	10 µg/L	85.8	57	108
EP075: Fluoranthene	206-44-0	2	µg/L	<2	10 µg/L	87.9	57	111
EP075: Pyrene	129-00-0	2	µg/L	<2	10 µg/L	87.0	58	110
EP075: N-2-Fluorenyl Acetamide	53-96-3	2	µg/L	<2	10 µg/L	85.6	48	117
EP075: Benz(a)anthracene	56-55-3	2	µg/L	<2	10 µg/L	88.4	55	112
EP075: Chrysene	218-01-9	2	µg/L	<2	10 µg/L	93.3	55	113
EP075: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	4	µg/L	<4	20 µg/L	86.8	56	111
EP075: 7,12-Dimethylbenz(a)anthracene	57-97-6	2	µg/L	<2	10 µg/L	86.8	55	140
EP075: Benzo(a)pyrene	50-32-8	2	µg/L	<2	10 µg/L	86.5	57	129
EP075: 3-Methylcholanthrene	56-49-5	2	µg/L	<2	3.33 µg/L	81.5	47	135
EP075: Indeno(1,2,3-cd)pyrene	193-39-5	2	µg/L	<2	10 µg/L	86.0	59	125
EP075: Dibenz(a,h)anthracene	53-70-3	2	µg/L	<2	10 µg/L	83.7	58	126
EP075: Benzo(g,h,i)perylene	191-24-2	2	µg/L	<2	10 µg/L	83.0	59	127



Sub-Matrix: **WATER**

Method Blank (MB) Report				Laboratory Control Spike (LCS) Report				
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
					LCS	Low	High	
Method: Compound	CAS Number	LOR	Unit	Result				
EP075C: Phthalate Esters (QCLot: 1441046)								
EP075: Dimethyl phthalate	131-11-3	2	µg/L	<2	10 µg/L	87.0	57	121
EP075: Diethyl phthalate	84-66-2	2	µg/L	<2	10 µg/L	87.3	62	128
EP075: Di-n-butyl phthalate	84-74-2	2	µg/L	<2	10 µg/L	93.4	65	129
EP075: Butyl benzyl phthalate	85-68-7	2	µg/L	<2	10 µg/L	88.5	63	127
EP075: bis(2-ethylhexyl) phthalate	117-81-7	10	µg/L	<10	10 µg/L	76.0	56	131
EP075: Di-n-octylphthalate	117-84-0	2	µg/L	<2	10 µg/L	86.2	57	129
EP075D: Nitrosamines (QCLot: 1441046)								
EP075: N-Nitrosomethylethylamine	10595-95-6	2	µg/L	<2	10 µg/L	70.8	19	102
EP075: N-Nitrosodiethylamine	55-18-5	2	µg/L	<2	10 µg/L	79.0	38	113
EP075: N-Nitrosopyrrolidine	930-55-2	4	µg/L	<4	10 µg/L	60.2	29	88
EP075: N-Nitrosomorpholine	59-89-2	2	µg/L	<2	10 µg/L	55.0	27	90
EP075: N-Nitrosodi-n-propylamine	621-64-7	2	µg/L	<2	10 µg/L	80.0	43	119
EP075: N-Nitrosopiperidine	100-75-4	2	µg/L	<2	10 µg/L	81.3	43	112
EP075: N-Nitrosodibutylamine	924-16-3	2	µg/L	<2	10 µg/L	83.4	49	119
EP075: N-Nitrosodiphenyl & Diphenylamine	86-30-6 122-39-4	4	µg/L	<4	10 µg/L	85.5	59	119
EP075: Methapyrilene	91-80-5	2	µg/L	<2	10 µg/L	# 44.1	55	157
EP075E: Nitroaromatics and Ketones (QCLot: 1441046)								
EP075: 2-Picoline	109-06-8	2	µg/L	<2	10 µg/L	58.9	17	120
EP075: Acetophenone	98-86-2	2	µg/L	<2	10 µg/L	80.7	51	108
EP075: Nitrobenzene	98-95-3	2	µg/L	<2	10 µg/L	80.3	46	109
EP075: Isophorone	78-59-1	2	µg/L	<2	10 µg/L	82.6	49	114
EP075: 2,6-Dinitrotoluene	606-20-2	4	µg/L	<4	10 µg/L	86.6	56	120
EP075: 2,4-Dinitrotoluene	121-14-2	4	µg/L	<4	10 µg/L	87.0	57	121
EP075: 1-Naphthylamine	134-32-7	2	µg/L	<2	10 µg/L	114	11	119
EP075: 4-Nitroquinoline-N-oxide	56-57-5	2	µg/L	<2	10 µg/L	95.5	30	160
EP075: 5-Nitro-o-toluidine	99-55-8	2	µg/L	<2	10 µg/L	106	50	124
EP075: Azobenzene	103-33-3	2	µg/L	<2	10 µg/L	83.5	56	120
EP075: 1,3,5-Trinitrobenzene	99-35-4	2	µg/L	<2	10 µg/L	84.9	36	132
EP075: Phenacetin	62-44-2	2	µg/L	<2	10 µg/L	76.7	46	110
EP075: 4-Aminobiphenyl	92-67-1	2	µg/L	<2	10 µg/L	118	24	149
EP075: Pentachloronitrobenzene	82-68-8	2	µg/L	<2	10 µg/L	84.0	57	127
EP075: Pronamide	23950-58-5	2	µg/L	<2	10 µg/L	90.4	63	125
EP075: Dimethylaminoazobenzene	60-11-7	2	µg/L	<2	10 µg/L	89.7	57	123
EP075: Chlorobenzilate	510-15-6	2	µg/L	<2	10 µg/L	90.7	61	131
EP075F: Haloethers (QCLot: 1441046)								
EP075: Bis(2-chloroethyl) ether	111-44-4	2	µg/L	<2	10 µg/L	78.4	44	109
EP075: Bis(2-chloroethoxy) methane	111-91-1	2	µg/L	<2	10 µg/L	82.2	46	114



Sub-Matrix: **WATER**

Method: Compound				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%)	
							Low	High
CAS Number	LOR	Unit	Result					
EP075F: Haloethers (QCLot: 1441046) - continued								
EP075: 4-Chlorophenyl phenyl ether	7005-72-3	2	µg/L	<2	10 µg/L	85.0	55	119
EP075: 4-Bromophenyl phenyl ether	101-55-3	2	µg/L	<2	10 µg/L	85.5	57	119
EP075G: Chlorinated Hydrocarbons (QCLot: 1441046)								
EP075: 1,4-Dichlorobenzene	106-46-7	2	µg/L	<2	10 µg/L	75.7	46	102
EP075: 1,3-Dichlorobenzene	541-73-1	2	µg/L	<2	10 µg/L	75.2	45	101
EP075: 1,2-Dichlorobenzene	95-50-1	2	µg/L	<2	10 µg/L	76.6	47	101
EP075: Hexachloroethane	67-72-1	2	µg/L	<2	10 µg/L	75.0	44	104
EP075: 1,2,4-Trichlorobenzene	120-82-1	2	µg/L	<2	10 µg/L	79.5	46	107
EP075: Hexachloropropylene	1888-71-7	2	µg/L	<2	10 µg/L	78.6	35	109
EP075: Hexachlorobutadiene	87-68-3	2	µg/L	<2	10 µg/L	79.1	48	103
EP075: Hexachlorocyclopentadiene	77-47-4	10	µg/L	<10	10 µg/L	83.7	34	112
EP075: Pentachlorobenzene	608-93-5	2	µg/L	<2	10 µg/L	82.7	53	117
EP075: Hexachlorobenzene (HCB)	118-74-1	4	µg/L	<4	20 µg/L	86.1	55	121
EP075H: Anilines and Benzidines (QCLot: 1441046)								
EP075: Aniline	62-53-3	2	µg/L	<2	10 µg/L	73.8	14	110
EP075: 4-Chloroaniline	106-47-8	2	µg/L	<2	10 µg/L	85.0	32	114
EP075: 2-Nitroaniline	88-74-4	4	µg/L	<4	10 µg/L	89.6	51	119
EP075: 3-Nitroaniline	99-09-2	4	µg/L	<4	10 µg/L	109	50	116
EP075: Dibenzofuran	132-64-9	2	µg/L	<2	10 µg/L	83.5	53	117
EP075: 4-Nitroaniline	100-01-6	2	µg/L	<2	10 µg/L	84.9	48	114
EP075: Carbazole	86-74-8	2	µg/L	<2	10 µg/L	93.8	63	125
EP075: 3,3'-Dichlorobenzidine	91-94-1	2	µg/L	<2	10 µg/L	93.0	59	137
EP075I: Organochlorine Pesticides (QCLot: 1441046)								
EP075: alpha-BHC	319-84-6	2	µg/L	<2	10 µg/L	83.2	58	124
EP075: beta-BHC	319-85-7	2	µg/L	<2	10 µg/L	86.2	57	127
EP075: gamma-BHC	58-89-9	2	µg/L	<2	10 µg/L	85.1	57	125
EP075: delta-BHC	319-86-8	2	µg/L	<2	10 µg/L	84.3	62	128
EP075: Heptachlor	76-44-8	2	µg/L	<2	10 µg/L	86.8	53	112
EP075: Aldrin	309-00-2	2	µg/L	<2	10 µg/L	86.8	57	110
EP075: Heptachlor epoxide	1024-57-3	2	µg/L	<2	10 µg/L	89.4	55	112
EP075: alpha-Endosulfan	959-98-8	2	µg/L	<2	10 µg/L	88.4	50	124
EP075: 4,4'-DDE	72-55-9	2	µg/L	<2	10 µg/L	88.3	55	110
EP075: Dieldrin	60-57-1	2	µg/L	<2	10 µg/L	90.1	61	131
EP075: Endrin	72-20-8	2	µg/L	<2	10 µg/L	88.9	59	133
EP075: beta-Endosulfan	33213-65-9	2	µg/L	<2	10 µg/L	89.2	60	130
EP075: 4,4'-DDD	72-54-8	2	µg/L	<2	10 µg/L	90.4	61	129
EP075: Endosulfan sulfate	1031-07-8	2	µg/L	<2	10 µg/L	89.5	58	136
EP075: 4,4'-DDT	50-29-3	4	µg/L	<4	10 µg/L	86.6	51	137



Sub-Matrix: **WATER**

Method: Compound				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
						LCS	Low	High
CAS Number	LOR	Unit	Result					
EP075J: Organophosphorus Pesticides (QCLot: 1441046)								
EP075: Dichlorvos	62-73-7	2	µg/L	<2	10 µg/L	84.3	50	116
EP075: Dimethoate	60-51-5	2	µg/L	<2	10 µg/L	76.1	49	111
EP075: Diazinon	333-41-5	2	µg/L	<2	10 µg/L	86.9	62	126
EP075: Chlorpyrifos-methyl	5598-13-0	2	µg/L	<2	10 µg/L	87.8	60	126
EP075: Malathion	121-75-5	2	µg/L	<2	10 µg/L	88.3	61	131
EP075: Fenthion	55-38-9	2	µg/L	<2	10 µg/L	89.6	62	128
EP075: Chlorpyrifos	2921-88-2	2	µg/L	<2	10 µg/L	87.3	61	127
EP075: Pirimphos-ethyl	23505-41-1	2	µg/L	<2	10 µg/L	88.7	61	129
EP075: Chlorfenvinphos	470-90-6	2	µg/L	<2	10 µg/L	88.2	61	131
EP075: Prothiofos	34643-46-4	2	µg/L	<2	10 µg/L	89.2	61	125
EP075: Ethion	563-12-2	2	µg/L	<2	10 µg/L	90.2	62	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1440612)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	360 µg/L	108	68	125
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1441042)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	4330 µg/L	94.3	58	134
EP071: C15 - C28 Fraction	----	100	µg/L	<100	20000 µg/L	106	60	133
EP071: C29 - C36 Fraction	----	50	µg/L	<50	10200 µg/L	104	54	137
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1440612)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	104	66	123
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1441042)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	6770 µg/L	98.9	58	122
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	26000 µg/L	106	56	132
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	2020 µg/L	104	58	137
EP080: BTEXN (QCLot: 1440612)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	102	74	123
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	108	77	128
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	110	73	126
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	40 µg/L	118	72	131
	106-42-3							
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	115	74	131
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	108	74	124
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 1446674)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.5 µg/L	84.2	70	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.5 µg/L	97.0	70	130
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L	<0.02	0.5 µg/L	95.2	70	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.5 µg/L	93.2	70	130
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.5 µg/L	79.6	70	130
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.5 µg/L	85.0	70	130



Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result			Low	High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 1446674)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	2.5 µg/L	96.2	70	130
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.5 µg/L	116	70	130
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.5 µg/L	78.6	70	130
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.5 µg/L	112	70	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.5 µg/L	84.0	70	130
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.5 µg/L	88.6	70	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.5 µg/L	106	70	130
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.5 µg/L	104	70	130
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.5 µg/L	97.4	70	130
EP231X: Perfluorotridecanoic acid (PFTriDA)	72629-94-8	0.02	µg/L	<0.02	0.5 µg/L	115	70	130
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	1.25 µg/L	91.4	70	150
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 1446674)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.5 µg/L	94.4	70	130
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	1.25 µg/L	95.9	70	150
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	1.25 µg/L	93.4	70	150
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	1.25 µg/L	105	70	150
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	1.25 µg/L	127	70	150
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.5 µg/L	118	70	130
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.5 µg/L	84.8	70	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 1446674)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.5 µg/L	90.6	70	130
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.5 µg/L	77.8	70	130
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.5 µg/L	85.8	70	130
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.5 µg/L	78.4	70	130

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike Concentration	SpikeRecovery(%) MS	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number			Low	High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 1441599)							
EM1803132-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	# 62.5	70	130

Sub-Matrix: WATER				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
ED045G: Chloride by Discrete Analyser (QCLot: 1441602)							
EM1803137-001	Anonymous	ED045G: Chloride	16887-00-6	400 mg/L	# Not Determined	70	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 1443855)							
EM1803130-001	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	105	85	131
		EG020A-F: Beryllium	7440-41-7	0.2 mg/L	99.2	73	141
		EG020A-F: Barium	7440-39-3	0.2 mg/L	102	75	127
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	103	81	133
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	94.4	71	135
		EG020A-F: Cobalt	7440-48-4	0.2 mg/L	98.6	78	132
		EG020A-F: Copper	7440-50-8	0.2 mg/L	96.4	76	130
		EG020A-F: Lead	7439-92-1	0.2 mg/L	94.7	75	133
		EG020A-F: Manganese	7439-96-5	0.2 mg/L	93.5	64	134
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	98.6	73	131
		EG020A-F: Vanadium	7440-62-2	0.2 mg/L	98.1	73	131
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	103	75	131
EG035F: Dissolved Mercury by FIMS (QCLot: 1443854)							
EM1803146-001	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	91.0	70	120
EK055G: Ammonia as N by Discrete Analyser (QCLot: 1443641)							
EM1803132-002	Anonymous	EK055G: Ammonia as N	7664-41-7	1 mg/L	88.0	70	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 1441601)							
EM1803132-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	89.2	80	114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 1443642)							
EM1803144-024	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	112	70	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 1444267)							
EM1803026-002	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	84.4	70	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 1444268)							
EM1803026-002	Anonymous	EK067G: Total Phosphorus as P	----	1 mg/L	87.4	70	130
EP005: Total Organic Carbon (TOC) (QCLot: 1444130)							
EM1803154-001	QC2/160218	EP005: Total Organic Carbon	----	500 mg/L	104	80	114
EP074E: Halogenated Aliphatic Compounds (QCLot: 1440613)							
EM1803098-003	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	20 µg/L	105	40	124
		EP074: Trichloroethene	79-01-6	20 µg/L	74.6	54	126
EP074F: Halogenated Aromatic Compounds (QCLot: 1440613)							
EM1803098-003	Anonymous	EP074: Chlorobenzene	108-90-7	20 µg/L	108	68	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1440612)							



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1440612) - continued							
EM1803098-003	Anonymous	EP080: C6 - C9 Fraction	----	280 µg/L	96.0	43	125
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1441042)							
EM1803145-001	Anonymous	EP071: C10 - C14 Fraction	----	3368 µg/L	116	50	130
		EP071: C15 - C28 Fraction	----	14735 µg/L	125	54	136
		EP071: C29 - C36 Fraction	----	7856 µg/L	119	50	142
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1440612)							
EM1803098-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	330 µg/L	88.1	44	122
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1441042)							
EM1803145-001	Anonymous	EP071: >C10 - C16 Fraction	----	5225 µg/L	117	50	128
		EP071: >C16 - C34 Fraction	----	19994 µg/L	120	50	150
		EP071: >C34 - C40 Fraction	----	1449 µg/L	130	51	159
EP080: BTEXN (QCLot: 1440612)							
EM1803098-003	Anonymous	EP080: Benzene	71-43-2	20 µg/L	102	68	130
		EP080: Toluene	108-88-3	20 µg/L	106	72	132
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 1446674)							
EM1803154-001	QC2/160218	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.5 µg/L	91.0	50	130
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.5 µg/L	113	50	130
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.5 µg/L	103	50	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.5 µg/L	83.2	50	130
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.5 µg/L	77.2	50	130
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.5 µg/L	76.8	50	130
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 1446674)							
EM1803154-001	QC2/160218	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	2.5 µg/L	118	50	130
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.5 µg/L	118	50	130
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.5 µg/L	103	50	130
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.5 µg/L	119	50	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.5 µg/L	79.6	50	130
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.5 µg/L	95.0	50	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.5 µg/L	117	50	130
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.5 µg/L	98.0	50	130
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.5 µg/L	91.8	50	130
		EP231X: Perfluorotridecanoic acid (PFTTrDA)	72629-94-8	0.5 µg/L	98.6	50	130
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	1.25 µg/L	88.4	50	150
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 1446674)							
EM1803154-001	QC2/160218	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.5 µg/L	88.6	50	130
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	1.25 µg/L	84.5	50	150



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 1446674) - continued							
EM1803154-001	QC2/160218	EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	1.25 µg/L	90.6	50	150
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	1.25 µg/L	84.8	50	150
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	1.25 µg/L	126	50	150
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.5 µg/L	114	50	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.5 µg/L	81.8	50	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 1446674)							
EM1803154-001	QC2/160218	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.5 µg/L	109	50	130
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.5 µg/L	88.6	50	130
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.5 µg/L	74.0	50	130
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.5 µg/L	69.2	50	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order : **EM1803154**

Page : 1 of 12

Client : **GHD PTY LTD**
Contact : **MR MATTHEW MOORE**
Project : **31350060813**
Site : **----**
Sampler : **M.MOORE & L.SPURR**
Order number : **----**

Laboratory : **Environmental Division Melbourne**
Telephone : **+61-3-8549 9630**
Date Samples Received : **16-Feb-2018**
Issue Date : **27-Feb-2018**
No. of samples received : **5**
No. of samples analysed : **5**

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **Laboratory Control outliers exist - please see following pages for full details.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**



Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Laboratory Control Spike (LCS) Recoveries							
EP075D: Nitrosamines	QC-1441046-001	----	Methapyrilene	91-80-5	44.1 %	55-157%	Recovery less than lower control limit
Matrix Spike (MS) Recoveries							
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA	EM1803132--001	Anonymous	Sulfate as SO4 - Turbidimetric	14808-79-8	62.5 %	70-130%	Recovery less than lower data quality objective
ED045G: Chloride by Discrete Analyser	EM1803137--001	Anonymous	Chloride	16887-00-6	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
Pesticides by GCMS	0	1	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	0	1	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	0	1	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	1	14	7.14	10.00	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)					
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	1	20	5.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Pesticides by GCMS	0	1	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	0	1	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	0	1	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for **VOC in soils** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA005P: pH by PC Titrator							
Clear Plastic Bottle - Natural (EA005-P) QC2/160218	16-Feb-2018	----	----	----	16-Feb-2018	16-Feb-2018	✔



Matrix: **WATER**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA010P: Conductivity by PC Titrator							
Clear Plastic Bottle - Natural (EA010-P) QC2/160218	16-Feb-2018	----	----	----	20-Feb-2018	16-Mar-2018	✓
EA015: Total Dissolved Solids dried at 180 ± 5 °C							
Clear Plastic Bottle - Natural (EA015H) QC2/160218	16-Feb-2018	----	----	----	20-Feb-2018	23-Feb-2018	✓
ED037P: Alkalinity by PC Titrator							
Clear Plastic Bottle - Natural (ED037-P) QC2/160218	16-Feb-2018	----	----	----	20-Feb-2018	02-Mar-2018	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural (ED041G) QC2/160218	16-Feb-2018	----	----	----	19-Feb-2018	16-Mar-2018	✓
ED045G: Chloride by Discrete Analyser							
Clear Plastic Bottle - Natural (ED045G) QC2/160218	16-Feb-2018	----	----	----	19-Feb-2018	16-Mar-2018	✓
ED093F: Dissolved Major Cations							
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) QC2/160218	16-Feb-2018	----	----	----	20-Feb-2018	16-Mar-2018	✓
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) QC2/160218	16-Feb-2018	----	----	----	20-Feb-2018	15-Aug-2018	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) QC2/160218	16-Feb-2018	----	----	----	20-Feb-2018	16-Mar-2018	✓
EK055G: Ammonia as N by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK055G) QC2/160218	16-Feb-2018	----	----	----	20-Feb-2018	16-Mar-2018	✓
EK057G: Nitrite as N by Discrete Analyser							
Clear Plastic Bottle - Natural (EK057G) QC2/160218	16-Feb-2018	----	----	----	16-Feb-2018	18-Feb-2018	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK059G) QC2/160218	16-Feb-2018	----	----	----	20-Feb-2018	16-Mar-2018	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK061G) QC2/160218	16-Feb-2018	21-Feb-2018	16-Mar-2018	✓	21-Feb-2018	16-Mar-2018	✓
EK067G: Total Phosphorus as P by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK067G) QC2/160218	16-Feb-2018	21-Feb-2018	16-Mar-2018	✓	21-Feb-2018	16-Mar-2018	✓



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP005: Total Organic Carbon (TOC)							
Amber VOC Vial - Sulfuric Acid (EP005) QC2/160218	16-Feb-2018	----	----	----	20-Feb-2018	16-Mar-2018	✓
EP066: Polychlorinated Biphenyls (PCB)							
Amber Glass Bottle - Unpreserved (EP066) QC2/160218	16-Feb-2018	19-Feb-2018	23-Feb-2018	✓	20-Feb-2018	31-Mar-2018	✓
EP068A: Organochlorine Pesticides (OC)							
Amber Glass Bottle - Unpreserved (EP068) QC2/160218	16-Feb-2018	19-Feb-2018	23-Feb-2018	✓	20-Feb-2018	31-Mar-2018	✓
EP068B: Organophosphorus Pesticides (OP)							
Amber Glass Bottle - Unpreserved (EP068) QC2/160218	16-Feb-2018	19-Feb-2018	23-Feb-2018	✓	20-Feb-2018	31-Mar-2018	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP074) QC2/160218	16-Feb-2018	19-Feb-2018	02-Mar-2018	✓	19-Feb-2018	02-Mar-2018	✓
EP074B: Oxygenated Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) QC2/160218	16-Feb-2018	19-Feb-2018	02-Mar-2018	✓	19-Feb-2018	02-Mar-2018	✓
EP074C: Sulfonated Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) QC2/160218	16-Feb-2018	19-Feb-2018	02-Mar-2018	✓	19-Feb-2018	02-Mar-2018	✓
EP074D: Fumigants							
Amber VOC Vial - Sulfuric Acid (EP074) QC2/160218	16-Feb-2018	19-Feb-2018	02-Mar-2018	✓	19-Feb-2018	02-Mar-2018	✓
EP074E: Halogenated Aliphatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) QC2/160218	16-Feb-2018	19-Feb-2018	02-Mar-2018	✓	19-Feb-2018	02-Mar-2018	✓
EP074F: Halogenated Aromatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) QC2/160218	16-Feb-2018	19-Feb-2018	02-Mar-2018	✓	19-Feb-2018	02-Mar-2018	✓
EP074G: Trihalomethanes							
Amber VOC Vial - Sulfuric Acid (EP074) QC2/160218	16-Feb-2018	19-Feb-2018	02-Mar-2018	✓	19-Feb-2018	02-Mar-2018	✓
EP075A: Phenolic Compounds							
Amber Glass Bottle - Unpreserved (EP075) QC2/160218	16-Feb-2018	19-Feb-2018	23-Feb-2018	✓	20-Feb-2018	31-Mar-2018	✓
EP075B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075) QC2/160218	16-Feb-2018	19-Feb-2018	23-Feb-2018	✓	20-Feb-2018	31-Mar-2018	✓



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075C: Phthalate Esters							
Amber Glass Bottle - Unpreserved (EP075) QC2/160218	16-Feb-2018	19-Feb-2018	23-Feb-2018	✓	20-Feb-2018	31-Mar-2018	✓
EP075D: Nitrosamines							
Amber Glass Bottle - Unpreserved (EP075) QC2/160218	16-Feb-2018	19-Feb-2018	23-Feb-2018	✓	20-Feb-2018	31-Mar-2018	✓
EP075E: Nitroaromatics and Ketones							
Amber Glass Bottle - Unpreserved (EP075) QC2/160218	16-Feb-2018	19-Feb-2018	23-Feb-2018	✓	20-Feb-2018	31-Mar-2018	✓
EP075F: Haloethers							
Amber Glass Bottle - Unpreserved (EP075) QC2/160218	16-Feb-2018	19-Feb-2018	23-Feb-2018	✓	20-Feb-2018	31-Mar-2018	✓
EP075G: Chlorinated Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075) QC2/160218	16-Feb-2018	19-Feb-2018	23-Feb-2018	✓	20-Feb-2018	31-Mar-2018	✓
EP075H: Anilines and Benzidines							
Amber Glass Bottle - Unpreserved (EP075) QC2/160218	16-Feb-2018	19-Feb-2018	23-Feb-2018	✓	20-Feb-2018	31-Mar-2018	✓
EP075I: Organochlorine Pesticides							
Amber Glass Bottle - Unpreserved (EP075) QC2/160218	16-Feb-2018	19-Feb-2018	23-Feb-2018	✓	20-Feb-2018	31-Mar-2018	✓
EP075J: Organophosphorus Pesticides							
Amber Glass Bottle - Unpreserved (EP075) QC2/160218	16-Feb-2018	19-Feb-2018	23-Feb-2018	✓	20-Feb-2018	31-Mar-2018	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071) QC2/160218	16-Feb-2018	19-Feb-2018	23-Feb-2018	✓	20-Feb-2018	31-Mar-2018	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC2/160218	16-Feb-2018	19-Feb-2018	02-Mar-2018	✓	19-Feb-2018	02-Mar-2018	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071) QC2/160218	16-Feb-2018	19-Feb-2018	23-Feb-2018	✓	20-Feb-2018	31-Mar-2018	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC2/160218	16-Feb-2018	19-Feb-2018	02-Mar-2018	✓	19-Feb-2018	02-Mar-2018	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) QC2/160218	16-Feb-2018	19-Feb-2018	02-Mar-2018	✓	19-Feb-2018	02-Mar-2018	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X) QC2/160218	16-Feb-2018	----	----	----	21-Feb-2018	15-Aug-2018	✓

Page : 6 of 12
 Work Order : EM1803154
 Client : GHD PTY LTD
 Project : 31350060813



Matrix: **WATER**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) QC2/160218	16-Feb-2018	----	----	----	21-Feb-2018	15-Aug-2018	✔
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) QC2/160218	16-Feb-2018	----	----	----	21-Feb-2018	15-Aug-2018	✔
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) QC2/160218	16-Feb-2018	----	----	----	21-Feb-2018	15-Aug-2018	✔
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) QC2/160218	16-Feb-2018	----	----	----	21-Feb-2018	15-Aug-2018	✔



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Alkalinity by PC Titrator	ED037-P	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	2	17	11.76	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	12	16.67	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by PC Titrator	EA010-P	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	18	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	19	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	2	7	28.57	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	1	0.00	10.00	✗	NEPM 2013 B3 & ALS QC Standard
pH by PC Titrator	EA005-P	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	1	0.00	10.00	✗	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	0	1	0.00	10.00	✗	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	15	13.33	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	1	7	14.29	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	16	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	14	7.14	10.00	✗	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	2	18	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Alkalinity by PC Titrator	ED037-P	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	12	16.67	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by PC Titrator	EA010-P	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	7	14.29	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	1	100.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	1	100.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	1	1	100.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard



Matrix: **WATER**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)		Quality Control Specification	
Analytical Methods	Method	QC	Regular	Actual	Expected		Evaluation
Laboratory Control Samples (LCS) - Continued							
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	5.00	10.00	✖	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	2	20	10.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	15	6.67	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	1	7	14.29	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	16	6.25	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	14	7.14	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	18	5.56	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Ammonia as N by Discrete analyser	EK055G	1	17	5.88	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	12	8.33	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Conductivity by PC Titrator	EA010-P	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	18	5.56	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	19	5.26	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	7	14.29	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	1	100.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	1	100.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	1	1	100.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	15	6.67	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	1	7	14.29	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	16	6.25	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	14	7.14	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	18	5.56	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	1	17	5.88	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	12	8.33	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	19	5.26	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	7	14.29	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	1	0.00	5.00	✖	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	1	0.00	5.00	✖	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	0	1	0.00	5.00	✖	NEPM 2013 B3 & ALS QC Standard

Page : 9 of 12
 Work Order : EM1803154
 Client : GHD PTY LTD
 Project : 31350060813



Matrix: **WATER**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Matrix Spikes (MS) - Continued							
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	15	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	1	7	14.29	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH by PC Titrator	EA005-P	WATER	In house: Referenced to APHA 4500 H+ B. This procedure determines pH of water samples by automated ISE. This method is compliant with NEPM (2013) Schedule B(3)
Conductivity by PC Titrator	EA010-P	WATER	In house: Referenced to APHA 2510 B. This procedure determines conductivity by automated ISE. This method is compliant with NEPM (2013) Schedule B(3)
Total Dissolved Solids (High Level)	EA015H	WATER	In house: Referenced to APHA 2540C. A gravimetric procedure that determines the amount of 'filterable' residue in an aqueous sample. A well-mixed sample is filtered through a glass fibre filter (1.2um). The filtrate is evaporated to dryness and dried to constant weight at 180+/-5C. This method is compliant with NEPM (2013) Schedule B(3)
Alkalinity by PC Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM (2013) Schedule B(3)
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM (2013) Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G. The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocyanate forms highly-coloured ferric thiocyanate which is measured at 480 nm APHA 21st edition seal method 2 017-1-L april 2003
Major Cations - Dissolved	ED093F	WATER	In house: Referenced to APHA 3120 and 3125; USEPA SW 846 - 6010 and 6020; Cations are determined by either ICP-AES or ICP-MS techniques. This method is compliant with NEPM (2013) Schedule B(3) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM (2013) Schedule B(3) Hardness parameters are calculated based on APHA 2340 B. This method is compliant with NEPM (2013) Schedule B(3)
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45um filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) Samples are 0.45um filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)



Analytical Methods	Method	Matrix	Method Descriptions
Ammonia as N by Discrete analyser	EK055G	WATER	In house: Referenced to APHA 4500-NH3 G Ammonia is determined by direct colorimetry by Discrete Analyser. This method is compliant with NEPM (2013) Schedule B(3)
Nitrite as N by Discrete Analyser	EK057G	WATER	In house: Referenced to APHA 4500-NO2- B. Nitrite is determined by direct colourimetry by Discrete Analyser. This method is compliant with NEPM (2013) Schedule B(3)
Nitrate as N by Discrete Analyser	EK058G	WATER	In house: Referenced to APHA 4500-NO3- F. Nitrate is reduced to nitrite by way of a chemical reduction followed by quantification by Discrete Analyser. Nitrite is determined separately by direct colourimetry and result for Nitrate calculated as the difference between the two results. This method is compliant with NEPM (2013) Schedule B(3)
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	WATER	In house: Referenced to APHA 4500-NO3- F. Combined oxidised Nitrogen (NO2+NO3) is determined by Chemical Reduction and direct colourimetry by Discrete Analyser. This method is compliant with NEPM (2013) Schedule B(3)
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	WATER	In house: Referenced to APHA 4500-Norg D (In house). An aliquot of sample is digested using a high temperature Kjeldahl digestion to convert nitrogenous compounds to ammonia. Ammonia is determined colorimetrically by discrete analyser. This method is compliant with NEPM (2013) Schedule B(3)
Total Nitrogen as N (TKN + Nox) By Discrete Analyser	EK062G	WATER	In house: Referenced to APHA 4500-Norg / 4500-NO3-. This method is compliant with NEPM (2013) Schedule B(3)
Total Phosphorus as P By Discrete Analyser	EK067G	WATER	In house: Referenced to APHA 4500-P H, Jirka et al (1976), Zhang et al (2006). This procedure involves sulphuric acid digestion of a sample aliquot to break phosphorus down to orthophosphate. The orthophosphate reacts with ammonium molybdate and antimony potassium tartrate to form a complex which is then reduced and its concentration measured at 880nm using discrete analyser. This method is compliant with NEPM (2013) Schedule B(3)
Ionic Balance by PCT DA and Turbi SO4 DA	EN055 - PG	WATER	In house: Referenced to APHA 1030F. This method is compliant with NEPM (2013) Schedule B(3)
Total Organic Carbon	EP005	WATER	In house: Referenced to APHA 5310 B, The automated TOC analyzer determines Total and Inorganic Carbon by IR cell. TOC is calculated as the difference. This method is compliant with NEPM (2013) Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	WATER	In house: Referenced to USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Pesticides by GCMS	EP068	WATER	In house: Referenced to USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)
Volatile Organic Compounds	EP074	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Semivolatile Organic Compounds	EP075	WATER	In house: Referenced to USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)



Analytical Methods	Method	Matrix	Method Descriptions
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In house: Direct injection analysis of fresh waters after dilution (1:1) with methanol. Analysis by LC-Electrospray-MS-MS, Negative Mode using MRM. Where commercially available, isotopically labelled analogues of the target analytes are used as internal standards for quantification. Where a labelled analogue is not commercially available, the internal standard with similar chemistry and the closest retention time to the target is used for quantification. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers.
Sulphate Reducing Bacteria (BART)	MM669	WATER	Specialist microbiological analysis subcontracted to ALS Scoresby (NATA accreditation does not cover this service).
Preparation Methods	Method	Matrix	Method Descriptions
TKN/TP Digestion	EK061/EK067	WATER	In house: Referenced to APHA 4500 Norg - D; APHA 4500 P - H. This method is compliant with NEPM (2013) Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

Certificate of Analysis

GHD Melbourne
 Level 8, 180 Lonsdale St
 Melbourne
 VIC 3000



NATA Accredited
 Accreditation Number 1261
 Site Number 1254

Accredited for compliance with ISO/IEC 17025 – Testing
 The results of the tests, calibrations and/or
 measurements included in this document are traceable
 to Australian/national standards.

Attention: **Matthew Moore**

Report **588501-W**
 Project name BULLEEN VIC 3105
 Project ID 31/35006/0813
 Received Date Mar 08, 2018

Client Sample ID			NEL-BH062/080318	NEL-BH062B/080318	NEL-BH031/080318	NEL-BH128/080318
Sample Matrix			Water	Water	Water	Water
Eurofins mgt Sample No.			M18-Ma09664	M18-Ma09665	M18-Ma09666	M18-Ma09667
Date Sampled			Mar 08, 2018	Mar 08, 2018	Mar 08, 2018	Mar 08, 2018
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C10-36 (Total)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
BTEX						
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Xylenes - Total	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
4-Bromofluorobenzene (surr.)	1	%	100	100	102	89
Monocyclic Aromatic Hydrocarbons						
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Isopropyl benzene (Cumene)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Styrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Xylenes - Total	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Total MAH*	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
4-Bromofluorobenzene (surr.)	1	%	100	100	102	89
Toluene-d8 (surr.)	1	%	111	123	122	108
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C6-C10 less BTEX (F1) ^{N04}	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C10-C16 less Naphthalene (F2) ^{N01}	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1

Client Sample ID			NEL-BH062/080318 Water M18-Ma09664 Mar 08, 2018	NEL-BH062B/080318 Water M18-Ma09665 Mar 08, 2018	NEL-BH031/080318 Water M18-Ma09666 Mar 08, 2018	NEL-BH128/080318 Water M18-Ma09667 Mar 08, 2018
Sample Matrix						
Eurofins mgt Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene ^{N07}	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g,h,i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibenz(a,h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Indeno(1,2,3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Fluorobiphenyl (surr.)	1	%	58	80	57	85
p-Terphenyl-d14 (surr.)	1	%	71	86	69	51
Organochlorine Pesticides						
Chlordanes - Total	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
4,4'-DDD	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
4,4'-DDE	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
4,4'-DDT	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
a-BHC	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Aldrin	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
b-BHC	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
d-BHC	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Dieldrin	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endosulfan I	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endosulfan II	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endosulfan sulphate	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endrin	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endrin aldehyde	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endrin ketone	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
g-BHC (Lindane)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Heptachlor	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Heptachlor epoxide	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Hexachlorobenzene	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Methoxychlor	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Toxaphene	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Aldrin and Dieldrin (Total)*	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
DDT + DDE + DDD (Total)*	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Vic EPA IWRG 621 OCP (Total)*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Vic EPA IWRG 621 Other OCP (Total)*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibutylchloroendate (surr.)	1	%	76	56	63	65
Tetrachloro-m-xylene (surr.)	1	%	108	106	109	124

Client Sample ID			NEL-BH062/080318 Water M18-Ma09664 Mar 08, 2018	NEL-BH062B/080318 Water M18-Ma09665 Mar 08, 2018	NEL-BH031/080318 Water M18-Ma09666 Mar 08, 2018	NEL-BH128/080318 Water M18-Ma09667 Mar 08, 2018
Sample Matrix						
Eurofins mgt Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
Chlorinated Hydrocarbons						
1.2-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2.3-Trichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2.3.4-Tetrachlorobenzene	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
1.2.3.5-Tetrachlorobenzene	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
1.2.4-Trichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2.4.5-Tetrachlorobenzene	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
1.3-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3.5-Trichlorobenzene	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
1.4-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzal chloride	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Benzotrichloride	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Benzyl chloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Hexachlorobenzene	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Hexachlorobutadiene	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Hexachlorocyclopentadiene	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Hexachloroethane	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Pentachlorobenzene	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Tetrachloro-m-xylene (surr.)	1	%	108	106	109	124
Organophosphorus Pesticides						
Azinphos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Bolstar	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Chlorfenvinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Chlorpyrifos	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Chlorpyrifos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Coumaphos	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Demeton-S	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Demeton-O	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Diazinon	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dichlorvos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dimethoate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Disulfoton	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
EPN	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethoprop	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fenitrothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fensulfothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fenthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Malathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Merphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Methyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Mevinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Monocrotophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Naled	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Omethoate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Phorate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Pirimiphos-methyl	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Pyrazophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002

Client Sample ID			NEL-BH062/080318	NEL-BH062B/080318	NEL-BH031/080318	NEL-BH128/080318
Sample Matrix			Water	Water	Water	Water
Eurofins mgt Sample No.			M18-Ma09664	M18-Ma09665	M18-Ma09666	M18-Ma09667
Date Sampled			Mar 08, 2018	Mar 08, 2018	Mar 08, 2018	Mar 08, 2018
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Ronnel	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Terbufos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Tetrachlorvinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Tokuthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Trichloronate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Triphenylphosphate (surr.)	1	%	68	76	122	88
Polychlorinated Biphenyls						
Aroclor-1016	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1221	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1232	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1242	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1248	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1254	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1260	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Total PCB*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibutylchlorendate (surr.)	1	%	76	56	63	65
Tetrachloro-m-xylene (surr.)	1	%	108	106	109	124
Phenols (Halogenated)						
2-Chlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2,4-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2,4,5-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2,4,6-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2,6-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
4-Chloro-3-methylphenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Pentachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Tetrachlorophenols - Total	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
Total Halogenated Phenol*	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Phenols (non-Halogenated)						
2-Cyclohexyl-4,6-dinitrophenol	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
2-Methyl-4,6-dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
2-Methylphenol (o-Cresol)	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2-Nitrophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2,4-Dimethylphenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2,4-Dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	< 0.006	< 0.006	< 0.006	< 0.006
4-Nitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
Dinoseb	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
Phenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Total Non-Halogenated Phenol*	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
Phenol-d6 (surr.)	1	%	88	61	92	49
Semivolatile Organics						
2-Methyl-4,6-dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
1-Chloronaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1-Naphthylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1,2-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1,2,3-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1,2,3,4-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1,2,3,5-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005

Client Sample ID			NEL-BH062/080318 Water M18-Ma09664 Mar 08, 2018	NEL-BH062B/080318 Water M18-Ma09665 Mar 08, 2018	NEL-BH031/080318 Water M18-Ma09666 Mar 08, 2018	NEL-BH128/080318 Water M18-Ma09667 Mar 08, 2018
Sample Matrix						
Eurofins mgt Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
Semivolatile Organics						
1.2.4-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2.4.5-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.3-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.3.5-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.4-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Chloronaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Chlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2-Methylnaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Methylphenol (o-Cresol)	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2-Naphthylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Nitroaniline	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Nitrophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2-Picoline	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2.3.4.6-Tetrachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.4-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4-Dimethylphenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4-Dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
2.4-Dinitrotoluene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2.4.5-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.4.6-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.6-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.6-Dinitrotoluene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	< 0.006	< 0.006	< 0.006	< 0.006
3-Methylcholanthrene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
3.3'-Dichlorobenzidine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Aminobiphenyl	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Bromophenyl phenyl ether	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Chloro-3-methylphenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
4-Chlorophenyl phenyl ether	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Nitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
4.4'-DDD	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4.4'-DDE	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4.4'-DDT	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
7.12-Dimethylbenz(a)anthracene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
a-BHC	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acetophenone	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aldrin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aniline	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
b-BHC	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene ^{N07}	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g,h,i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzyl chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005

Client Sample ID			NEL-BH062/080318 Water M18-Ma09664 Mar 08, 2018	NEL-BH062B/080318 Water M18-Ma09665 Mar 08, 2018	NEL-BH031/080318 Water M18-Ma09666 Mar 08, 2018	NEL-BH128/080318 Water M18-Ma09667 Mar 08, 2018
Sample Matrix						
Eurofins mgt Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
Semivolatile Organics						
Bis(2-chloroethoxy)methane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-chloroisopropyl)ether	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-ethylhexyl)phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Butyl benzyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
d-BHC	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Di-n-butyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Di-n-octyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dibenz(a,h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibenz(a,j)acridine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dibenzofuran	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dieldrin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Diethyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dimethyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dimethylaminoazobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Diphenylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan I	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan II	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan sulphate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endrin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endrin aldehyde	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endrin ketone	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
g-BHC (Lindane)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Heptachlor	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Heptachlor epoxide	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobutadiene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorocyclopentadiene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachloroethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Indeno(1,2,3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Methoxychlor	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosodibutylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosodipropylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosopiperidine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Nitrobenzene	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
Pentachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Pentachloronitrobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Pentachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Phenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Pronamide	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trifluralin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Phenol-d6 (surr.)	1	%	88	61	92	49
Nitrobenzene-d5 (surr.)	1	%	91	67	95	65

Client Sample ID			NEL-BH062/080318	NEL-BH062B/080318	NEL-BH031/080318	NEL-BH128/080318
Sample Matrix			Water	Water	Water	Water
Eurofins mgt Sample No.			M18-Ma09664	M18-Ma09665	M18-Ma09666	M18-Ma09667
Date Sampled			Mar 08, 2018	Mar 08, 2018	Mar 08, 2018	Mar 08, 2018
Test/Reference	LOR	Unit				
Semivolatile Organics						
2-Fluorobiphenyl (surr.)	1	%	58	80	57	85
2,4,6-Tribromophenol (surr.)	1	%	34	23	26	31
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
Perfluoropentanoic acid (PFPeA) ^{N11}	0.01	ug/L	^{N09} < 0.01	< 0.01	< 0.01	< 0.01
Perfluorohexanoic acid (PFHxA) ^{N11}	0.01	ug/L	< 0.01	^{N09} < 0.01	< 0.01	< 0.01
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorooctanoic acid (PFOA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorononanoic acid (PFNA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorodecanoic acid (PFDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorotridecanoic acid (PFTeDA) ^{N15}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
13C4-PFBA (surr.)	1	%	77	89	92	75
13C5-PFPeA (surr.)	1	%	95	114	123	108
13C5-PFHxA (surr.)	1	%	98	124	127	121
13C4-PFHpA (surr.)	1	%	104	143	141	149
13C8-PFOA (surr.)	1	%	99	136	135	140
13C5-PFNA (surr.)	1	%	89	118	134	117
13C6-PFDA (surr.)	1	%	66	91	91	91
13C2-PFUnDA (surr.)	1	%	60	88	82	93
13C2-PFDoDA (surr.)	1	%	68	95	89	109
13C2-PFTeDA (surr.)	1	%	69	97	94	190
Perfluoroalkane sulfonamido substances						
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
13C8-FOSA (surr.)	1	%	71	98	97	88
D3-N-MeFOSA (surr.)	1	%	59	77	86	82
D5-N-EtFOSA (surr.)	1	%	72	80	110	84
D7-N-MeFOSE (surr.)	1	%	59	85	74	77
D9-N-EtFOSE (surr.)	1	%	59	75	75	78
D5-N-EtFOSAA (surr.)	1	%	40	65	56	62
D3-N-MeFOSAA (surr.)	1	%	50	78	68	75
Perfluoroalkane sulfonic acids (PFSA's)						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01

Client Sample ID			NEL-BH062/080318 Water M18-Ma09664 Mar 08, 2018	NEL-BH062B/080318 Water M18-Ma09665 Mar 08, 2018	NEL-BH031/080318 Water M18-Ma09666 Mar 08, 2018	NEL-BH128/080318 Water M18-Ma09667 Mar 08, 2018
Sample Matrix						
Eurofins mgt Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
Perfluoroalkane sulfonic acids (PFASs)						
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
13C3-PFBS (surr.)	1	%	102	130	130	134
18O2-PFHxS (surr.)	1	%	111	139	136	133
13C8-PFOS (surr.)	1	%	79	109	110	103
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N15}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
13C2-4:2 FTSA (surr.)	1	%	94	142	128	145
13C2-6:2 FTSA (surr.)	1	%	85	125	108	171
13C2-8:2 FTSA (surr.)	1	%	49	103	72	89
PFASs Summations						
Sum (PFHxS + PFOS)*	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Sum of US EPA PFAS (PFOS + PFOA)*	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Sum of WA DER PFAS (n=10)*	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
Sum of PFASs (n=28)*	0.1	ug/L	< 0.1	< 0.1	< 0.1	< 0.1
Ammonia (as N)	0.01	mg/L	2.9	1.3	0.02	1.2
Biochemical Oxygen Demand (BOD-5 Day)	5	mg/L	< 5	< 5	< 5	< 5
Chemical Oxygen Demand (COD)	25	mg/L	52	76	350	49
Chloride	1	mg/L	3200	1600	5200	250
Chlorine (Total Residual)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.2
Colour(Pt/Co) true	2	Pt/Co unit	< 2	4.0	< 2	6.6
Cyanide (total)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Fluoride	0.5	mg/L	< 0.5	< 0.5	< 0.5	< 0.5
Nitrate (as N)	0.02	mg/L	0.03	0.07	< 0.02	< 0.02
Nitrite (as N)	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Oil & Grease (HEM)	10	mg/L	< 10	< 10	< 10	< 10
pH (at 25°C)	0.1	pH Units	7.2	6.4	7.3	6.8
Sulphate (as S)	5	mg/L	93	45	170	11
Sulphate (as SO4)	5	mg/L	280	130	510	33
Sulphite (as S)	0.5	mg/L	< 1	< 1	< 1	< 1
Suspended Solids	1	mg/L	6.2	9.5	47	29
Thiosulphate (as S)	1	mg/L	< 2	< 2	< 2	< 2
Total Dissolved Solids	10	mg/L	5500	3300	9500	730
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	4.3	2.1	< 0.2	1.7
Total Oxidised Sulphur (as S)	10	mg/L	93	45	170	11
Bromine*	1	mg/L	see attached	see attached	see attached	see attached
Iodine*			see attached	see attached	see attached	see attached
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	290	410	450	330
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	< 10	< 10	< 10

Client Sample ID			NEL-BH062/080318	NEL-BH062B/080318	NEL-BH031/080318	NEL-BH128/080318
Sample Matrix			Water	Water	Water	Water
Eurofins mgt Sample No.			M18-Ma09664	M18-Ma09665	M18-Ma09666	M18-Ma09667
Date Sampled			Mar 08, 2018	Mar 08, 2018	Mar 08, 2018	Mar 08, 2018
Test/Reference	LOR	Unit				
Alkali Metals						
Calcium	0.5	mg/L	180	87	140	28
Magnesium	0.5	mg/L	270	140	470	25
Potassium	0.5	mg/L	15	7.8	51	2.4
Sodium	0.5	mg/L	1800	840	3000	240
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	0.002	0.008	0.001	0.002
Barium (filtered)	0.02	mg/L	0.09	0.27	0.05	0.71
Beryllium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Boron (filtered)	0.05	mg/L	0.05	0.07	0.09	< 0.05
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Cobalt (filtered)	0.001	mg/L	0.002	< 0.001	< 0.001	0.001
Copper (filtered)	0.001	mg/L	0.021	0.023	0.019	0.014
Lead (filtered)	0.001	mg/L	0.002	0.002	0.001	0.001
Manganese (filtered)	0.005	mg/L	0.18	0.30	0.12	0.11
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Molybdenum (filtered)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Nickel (filtered)	0.001	mg/L	0.020	0.009	0.031	0.016
Selenium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Silver (filtered)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Tin (filtered)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Zinc (filtered)	0.005	mg/L	0.049	0.039	0.049	0.039

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 - Method: LTM-ORG-2010 TRH C6-C36	Melbourne	Mar 09, 2018	7 Day
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: TRH C6-C40 - LTM-ORG-2010	Melbourne	Mar 09, 2018	7 Day
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: TRH C6-C40 - LTM-ORG-2010	Melbourne	Mar 09, 2018	7 Day
BTEX - Method: TRH C6-C40 - LTM-ORG-2010	Melbourne	Mar 09, 2018	14 Day
Monocyclic Aromatic Hydrocarbons - Method: USEPA 8260	Melbourne	Mar 09, 2018	7 Day
Polycyclic Aromatic Hydrocarbons - Method: LTM-ORG-2130 PAH and Phenols in Water by GCMS	Melbourne	Mar 09, 2018	7 Day
Organochlorine Pesticides - Method: LTM-ORG-2220 OCP & PCB in Soil and Water	Melbourne	Mar 09, 2018	7 Day
Chlorinated Hydrocarbons - Method: USEPA 8121 Chlorinated Hydrocarbons	Melbourne	Mar 09, 2018	7 Day
Organophosphorus Pesticides - Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS	Melbourne	Mar 09, 2018	7 Day
Polychlorinated Biphenyls - Method: LTM-ORG-2220 OCP & PCB in Soil and Water	Melbourne	Mar 09, 2018	7 Days
Semivolatile Organics - Method: LTM-ORG-2190 SVOC in Water & Soil by GC-MS	Melbourne	Mar 09, 2018	7 Day
Ammonia (as N) - Method: APHA 4500-NH3 Ammonia Nitrogen by FIA	Melbourne	Mar 09, 2018	28 Day
Biochemical Oxygen Demand (BOD-5 Day) - Method: LTM-INO-4010 Biochemical Oxygen Demand (BOD5) in Water	Melbourne	Mar 09, 2018	2 Day
Chemical Oxygen Demand (COD) - Method: LTM-INO-4220 Determination of COD in Water	Melbourne	Mar 09, 2018	28 Days
Chloride - Method: LTM-INO-4090 Chloride by Discrete Analyser	Melbourne	Mar 09, 2018	28 Day
Chlorine (Total Residual) - Method: APHA 4500 Cl-G-DPD Colorimetric method	Melbourne	Mar 09, 2018	1 Day
Colour(Pt/Co) true - Method: APHA 2120C – Spectrophotometric Single-wavelength Method	Melbourne	Mar 13, 2018	2 Day
Cyanide (total) - Method: LTM-INO-4020 Total Free WAD Cyanide by CFA	Melbourne	Mar 09, 2018	14 Day
Fluoride - Method: APHA-F-C	Melbourne	Mar 09, 2018	28 Day
Nitrate (as N) - Method: APHA 4500-NO3 Nitrate Nitrogen by FIA	Melbourne	Mar 09, 2018	7 Day
Nitrite (as N) - Method: APHA 4500-NO2 Nitrite Nitrogen by FIA	Melbourne	Mar 09, 2018	2 Day
Oil & Grease (HEM) - Method: APHA 5520B Oil & Grease	Melbourne	Mar 09, 2018	28 Day
pH (at 25°C) - Method: LTM-GEN-7090 pH in water by ISE	Melbourne	Mar 09, 2018	0 Hours
Sulphate (as SO4) - Method: LTM-INO-4110 Sulfate by Discrete Analyser	Melbourne	Mar 09, 2018	28 Day
Suspended Solids - Method: LTM-INO-4070 Analysis of Suspended Solids in Water by Gravimetry	Melbourne	Mar 09, 2018	7 Days

Description	Testing Site	Extracted	Holding Time
Total Dissolved Solids	Melbourne	Mar 09, 2018	7 Day
- Method: LTM-INO-4170 Total Dissolved Solids in Water			
Total Kjeldahl Nitrogen (as N)	Melbourne	Mar 09, 2018	7 Day
- Method: APHA 4500 TKN			
Alkalinity (speciated)	Melbourne	Mar 09, 2018	14 Day
- Method: APHA 2320 Alkalinity by Titration			
Alkali Metals	Melbourne	Mar 09, 2018	180 Day
- Method: USEPA 6010 Alkali Metals			
Vic EPA Metals : Metals M17 filtered	Melbourne	Mar 09, 2018	28 Day
- Method: LTM-MET-3040 Metals in Waters by ICP-MS			
Phenols (IWRG 621)			
Phenols (Halogenated)	Melbourne	Mar 09, 2018	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Water by GCMS			
Phenols (non-Halogenated)	Melbourne	Mar 09, 2018	7 Day
- Method: LTM-ORG-2130 PAH and Phenols in Water by GCMS			
Per- and Polyfluorinated Alkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs)	Brisbane	Mar 13, 2018	14 Day
- Method: LTM-ORG-2100 Per- and Polyfluorinated Alkyl Substances by LC-MS/MS			
Perfluoroalkane sulfonamido substances	Brisbane	Mar 13, 2018	14 Day
- Method: LTM-ORG-2100 Determination of Per- and Polyfluoro Alkyl Substances (PFAS) in Aqueous and Soil Samples by LC-MS/MS			
Perfluoroalkane sulfonic acids (PFASs)	Brisbane	Mar 13, 2018	14 Day
- Method: LTM-ORG-2100 Per- and Polyfluorinated Alkyl Substances by LC-MS/MS			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)	Brisbane	Mar 13, 2018	14 Day
- Method: LTM-ORG-2100 Per- and Polyfluorinated Alkyl Substances by LC-MS/MS			
Total Oxidised Sulphur Set (as S)			
Sulphate (as S)	Melbourne	Mar 09, 2018	28 Day
- Method: LTM-INO-4110 Sulfate by Discrete Analyser			
Sulphite (as S)	Melbourne	Mar 09, 2018	2 Day
- Method: LTM-INO-4240 Sulfite & Thiosulfate in Water			
Thiosulphate (as S)	Melbourne	Mar 09, 2018	2 Day
- Method: LTM-INO-4240 Sulfite & Thiosulfate in Water			
Total Oxidised Sulphur (as S)	Melbourne	Mar 08, 2018	2 Day



GHD
180 Latrobe Street, Melbourne VIC 3000

Tel: (03) 8687 8000

CHAIN OF CUSTODY

Page 1

of 1

Golder Job Number: 31/35006/0813						Major Anions (Cl, HCO ₃ , CO ₃ , SO ₄)	Major Cations (Ca, Mg, Na, K)	TDS	COD	BOD	SS	Speciated nitrogen (TKN, ammonia, nitrate / nitrites)	Oils and grease	TOS Total Oxidised Sulfur (as S)	Bromine, chlorine, iodine, fluoride	Cyanide	pH	Speciated phenols and PAH	OCP, OPP and PCB	SVOC and SVCHC	TRH, MAH (BTX)	Metal Scan (M17)	True Colour	PFAS including PFOS, PFOA, PFHxS, sum of PFAS (28 PFAS including)	Hold
Job Location: Bulleen, VIC 3105																									
Laboratory Issued To: Eurofins MGT																									
Order No.:																									
Sampled By: M. Moore and L. Spurr																									
Job Contact: Matthew Moore (0490 784 218), Tim Anderson (03 8687 8208)																									
Contact Email: matthew.moore5@ghd.com timothy.anderson@ghd.com																									
# OBSERVATIONS	SAMPLE DATE	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DEPTH (m)	No. OF CONTAINERS																				
	08.03.2018	NEL-BH062 / 080318	WATER	-	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	08.03.2018	NEL-BH062 B / 080318	WATER	-	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	08.03.2018	NEL-BH031 / 080318	WATER	-	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	08.03.2018	NEL-BH128 / 080318	WATER	-	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		

Special Instructions:

As per quote #180206GHDV, dated 6 February 2018

TURN AROUND TIME REQUIRED

☐ 1 Working Day
 ☐ 2 Working Days
 ☒ 3 Working Days
 ☐ 4 Working Days
 ☐ 5 Working Days (standard)
 Other: _____

Relinquished by: Matthew Moore Organisation: GHD		Date: 08.03.2018 Time: 15:00		Received by: Amy Organisation: GHD 588501		Date: 8/3/18 Time: 17:23		DELIVERED BY: COURIER/LAB <input checked="" type="checkbox"/> GHD <input type="checkbox"/>		SAMPLE STATUS <input checked="" type="checkbox"/> Security Sealed <input type="checkbox"/> Chilled <input type="checkbox"/> Frozen <input checked="" type="checkbox"/> Ambient	
Relinquished by: Matthew Moore Organisation: GHD		Date: 08.03.2018 Time: 15:00		Received by: _____ Organisation: _____		Date: _____ Time: _____		RECEIVED BY: FAX <input type="checkbox"/> HAND <input checked="" type="checkbox"/>			

RECEIVING LABORATORY TO CONFIRM RECEIPT OF ANALYTICAL SCHEDULE BY EMAIL TO: matthew.moore5@ghd.com

Checked By: _____ Date: _____

Sample Receipt Advice

Company name: **GHD Pty Ltd VIC**
Contact name: **Matthew Moore**
Project name: **BULLEEN VIC 3105**
Project ID: **31/35006/0813**
COC number: **Not provided**
Turn around time: **3 Day**
Date/Time received: **Mar 8, 2018 5:23 PM**
Eurofins | mgt reference: **588501**

Sample information

- ☒ A detailed list of analytes logged into our LIMS, is included in the attached summary table.
- ☒ All samples have been received as described on the above COC.
- ☒ COC has been completed correctly.
- ☒ Attempt to chill was evident.
- ☒ Appropriately preserved sample containers have been used.
- ☒ All samples were received in good condition.
- ☒ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
- ☒ Appropriate sample containers have been used.
- ☒ Sample containers for volatile analysis received with zero headspace.
- ☒ Split sample sent to requested external lab.
- ☒ Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

Contact notes

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

Mary Makarios on Phone : +61 3 8564 5000 or by e.mail: MaryMakarios@eurofins.com

Results will be delivered electronically via e.mail to Matthew Moore - matthew.moore5@ghd.com.

Company Name: GHD Pty Ltd VIC
Address: Level 8, 180 Lonsdale St
Melbourne
VIC 3000

Project Name: BULLEEN VIC 3105
Project ID: 31/35006/0813

Order No.:
Report #: 588501
Phone: 8687 8000
Fax: 8687 8111

Received: Mar 8, 2018 5:23 PM
Due: Mar 14, 2018
Priority: 3 Day
Contact Name: Matthew Moore

Eurofins | mgt Analytical Services Manager : Mary Makarios

Sample Detail						Per- and Polyfluorinated Alkyl Substances																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
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Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. All biota results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the 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
NC	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.1 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " - " in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
Method Blank							
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							
Monocyclic Aromatic Hydrocarbons							
Isopropyl benzene (Cumene)	mg/L	< 0.001			0.001	Pass	
Styrene	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	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
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	
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							
Chlorinated Hydrocarbons							
1.2-Dichlorobenzene	mg/L	< 0.001			0.001	Pass	
1.2.3-Trichlorobenzene	mg/L	< 0.001			0.001	Pass	
1.2.3.4-Tetrachlorobenzene	mg/L	< 0.0001			0.0001	Pass	
1.2.3.5-Tetrachlorobenzene	mg/L	< 0.0001			0.0001	Pass	
1.2.4-Trichlorobenzene	mg/L	< 0.001			0.001	Pass	
1.2.4.5-Tetrachlorobenzene	mg/L	< 0.0001			0.0001	Pass	
1.3-Dichlorobenzene	mg/L	< 0.001			0.001	Pass	
1.3.5-Trichlorobenzene	mg/L	< 0.0001			0.0001	Pass	
1.4-Dichlorobenzene	mg/L	< 0.001			0.001	Pass	
Benzal chloride	mg/L	< 0.0001			0.0001	Pass	
Benzotrichloride	mg/L	< 0.0001			0.0001	Pass	
Benzyl chloride	mg/L	< 0.001			0.001	Pass	
Hexachlorobutadiene	mg/L	< 0.0001			0.0001	Pass	
Hexachlorocyclopentadiene	mg/L	< 0.0001			0.0001	Pass	
Hexachloroethane	mg/L	< 0.0001			0.0001	Pass	
Pentachlorobenzene	mg/L	< 0.0001			0.0001	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	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
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							
Phenols (Halogenated)							
2-Chlorophenol	mg/L	< 0.003			0.003	Pass	
2,4-Dichlorophenol	mg/L	< 0.003			0.003	Pass	
2,4,5-Trichlorophenol	mg/L	< 0.01			0.01	Pass	
2,4,6-Trichlorophenol	mg/L	< 0.01			0.01	Pass	
2,6-Dichlorophenol	mg/L	< 0.003			0.003	Pass	
4-Chloro-3-methylphenol	mg/L	< 0.01			0.01	Pass	
Pentachlorophenol	mg/L	< 0.01			0.01	Pass	
Tetrachlorophenols - Total	mg/L	< 0.03			0.03	Pass	
Method Blank							
Phenols (non-Halogenated)							
2-Cyclohexyl-4,6-dinitrophenol	mg/L	< 0.1			0.1	Pass	
2-Methyl-4,6-dinitrophenol	mg/L	< 0.03			0.03	Pass	
2-Methylphenol (o-Cresol)	mg/L	< 0.003			0.003	Pass	
2-Nitrophenol	mg/L	< 0.01			0.01	Pass	
2,4-Dimethylphenol	mg/L	< 0.003			0.003	Pass	
2,4-Dinitrophenol	mg/L	< 0.03			0.03	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/L	< 0.006			0.006	Pass	
4-Nitrophenol	mg/L	< 0.03			0.03	Pass	
Dinoseb	mg/L	< 0.1			0.1	Pass	
Phenol	mg/L	< 0.003			0.003	Pass	
Method Blank							
Semivolatile Organics							
1-Chloronaphthalene	mg/L	< 0.005			0.005	Pass	
1-Naphthylamine	mg/L	< 0.005			0.005	Pass	
1,2-Dichlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,3-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,3,4-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,3,5-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
1.2.4-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1.2.4.5-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1.3-Dichlorobenzene	mg/L	< 0.005			0.005	Pass	
1.3.5-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1.4-Dichlorobenzene	mg/L	< 0.005			0.005	Pass	
2-Chloronaphthalene	mg/L	< 0.005			0.005	Pass	
2-Methylnaphthalene	mg/L	< 0.005			0.005	Pass	
2-Naphthylamine	mg/L	< 0.005			0.005	Pass	
2-Nitroaniline	mg/L	< 0.005			0.005	Pass	
2-Picoline	mg/L	< 0.005			0.005	Pass	
2.3.4.6-Tetrachlorophenol	mg/L	< 0.01			0.01	Pass	
2.4-Dinitrotoluene	mg/L	< 0.005			0.005	Pass	
2.6-Dinitrotoluene	mg/L	< 0.005			0.005	Pass	
3-Methylcholanthrene	mg/L	< 0.005			0.005	Pass	
3.3'-Dichlorobenzidine	mg/L	< 0.005			0.005	Pass	
4-Aminobiphenyl	mg/L	< 0.005			0.005	Pass	
4-Bromophenyl phenyl ether	mg/L	< 0.005			0.005	Pass	
4-Chlorophenyl phenyl ether	mg/L	< 0.005			0.005	Pass	
4.4'-DDD	mg/L	< 0.005			0.005	Pass	
4.4'-DDE	mg/L	< 0.005			0.005	Pass	
4.4'-DDT	mg/L	< 0.005			0.005	Pass	
7.12-Dimethylbenz(a)anthracene	mg/L	< 0.005			0.005	Pass	
a-BHC	mg/L	< 0.005			0.005	Pass	
Acetophenone	mg/L	< 0.005			0.005	Pass	
Aldrin	mg/L	< 0.005			0.005	Pass	
Aniline	mg/L	< 0.005			0.005	Pass	
b-BHC	mg/L	< 0.005			0.005	Pass	
Benzyl chloride	mg/L	< 0.005			0.005	Pass	
Bis(2-chloroethoxy)methane	mg/L	< 0.005			0.005	Pass	
Bis(2-chloroisopropyl)ether	mg/L	< 0.005			0.005	Pass	
Bis(2-ethylhexyl)phthalate	mg/L	< 0.005			0.005	Pass	
Butyl benzyl phthalate	mg/L	< 0.005			0.005	Pass	
d-BHC	mg/L	< 0.005			0.005	Pass	
Di-n-butyl phthalate	mg/L	< 0.005			0.005	Pass	
Di-n-octyl phthalate	mg/L	< 0.005			0.005	Pass	
Dibenz(a,j)acridine	mg/L	< 0.005			0.005	Pass	
Dibenzofuran	mg/L	< 0.005			0.005	Pass	
Dieldrin	mg/L	< 0.005			0.005	Pass	
Diethyl phthalate	mg/L	< 0.005			0.005	Pass	
Dimethyl phthalate	mg/L	< 0.005			0.005	Pass	
Dimethylaminoazobenzene	mg/L	< 0.005			0.005	Pass	
Diphenylamine	mg/L	< 0.005			0.005	Pass	
Endosulfan I	mg/L	< 0.005			0.005	Pass	
Endosulfan II	mg/L	< 0.005			0.005	Pass	
Endosulfan sulphate	mg/L	< 0.005			0.005	Pass	
Endrin	mg/L	< 0.005			0.005	Pass	
Endrin aldehyde	mg/L	< 0.005			0.005	Pass	
Endrin ketone	mg/L	< 0.005			0.005	Pass	
g-BHC (Lindane)	mg/L	< 0.005			0.005	Pass	
Heptachlor	mg/L	< 0.005			0.005	Pass	
Heptachlor epoxide	mg/L	< 0.005			0.005	Pass	
Hexachlorobenzene	mg/L	< 0.005			0.005	Pass	
Hexachlorobutadiene	mg/L	< 0.005			0.005	Pass	
Hexachlorocyclopentadiene	mg/L	< 0.005			0.005	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Hexachloroethane	mg/L	< 0.005			0.005	Pass	
Methoxychlor	mg/L	< 0.005			0.005	Pass	
N-Nitrosodibutylamine	mg/L	< 0.005			0.005	Pass	
N-Nitrosodipropylamine	mg/L	< 0.005			0.005	Pass	
N-Nitrosopiperidine	mg/L	< 0.005			0.005	Pass	
Nitrobenzene	mg/L	< 0.05			0.05	Pass	
Pentachlorobenzene	mg/L	< 0.005			0.005	Pass	
Pentachloronitrobenzene	mg/L	< 0.005			0.005	Pass	
Pronamide	mg/L	< 0.005			0.005	Pass	
Trifluralin	mg/L	< 0.005			0.005	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.05			0.05	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.01			0.01	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.01			0.01	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.01			0.01	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.01			0.01	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.01			0.01	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.01			0.01	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.01			0.01	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.01			0.01	Pass	
Perfluorotridecanoic acid (PFTTrDA)	ug/L	< 0.01			0.01	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.01			0.01	Pass	
Method Blank							
Perfluoroalkane sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.05			0.05	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.05			0.05	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.05			0.05	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	ug/L	< 0.05			0.05	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	ug/L	< 0.05			0.05	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.05			0.05	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.05			0.05	Pass	
Method Blank							
Perfluoroalkane sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.01			0.01	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.01			0.01	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.01			0.01	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.01			0.01	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.01			0.01	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.01			0.01	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.01			0.01	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	ug/L	< 0.05			0.05	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.01			0.01	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.01			0.01	Pass	
Method Blank							
Ammonia (as N)	mg/L	< 0.01			0.01	Pass	
Biochemical Oxygen Demand (BOD-5 Day)	mg/L	< 5			5	Pass	
Chemical Oxygen Demand (COD)	mg/L	< 25			25	Pass	
Chloride	mg/L	< 1			1	Pass	
Chlorine (Total Residual)	mg/L	< 0.1			0.1	Pass	
Colour(Pt/Co) true	Pt/Co unit	< 2			2	Pass	
Cyanide (total)	mg/L	< 0.005			0.005	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Fluoride	mg/L	< 0.5			0.5	Pass	
Nitrate (as N)	mg/L	< 0.02			0.02	Pass	
Nitrite (as N)	mg/L	< 0.02			0.02	Pass	
Oil & Grease (HEM)	mg/L	< 10			10	Pass	
Sulphate (as S)	mg/L	< 5			5	Pass	
Sulphate (as SO ₄)	mg/L	< 5			5	Pass	
Sulphite (as S)	mg/L	< 0.5			0.5	Pass	
Suspended Solids	mg/L	< 1			1	Pass	
Thiosulphate (as S)	mg/L	< 1			1	Pass	
Total Dissolved Solids	mg/L	< 10			10	Pass	
Total Kjeldahl Nitrogen (as N)	mg/L	< 0.2			0.2	Pass	
Method Blank							
Alkalinity (speciated)							
Bicarbonate Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Carbonate Alkalinity (as CaCO ₃)	mg/L	< 10			10	Pass	
Method Blank							
Heavy Metals							
Arsenic (filtered)	mg/L	< 0.001			0.001	Pass	
Barium (filtered)	mg/L	< 0.02			0.02	Pass	
Beryllium (filtered)	mg/L	< 0.001			0.001	Pass	
Boron (filtered)	mg/L	< 0.05			0.05	Pass	
Cadmium (filtered)	mg/L	< 0.0002			0.0002	Pass	
Chromium (filtered)	mg/L	< 0.001			0.001	Pass	
Cobalt (filtered)	mg/L	< 0.001			0.001	Pass	
Copper (filtered)	mg/L	< 0.001			0.001	Pass	
Lead (filtered)	mg/L	< 0.001			0.001	Pass	
Manganese (filtered)	mg/L	< 0.005			0.005	Pass	
Mercury (filtered)	mg/L	< 0.0001			0.0001	Pass	
Molybdenum (filtered)	mg/L	< 0.005			0.005	Pass	
Nickel (filtered)	mg/L	< 0.001			0.001	Pass	
Selenium (filtered)	mg/L	< 0.001			0.001	Pass	
Silver (filtered)	mg/L	< 0.005			0.005	Pass	
Tin (filtered)	mg/L	< 0.005			0.005	Pass	
Zinc (filtered)	mg/L	< 0.005			0.005	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	124			70-130	Pass	
TRH C10-C14	%	104			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	101			70-130	Pass	
Toluene	%	91			70-130	Pass	
Ethylbenzene	%	100			70-130	Pass	
m&p-Xylenes	%	99			70-130	Pass	
Xylenes - Total	%	102			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	82			70-130	Pass	
TRH C6-C10	%	122			70-130	Pass	
TRH >C10-C16	%	103			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	90			70-130	Pass	
Acenaphthylene	%	89			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Anthracene	%	94			70-130	Pass	
Benz(a)anthracene	%	73			70-130	Pass	
Benzo(a)pyrene	%	89			70-130	Pass	
Benzo(b&j)fluoranthene	%	93			70-130	Pass	
Benzo(g,h,i)perylene	%	72			70-130	Pass	
Benzo(k)fluoranthene	%	91			70-130	Pass	
Chrysene	%	89			70-130	Pass	
Dibenz(a,h)anthracene	%	123			70-130	Pass	
Fluoranthene	%	91			70-130	Pass	
Fluorene	%	89			70-130	Pass	
Indeno(1,2,3-cd)pyrene	%	118			70-130	Pass	
Naphthalene	%	85			70-130	Pass	
Phenanthrene	%	90			70-130	Pass	
Pyrene	%	94			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	88			70-130	Pass	
4,4'-DDD	%	102			70-130	Pass	
4,4'-DDE	%	96			70-130	Pass	
4,4'-DDT	%	124			70-130	Pass	
a-BHC	%	88			70-130	Pass	
Aldrin	%	99			70-130	Pass	
b-BHC	%	97			70-130	Pass	
d-BHC	%	114			70-130	Pass	
Dieldrin	%	105			70-130	Pass	
Endosulfan I	%	95			70-130	Pass	
Endosulfan II	%	122			70-130	Pass	
Endosulfan sulphate	%	119			70-130	Pass	
Endrin	%	101			70-130	Pass	
Endrin aldehyde	%	116			70-130	Pass	
Endrin ketone	%	123			70-130	Pass	
g-BHC (Lindane)	%	94			70-130	Pass	
Heptachlor	%	118			70-130	Pass	
Heptachlor epoxide	%	110			70-130	Pass	
Hexachlorobenzene	%	82			70-130	Pass	
Methoxychlor	%	106			70-130	Pass	
LCS - % Recovery							
Chlorinated Hydrocarbons							
1,2-Dichlorobenzene	%	111			70-130	Pass	
1,2,3-Trichlorobenzene	%	82			70-130	Pass	
1,2,3,4-Tetrachlorobenzene	%	89			70-130	Pass	
1,2,3,5-Tetrachlorobenzene	%	80			70-130	Pass	
1,2,4-Trichlorobenzene	%	78			70-130	Pass	
1,2,4,5-Tetrachlorobenzene	%	87			70-130	Pass	
1,3-Dichlorobenzene	%	85			70-130	Pass	
1,3,5-Trichlorobenzene	%	76			70-130	Pass	
1,4-Dichlorobenzene	%	98			70-130	Pass	
Benzal chloride	%	78			70-130	Pass	
Benzotrichloride	%	70			70-130	Pass	
Hexachlorobutadiene	%	87			70-130	Pass	
Hexachloroethane	%	84			70-130	Pass	
LCS - % Recovery							
Organophosphorus Pesticides							
Diazinon	%	70			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Dimethoate	%	72			70-130	Pass	
Ethion	%	81			70-130	Pass	
Fenitrothion	%	90			70-130	Pass	
Methyl parathion	%	71			70-130	Pass	
Mevinphos	%	83			70-130	Pass	
LCS - % Recovery							
Phenols (Halogenated)							
2-Chlorophenol	%	100			30-130	Pass	
2,4-Dichlorophenol	%	92			30-130	Pass	
2,4,5-Trichlorophenol	%	92			30-130	Pass	
2,4,6-Trichlorophenol	%	95			30-130	Pass	
2,6-Dichlorophenol	%	93			30-130	Pass	
4-Chloro-3-methylphenol	%	114			30-130	Pass	
Pentachlorophenol	%	89			30-130	Pass	
Tetrachlorophenols - Total	%	90			30-130	Pass	
LCS - % Recovery							
Phenols (non-Halogenated)							
2-Cyclohexyl-4,6-dinitrophenol	%	109			30-130	Pass	
2-Methyl-4,6-dinitrophenol	%	97			30-130	Pass	
2-Methylphenol (o-Cresol)	%	97			30-130	Pass	
2-Nitrophenol	%	101			30-130	Pass	
2,4-Dimethylphenol	%	70			30-130	Pass	
2,4-Dinitrophenol	%	90			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	%	96			30-130	Pass	
4-Nitrophenol	%	89			30-130	Pass	
Dinoseb	%	100			30-130	Pass	
Phenol	%	82			30-130	Pass	
LCS - % Recovery							
Semivolatile Organics							
1,2,4-Trichlorobenzene	%	101			70-130	Pass	
1,4-Dichlorobenzene	%	97			70-130	Pass	
2,4-Dinitrotoluene	%	129			70-130	Pass	
N-Nitrosodipropylamine	%	127			70-130	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	85			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	112			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	97			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	94			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	105			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	93			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	74			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	89			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	81			50-150	Pass	
Perfluorotridecanoic acid (PFTriDA)	%	85			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	72			50-150	Pass	
LCS - % Recovery							
Perfluoroalkane sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	85			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	84			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	73			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	%	86			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	%	61			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	93			50-150	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	83			50-150	Pass	
LCS - % Recovery							
Perfluoroalkane sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	%	82			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	93			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	83			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	98			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	80			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	84			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	96			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	%	87			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	88			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	72			50-150	Pass	
LCS - % Recovery							
Ammonia (as N)	%	100			70-130	Pass	
Biochemical Oxygen Demand (BOD-5 Day)	%	107			70-130	Pass	
Chemical Oxygen Demand (COD)	%	110			70-130	Pass	
Chloride	%	114			70-130	Pass	
Chlorine (Total Residual)	%	96			70-130	Pass	
Cyanide (total)	%	105			70-130	Pass	
Fluoride	%	96			70-130	Pass	
Nitrate (as N)	%	96			70-130	Pass	
Nitrite (as N)	%	108			70-130	Pass	
Oil & Grease (HEM)	%	99			70-130	Pass	
Sulphate (as S)	%	106			70-130	Pass	
Sulphate (as SO4)	%	106			70-130	Pass	
Suspended Solids	%	103			70-130	Pass	
Total Dissolved Solids	%	101			70-130	Pass	
Total Kjeldahl Nitrogen (as N)	%	109			70-130	Pass	
LCS - % Recovery							
Alkalinity (speciated)							
Carbonate Alkalinity (as CaCO3)	%	103			70-130	Pass	
LCS - % Recovery							
Alkali Metals							
Calcium	%	115			70-130	Pass	
Magnesium	%	117			70-130	Pass	
Potassium	%	105			70-130	Pass	
Sodium	%	106			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic (filtered)	%	91			80-120	Pass	
Boron (filtered)	%	111			80-120	Pass	
Cadmium (filtered)	%	90			80-120	Pass	
Chromium (filtered)	%	90			80-120	Pass	
Cobalt (filtered)	%	94			80-120	Pass	
Copper (filtered)	%	92			80-120	Pass	
Lead (filtered)	%	94			80-120	Pass	
Manganese (filtered)	%	93			80-120	Pass	
Mercury (filtered)	%	86			70-130	Pass	
Molybdenum (filtered)	%	90			80-120	Pass	
Nickel (filtered)	%	93			80-120	Pass	
Selenium (filtered)	%	91			80-120	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Silver (filtered)			%	84			80-120	Pass	
Tin (filtered)			%	91			80-120	Pass	
Zinc (filtered)			%	93			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-Ma05216	NCP	%	126			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	M18-Ma05216	NCP	%	130			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	M18-Ma04336	NCP	%	119			70-130	Pass	
Pyrene	M18-Ma04336	NCP	%	84			70-130	Pass	
Spike - % Recovery									
Phenols (Halogenated)				Result 1					
2-Chlorophenol	M18-Ma04336	NCP	%	69			30-130	Pass	
Spike - % Recovery									
Phenols (non-Halogenated)				Result 1					
Phenol	M18-Ma04336	NCP	%	39			30-130	Pass	
Spike - % Recovery									
Semivolatile Organics				Result 1					
1,2,4-Trichlorobenzene	M18-Ma04336	NCP	%	83			70-130	Pass	
1,4-Dichlorobenzene	M18-Ma04336	NCP	%	84			70-130	Pass	
2,4-Dinitrotoluene	M18-Ma04336	NCP	%	80			70-130	Pass	
N-Nitrosodipropylamine	M18-Ma04336	NCP	%	81			70-130	Pass	
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1					
Perfluorobutanoic acid (PFBA)	B18-Ma10901	NCP	%	87			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	B18-Ma10901	NCP	%	120			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	B18-Ma10901	NCP	%	98			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	B18-Ma10901	NCP	%	97			50-150	Pass	
Perfluorooctanoic acid (PFOA)	B18-Ma10901	NCP	%	107			50-150	Pass	
Perfluorononanoic acid (PFNA)	B18-Ma10901	NCP	%	95			50-150	Pass	
Perfluorodecanoic acid (PFDA)	B18-Ma10901	NCP	%	79			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	B18-Ma10901	NCP	%	93			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	B18-Ma10901	NCP	%	76			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	B18-Ma10901	NCP	%	95			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	B18-Ma10901	NCP	%	68			50-150	Pass	
Spike - % Recovery									
Perfluoroalkane sulfonamido substances				Result 1					
Perfluorooctane sulfonamide (FOSA)	B18-Ma10901	NCP	%	84			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B18-Ma10901	NCP	%	80			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B18-Ma10901	NCP	%	68			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	B18-Ma10901	NCP	%	88			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	B18-Ma10901	NCP	%	57			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B18-Ma10901	NCP	%	90			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B18-Ma10901	NCP	%	85			50-150	Pass	
Spike - % Recovery									
Perfluoroalkane sulfonic acids (PFSA's)				Result 1					
Perfluorobutanesulfonic acid (PFBS)	B18-Ma10901	NCP	%	83			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	B18-Ma10901	NCP	%	93			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	B18-Ma10901	NCP	%	93			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	B18-Ma10901	NCP	%	96			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	B18-Ma10901	NCP	%	79			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	B18-Ma10901	NCP	%	76			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B18-Ma10901	NCP	%	89			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	B18-Ma10901	NCP	%	81			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B18-Ma10901	NCP	%	91			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B18-Ma10901	NCP	%	79			50-150	Pass	
Spike - % Recovery									
				Result 1					
Ammonia (as N)	M18-Ma08382	NCP	%	98			70-130	Pass	
Chloride	M18-Ma06352	NCP	%	70			70-130	Pass	
Cyanide (total)	M18-Ma09664	CP	%	86			70-130	Pass	
Nitrate (as N)	M18-Ma09420	NCP	%	94			70-130	Pass	
Nitrite (as N)	M18-Ma08382	NCP	%	108			70-130	Pass	
Total Kjeldahl Nitrogen (as N)	M18-Ma10449	NCP	%	90			70-130	Pass	
Spike - % Recovery									
Alkalinity (speciated)				Result 1					
Bicarbonate Alkalinity (as CaCO ₃)	M18-Ma07395	NCP	%	123			70-130	Pass	
Carbonate Alkalinity (as CaCO ₃)	M18-Ma09420	NCP	%	127			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic (filtered)	M18-Ma08381	NCP	%	89			70-130	Pass	
Barium (filtered)	M18-Ma08381	NCP	%	90			75-125	Pass	
Beryllium (filtered)	M18-Ma08381	NCP	%	94			75-125	Pass	
Boron (filtered)	M18-Ma09143	NCP	%	97			75-125	Pass	
Cadmium (filtered)	M18-Ma08381	NCP	%	82			70-130	Pass	
Chromium (filtered)	M18-Ma08381	NCP	%	83			70-130	Pass	
Cobalt (filtered)	M18-Ma08381	NCP	%	86			75-125	Pass	
Copper (filtered)	M18-Ma08381	NCP	%	81			70-130	Pass	
Lead (filtered)	M18-Ma08381	NCP	%	85			70-130	Pass	
Manganese (filtered)	M18-Ma08381	NCP	%	88			70-130	Pass	
Mercury (filtered)	M18-Ma08381	NCP	%	79			70-130	Pass	
Molybdenum (filtered)	M18-Ma08381	NCP	%	83			75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Nickel (filtered)	M18-Ma08381	NCP	%	83			70-130	Pass	
Selenium (filtered)	M18-Ma08381	NCP	%	86			70-130	Pass	
Silver (filtered)	M18-Ma08381	NCP	%	74			75-125	Fail	Q08
Tin (filtered)	M18-Ma08381	NCP	%	86			75-125	Pass	
Zinc (filtered)	M18-Ma08381	NCP	%	82			70-130	Pass	
Spike - % Recovery									
Alkali Metals				Result 1					
Calcium	M18-Ma09665	CP	%	124			70-130	Pass	
Magnesium	M18-Ma09665	CP	%	116			70-130	Pass	
Potassium	M18-Ma09665	CP	%	111			70-130	Pass	
Sodium	M18-Ma09665	CP	%	119			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthylene	M18-Ma00885	NCP	%	87			70-130	Pass	
Anthracene	M18-Ma00885	NCP	%	92			70-130	Pass	
Benz(a)anthracene	M18-Ma00885	NCP	%	88			70-130	Pass	
Benzo(a)pyrene	M18-Ma00885	NCP	%	89			70-130	Pass	
Benzo(b&j)fluoranthene	M18-Ma00885	NCP	%	93			70-130	Pass	
Benzo(g,h,i)perylene	M18-Ma00885	NCP	%	86			70-130	Pass	
Benzo(k)fluoranthene	M18-Ma00885	NCP	%	92			70-130	Pass	
Chrysene	M18-Ma00885	NCP	%	87			70-130	Pass	
Dibenz(a,h)anthracene	M18-Ma00885	NCP	%	85			70-130	Pass	
Fluoranthene	M18-Ma00885	NCP	%	94			70-130	Pass	
Fluorene	M18-Ma00885	NCP	%	82			70-130	Pass	
Indeno(1,2,3-cd)pyrene	M18-Ma00885	NCP	%	96			70-130	Pass	
Naphthalene	M18-Ma00885	NCP	%	75			70-130	Pass	
Phenanthrene	M18-Ma00885	NCP	%	85			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	M18-Ma02756	NCP	%	107			70-130	Pass	
4,4'-DDD	M18-Ma02756	NCP	%	126			70-130	Pass	
4,4'-DDE	M18-Ma02756	NCP	%	85			70-130	Pass	
4,4'-DDT	M18-Ma01657	NCP	%	121			70-130	Pass	
α-BHC	M18-Ma02756	NCP	%	98			70-130	Pass	
Aldrin	M18-Ma02756	NCP	%	91			70-130	Pass	
β-BHC	M18-Ma02756	NCP	%	111			70-130	Pass	
δ-BHC	M18-Ma02756	NCP	%	116			70-130	Pass	
Dieldrin	M18-Ma02756	NCP	%	96			70-130	Pass	
Endosulfan I	M18-Ma02756	NCP	%	95			70-130	Pass	
Endosulfan II	M18-Ma02756	NCP	%	117			70-130	Pass	
Endosulfan sulphate	M18-Ma02756	NCP	%	128			70-130	Pass	
Endrin	M18-Ma02756	NCP	%	94			70-130	Pass	
Endrin aldehyde	M18-Ma02756	NCP	%	108			70-130	Pass	
Endrin ketone	M18-Ma02756	NCP	%	112			70-130	Pass	
γ-BHC (Lindane)	M18-Ma02756	NCP	%	105			70-130	Pass	
Heptachlor	M18-Ma02756	NCP	%	95			70-130	Pass	
Heptachlor epoxide	M18-Ma02756	NCP	%	93			70-130	Pass	
Hexachlorobenzene	M18-Ma02756	NCP	%	83			70-130	Pass	
Methoxychlor	M18-Ma02756	NCP	%	120			70-130	Pass	
Spike - % Recovery									
Phenols (Halogenated)				Result 1					
2,4-Dichlorophenol	M18-Ma00885	NCP	%	81			30-130	Pass	
2,4,5-Trichlorophenol	M18-Ma00885	NCP	%	47			30-130	Pass	
2,4,6-Trichlorophenol	M18-Ma00885	NCP	%	40			30-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
2,6-Dichlorophenol	M18-Ma00885	NCP	%	47			30-130	Pass	
4-Chloro-3-methylphenol	M18-Ma00885	NCP	%	52			30-130	Pass	
Pentachlorophenol	M18-Ma00885	NCP	%	31			30-130	Pass	
Tetrachlorophenols - Total	M18-Ma00885	NCP	%	34			30-130	Pass	
Spike - % Recovery									
Phenols (non-Halogenated)				Result 1					
2-Cyclohexyl-4,6-dinitrophenol	M18-Ma00885	NCP	%	62			30-130	Pass	
2-Methyl-4,6-dinitrophenol	M18-Ma05271	NCP	%	60			30-130	Pass	
2-Methylphenol (o-Cresol)	M18-Ma00885	NCP	%	66			30-130	Pass	
2-Nitrophenol	M18-Ma00885	NCP	%	88			30-130	Pass	
2,4-Dimethylphenol	M18-Ma05271	NCP	%	34			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	M18-Ma00885	NCP	%	66			30-130	Pass	
4-Nitrophenol	M18-Ma05271	NCP	%	47			30-130	Pass	
Dinoseb	M18-Ma00885	NCP	%	50			30-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C10-C14	M18-Ma05215	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH C15-C28	M18-Ma05215	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36	M18-Ma05215	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-Ma05215	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH >C16-C34	M18-Ma05215	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH >C34-C40	M18-Ma05215	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Azinphos-methyl	M18-Ja26724	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Bolstar	M18-Ja26724	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Chlorfenvinphos	M18-Ja26724	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Chlorpyrifos	M18-Ja26724	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Chlorpyrifos-methyl	M18-Ja26724	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Coumaphos	M18-Ja26724	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Demeton-S	M18-Ja26724	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Demeton-O	M18-Ja26724	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Diazinon	M18-Ja26724	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Dichlorvos	M18-Ja26724	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Dimethoate	M18-Ja26724	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Disulfoton	M18-Ja26724	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
EPN	M18-Ja26724	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ethion	M18-Ja26724	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ethoprop	M18-Ja26724	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ethyl parathion	M18-Ja26724	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Fenitrothion	M18-Ja26724	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Fensulfotiothion	M18-Ja26724	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Fenthion	M18-Ja26724	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Malathion	M18-Ja26724	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Merphos	M18-Ja26724	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Methyl parathion	M18-Ja26724	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Mevinphos	M18-Ja26724	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Monocrotophos	M18-Ja26724	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Naled	M18-Ja26724	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Omethoate	M18-Ja26724	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Phorate	M18-Ja26724	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	

Duplicate								
Organophosphorus Pesticides				Result 1	Result 2	RPD		
Pirimiphos-methyl	M18-Ja26724	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass
Pyrazophos	M18-Ja26724	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Ronnel	M18-Ja26724	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Terbufos	M18-Ja26724	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Tetrachlorvinphos	M18-Ja26724	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Tokuthion	M18-Ja26724	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Trichloronate	M18-Ja26724	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD		
Perfluorobutanoic acid (PFBA)	M18-Ma09664	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
Perfluoropentanoic acid (PFPeA)	M18-Ma09664	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorohexanoic acid (PFHxA)	M18-Ma09664	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoroheptanoic acid (PFHpA)	M18-Ma09664	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorooctanoic acid (PFOA)	M18-Ma09664	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorononanoic acid (PFNA)	M18-Ma09664	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorodecanoic acid (PFDA)	M18-Ma09664	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoroundecanoic acid (PFUnDA)	M18-Ma09664	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorododecanoic acid (PFDoDA)	M18-Ma09664	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorotridecanoic acid (PFTrDA)	M18-Ma09664	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorotetradecanoic acid (PFTeDA)	M18-Ma09664	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
Perfluoroalkane sulfonamido substances				Result 1	Result 2	RPD		
Perfluorooctane sulfonamide (FOSA)	M18-Ma09664	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	M18-Ma09664	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	M18-Ma09664	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	M18-Ma09664	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	M18-Ma09664	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	M18-Ma09664	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	M18-Ma09664	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
Duplicate								
Perfluoroalkane sulfonic acids (PFSA's)				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	M18-Ma09664	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	M18-Ma09664	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	M18-Ma09664	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	M18-Ma09664	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	M18-Ma09664	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	M18-Ma09664	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass

Duplicate								
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)				Result 1	Result 2	RPD		
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	M18-Ma09664	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	M18-Ma09664	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	M18-Ma09664	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	M18-Ma09664	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
Ammonia (as N)	M18-Ma08382	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass
Chemical Oxygen Demand (COD)	M18-Ma09798	NCP	mg/L	120	120	<1	30%	Pass
Chloride	M18-Fe23471	NCP	mg/L	190	190	2.0	30%	Pass
Colour(Pt/Co) true	M18-Ma11037	NCP	Pt/Co unit	72	72	<1	30%	Pass
Cyanide (total)	M18-Ma09664	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Fluoride	M18-Ma09853	NCP	mg/L	< 0.5	< 0.5	<1	30%	Pass
Nitrate (as N)	M18-Ma08382	NCP	mg/L	18	19	2.0	30%	Pass
Nitrite (as N)	M18-Ma08382	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass
Oil & Grease (HEM)	M18-Fe32995	NCP	mg/L	42	42	66	30%	Fail
pH (at 25°C)	M18-Ma09418	NCP	pH Units	4.5	4.6	pass	30%	Pass
Sulphate (as S)	M18-Fe23471	NCP	mg/L	230	240	4.0	30%	Pass
Sulphate (as SO4)	M18-Fe23471	NCP	mg/L	690	720	4.0	30%	Pass
Sulphite (as S)	M18-Ma13431	NCP	mg/L	< 50	< 50	<1	30%	Pass
Suspended Solids	M18-Ma09635	NCP	mg/L	2.8	3.3	16	30%	Pass
Thiosulphate (as S)	M18-Ma13431	NCP	mg/L	640	680	5.0	30%	Pass
Total Kjeldahl Nitrogen (as N)	M18-Ma07398	NCP	mg/L	1.3	1.3	1.0	30%	Pass
Duplicate								
Alkalinity (speciated)				Result 1	Result 2	RPD		
Bicarbonate Alkalinity (as CaCO3)	M18-Ma09418	NCP	mg/L	< 20	< 20	<1	30%	Pass
Carbonate Alkalinity (as CaCO3)	M18-Ma09418	NCP	mg/L	< 10	< 10	<1	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic (filtered)	M18-Ma08381	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Barium (filtered)	M18-Ma08381	NCP	mg/L	0.04	0.04	2.0	30%	Pass
Beryllium (filtered)	M18-Ma08381	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Boron (filtered)	M18-Ma08381	NCP	mg/L	0.69	0.69	<1	30%	Pass
Cadmium (filtered)	M18-Ma08381	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Chromium (filtered)	M18-Ma08381	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Cobalt (filtered)	M18-Ma08381	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Copper (filtered)	M18-Ma08381	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Lead (filtered)	M18-Ma08381	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Manganese (filtered)	M18-Ma08381	NCP	mg/L	0.045	0.044	2.0	30%	Pass
Mercury (filtered)	M18-Ma08381	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Molybdenum (filtered)	M18-Ma08381	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Nickel (filtered)	M18-Ma08381	NCP	mg/L	0.003	0.003	2.0	30%	Pass
Selenium (filtered)	M18-Ma08381	NCP	mg/L	0.006	0.005	6.0	30%	Pass
Silver (filtered)	M18-Ma08381	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Tin (filtered)	M18-Ma08381	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Zinc (filtered)	M18-Ma08381	NCP	mg/L	< 0.005	0.009	73	30%	Fail
Duplicate								
				Result 1	Result 2	RPD		
Biochemical Oxygen Demand (BOD-5 Day)	M18-Ma09665	CP	mg/L	< 5	< 5	<1	30%	Pass

Duplicate								
Alkali Metals				Result 1	Result 2	RPD		
Calcium	M18-Ma09665	CP	mg/L	87	92	5.0	30%	Pass
Magnesium	M18-Ma09665	CP	mg/L	140	140	5.0	30%	Pass
Potassium	M18-Ma09665	CP	mg/L	7.8	8.3	6.0	30%	Pass
Sodium	M18-Ma09665	CP	mg/L	840	910	8.0	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
Total Dissolved Solids	M18-Ma09666	CP	mg/L	9500	11000	16	30%	Pass
Duplicate								
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD		
Acenaphthene	S18-Ma02902	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Acenaphthylene	S18-Ma02902	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Anthracene	S18-Ma02902	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Benz(a)anthracene	S18-Ma02902	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Benzo(a)pyrene	S18-Ma02902	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Benzo(b&j)fluoranthene	S18-Ma02902	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Benzo(g,h,i)perylene	S18-Ma02902	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Benzo(k)fluoranthene	S18-Ma02902	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Chrysene	S18-Ma02902	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Dibenz(a,h)anthracene	S18-Ma02902	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Fluoranthene	S18-Ma02902	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Fluorene	S18-Ma02902	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Indeno(1,2,3-cd)pyrene	S18-Ma02902	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Naphthalene	S18-Ma02902	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Phenanthrene	S18-Ma02902	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Pyrene	S18-Ma02902	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Duplicate								
Organochlorine Pesticides				Result 1	Result 2	RPD		
Chlordanes - Total	S18-Ma02902	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
4,4'-DDD	S18-Ma02902	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
4,4'-DDE	S18-Ma02902	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
4,4'-DDT	S18-Ma02902	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
a-BHC	S18-Ma02902	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Aldrin	S18-Ma02902	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
b-BHC	S18-Ma02902	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
d-BHC	S18-Ma02902	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Dieldrin	S18-Ma02902	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Endosulfan I	S18-Ma02902	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Endosulfan II	S18-Ma02902	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Endosulfan sulphate	S18-Ma02902	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Endrin	S18-Ma02902	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Endrin aldehyde	S18-Ma02902	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Endrin ketone	S18-Ma02902	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
g-BHC (Lindane)	S18-Ma02902	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Heptachlor	S18-Ma02902	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Heptachlor epoxide	S18-Ma02902	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Hexachlorobenzene	S18-Ma02902	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Methoxychlor	S18-Ma02902	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Toxaphene	S18-Ma02902	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
Polychlorinated Biphenyls				Result 1	Result 2	RPD		
Aroclor-1016	S18-Ma02902	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Aroclor-1221	S18-Ma02902	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Aroclor-1232	S18-Ma02902	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Aroclor-1242	S18-Ma02902	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass

Duplicate								
Polychlorinated Biphenyls				Result 1	Result 2	RPD		
Aroclor-1248	S18-Ma02902	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Aroclor-1254	S18-Ma02902	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Aroclor-1260	S18-Ma02902	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Total PCB*	S18-Ma02902	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Duplicate								
Phenols (Halogenated)				Result 1	Result 2	RPD		
2-Chlorophenol	S18-Ma02902	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass
2,4-Dichlorophenol	S18-Ma02902	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass
2,4,5-Trichlorophenol	S18-Ma02902	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass
2,4,6-Trichlorophenol	S18-Ma02902	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass
2,6-Dichlorophenol	S18-Ma02902	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass
4-Chloro-3-methylphenol	S18-Ma02902	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass
Pentachlorophenol	S18-Ma02902	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass
Tetrachlorophenols - Total	S18-Ma02902	NCP	mg/L	< 0.03	< 0.03	<1	30%	Pass
Duplicate								
Phenols (non-Halogenated)				Result 1	Result 2	RPD		
2-Cyclohexyl-4,6-dinitrophenol	S18-Ma02902	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass
2-Methyl-4,6-dinitrophenol	S18-Ma02902	NCP	mg/L	< 0.03	< 0.03	<1	30%	Pass
2-Methylphenol (o-Cresol)	S18-Ma02902	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass
2-Nitrophenol	S18-Ma02902	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass
2,4-Dimethylphenol	S18-Ma02902	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass
2,4-Dinitrophenol	S18-Ma02902	NCP	mg/L	< 0.03	< 0.03	<1	30%	Pass
3&4-Methylphenol (m&p-Cresol)	S18-Ma02902	NCP	mg/L	< 0.006	< 0.006	<1	30%	Pass
4-Nitrophenol	S18-Ma02902	NCP	mg/L	< 0.03	< 0.03	<1	30%	Pass
Dinoseb	S18-Ma02902	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass
Phenol	S18-Ma02902	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass

Comments

Bromine and Iodine analysed by: ACS Laboratories (Australia), report reference: ACS1816408

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	Yes

Comments

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
N09	Quantification of linear and branched isomers has been conducted as a single total response using the relative response factor for the corresponding linear/branched standard.
N11	Isotope dilution is used for calibration of each native compound for which an exact labelled analogue is available (Isotope Dilution Quantitation). The isotopically labelled analogues allow identification and recovery correction of the concentration of the associated native PFAS compounds.
N15	Where the native PFAS compound does not have labelled analogue then the quantification is made using the Extracted Internal Standard Analyte with the closest retention time to the analyte and no recovery correction has been made (Internal Standard Quantitation).
Q08	The matrix spike recovery is outside of the recommended acceptance criteria. An acceptable recovery was obtained for the laboratory control sample indicating a sample matrix interference
Q15	The RPD reported passes Eurofins mgt's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised By

Mary Makarios	Analytical Services Manager
Alex Petridis	Senior Analyst-Metal (VIC)
Harry Bacalis	Senior Analyst-Volatile (VIC)
Jonathon Angell	Senior Analyst-Organic (QLD)
Joseph Edouard	Senior Analyst-Organic (VIC)
Michael Brancati	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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Certificate of Analysis

GHD Melbourne
Level 8, 180 Lonsdale St
Melbourne
VIC 3000



NATA Accredited
Accreditation Number 1261
Site Number 1254

Accredited for compliance with ISO/IEC 17025 – Testing
 The results of the tests, calibrations and/or
 measurements included in this document are traceable
 to Australian/national standards.

Attention: **Matthew Moore**

Report **594417-W**
Project name BULLEEN VIC 3105
Project ID 31/35006/0813
Received Date Apr 17, 2018

Client Sample ID			NEL-BH093 / 160418	NEL-BH107 / 160418	NEL-BH106 / 160418	NEL-BH083 / 160418
Sample Matrix			Water	Water	Water	Water
Eurofins mgt Sample No.			M18-Ap19697	M18-Ap19698	M18-Ap19699	M18-Ap19700
Date Sampled			Apr 16, 2018	Apr 16, 2018	Apr 16, 2018	Apr 16, 2018
Test/Reference	LOR	Unit				
Ammonia (as N)	0.01	mg/L	< 0.01	< 0.01	0.32	< 0.01
Carbon Dioxide (free)	5	mg/L	11	12	37	68
Chloride	1	mg/L	1700	2900	3600	3000
Conductivity (at 25°C)	1	uS/cm	8700	15000	19000	17000
Nitrate & Nitrite (as N)	0.05	mg/L	0.35	< 0.05	< 0.05	< 0.05
Nitrate (as N)	0.02	mg/L	0.35	< 0.02	< 0.02	< 0.02
Nitrite (as N)	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
pH (at 25°C)	0.1	pH Units	8.0	8.0	7.3	7.1
Phosphate total (as P)	0.05	mg/L	0.06	< 0.05	0.08	0.36
Phosphorus reactive (as P)	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
Sulphate (as SO4)	5	mg/L	210	440	660	530
Total Dissolved Solids	10	mg/L	3800	7600	9700	8600
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	0.3	< 0.2	0.5	1.5
Total Nitrogen (as N)	0.2	mg/L	0.7	< 0.2	0.5	1.5
Total Organic Carbon	5	mg/L	25	21	18	19
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	610	670	360	530
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	< 10	< 10	< 10
Hydroxide Alkalinity (as CaCO3)	20	mg/L	< 20	< 20	< 20	< 20
Total Alkalinity (as CaCO3)	20	mg/L	610	670	360	530
Alkali Metals						
Calcium	0.5	mg/L	43	92	180	180
Magnesium	0.5	mg/L	85	310	450	440
Potassium	0.5	mg/L	45	43	42	37
Sodium	0.5	mg/L	1500	2400	2700	2800
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	< 0.001	0.001	< 0.001	0.003
Beryllium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Boron (filtered)	0.05	mg/L	0.06	0.16	0.09	0.14
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	0.001	< 0.001	< 0.001	< 0.001
Cobalt (filtered)	0.001	mg/L	< 0.001	0.002	0.002	< 0.001
Copper (filtered)	0.001	mg/L	0.018	0.007	< 0.001	0.001
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Manganese (filtered)	0.005	mg/L	0.022	0.24	0.26	0.19

Client Sample ID			NEL-BH093 / 160418	NEL-BH107 / 160418	NEL-BH106 / 160418	NEL-BH083 / 160418
Sample Matrix			Water	Water	Water	Water
Eurofins mgt Sample No.			M18-Ap19697	M18-Ap19698	M18-Ap19699	M18-Ap19700
Date Sampled			Apr 16, 2018	Apr 16, 2018	Apr 16, 2018	Apr 16, 2018
Test/Reference	LOR	Unit				
Heavy Metals						
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.002	0.007	0.003	0.037
Selenium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Zinc (filtered)	0.005	mg/L	0.017	0.014	0.017	0.035

Client Sample ID			NEL-BH037 / 160418	RB01 / 160418
Sample Matrix			Water	Water
Eurofins mgt Sample No.			M18-Ap19701	M18-Ap19702
Date Sampled			Apr 16, 2018	Apr 16, 2018
Test/Reference	LOR	Unit		
Ammonia (as N)	0.01	mg/L	0.03	< 0.01
Carbon Dioxide (free)	5	mg/L	19	-
Chloride	1	mg/L	2900	< 1
Conductivity (at 25°C)	1	uS/cm	15000	< 1
Nitrate & Nitrite (as N)	0.05	mg/L	< 0.05	< 0.05
Nitrate (as N)	0.02	mg/L	0.02	< 0.02
Nitrite (as N)	0.02	mg/L	< 0.02	< 0.02
pH (at 25°C)	0.1	pH Units	7.8	4.4
Phosphate total (as P)	0.05	mg/L	0.10	< 0.05
Phosphorus reactive (as P)	0.05	mg/L	< 0.05	< 0.05
Sulphate (as SO4)	5	mg/L	360	< 5
Total Dissolved Solids	10	mg/L	7600	< 10
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	0.2	< 0.2
Total Nitrogen (as N)	0.2	mg/L	0.2	< 0.2
Total Organic Carbon	5	mg/L	16	< 5
Alkalinity (speciated)				
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	620	< 20
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	< 10
Hydroxide Alkalinity (as CaCO3)	20	mg/L	< 20	-
Total Alkalinity (as CaCO3)	20	mg/L	620	-
Alkali Metals				
Calcium	0.5	mg/L	240	< 0.5
Magnesium	0.5	mg/L	390	< 0.5
Potassium	0.5	mg/L	34	< 0.5
Sodium	0.5	mg/L	2400	< 0.5
Heavy Metals				
Arsenic	0.001	mg/L	-	< 0.001
Arsenic (filtered)	0.001	mg/L	0.005	-
Beryllium	0.001	mg/L	-	< 0.001
Beryllium (filtered)	0.001	mg/L	< 0.001	-
Boron	0.05	mg/L	-	< 0.05
Boron (filtered)	0.05	mg/L	0.16	-
Cadmium	0.0002	mg/L	-	< 0.0002
Cadmium (filtered)	0.0002	mg/L	< 0.0002	-
Chromium	0.001	mg/L	-	< 0.001
Chromium (filtered)	0.001	mg/L	< 0.001	-

Client Sample ID			NEL-BH037 / 160418	RB01 / 160418
Sample Matrix			Water	Water
Eurofins mgt Sample No.			M18-Ap19701	M18-Ap19702
Date Sampled			Apr 16, 2018	Apr 16, 2018
Test/Reference	LOR	Unit		
Heavy Metals				
Cobalt	0.001	mg/L	-	< 0.001
Cobalt (filtered)	0.001	mg/L	< 0.001	-
Copper	0.001	mg/L	-	< 0.001
Copper (filtered)	0.001	mg/L	0.003	-
Lead	0.001	mg/L	-	< 0.001
Lead (filtered)	0.001	mg/L	< 0.001	-
Manganese	0.005	mg/L	-	< 0.005
Manganese (filtered)	0.005	mg/L	0.18	-
Mercury	0.0001	mg/L	-	< 0.0001
Mercury (filtered)	0.0001	mg/L	< 0.0001	-
Nickel	0.001	mg/L	-	< 0.001
Nickel (filtered)	0.001	mg/L	0.022	-
Selenium	0.001	mg/L	-	< 0.001
Selenium (filtered)	0.001	mg/L	< 0.001	-
Zinc	0.005	mg/L	-	< 0.005
Zinc (filtered)	0.005	mg/L	0.012	-

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 B19E: Total N, TKN, NOx, NO2, NO3, NH3, Total P, Reactive P			
Ammonia (as N) - Method: APHA 4500-NH3 Ammonia Nitrogen by FIA	Melbourne	Apr 18, 2018	28 Day
Nitrate & Nitrite (as N) - Method: APHA 4500-NO3/NO2 Nitrate-Nitrite Nitrogen by FIA	Melbourne	Apr 18, 2018	28 Day
Nitrate (as N) - Method: APHA 4500-NO3 Nitrate Nitrogen by FIA	Melbourne	Apr 18, 2018	28 Day
Nitrite (as N) - Method: APHA 4500-NO2 Nitrite Nitrogen by FIA	Melbourne	Apr 18, 2018	2 Day
Phosphate total (as P) - Method: APHA 4500-P E. Phosphorous	Melbourne	Apr 18, 2018	28 Day
Phosphorus reactive (as P) - Method: APHA4500-PO4	Melbourne	Apr 18, 2018	2 Day
Total Kjeldahl Nitrogen (as N) - Method: LTM-INO-4310 TKN in Waters & Soils by FIA	Melbourne	Apr 18, 2018	7 Day
Carbon Dioxide (free) - Method: APHA 4500-CO2 C. Free Carbon Dioxide by Titration	Melbourne	Apr 19, 2018	24 Hours
Conductivity (at 25°C) - Method: LTM-INO-4030 Conductivity	Melbourne	Apr 19, 2018	28 Day
pH (at 25°C) - Method: LTM-GEN-7090 pH in water by ISE	Melbourne	Apr 19, 2018	0 Hours
Total Dissolved Solids - Method: LTM-INO-4170 Total Dissolved Solids in Water	Melbourne	Apr 18, 2018	7 Day
Total Organic Carbon - Method: APHA 5310B Total Organic Carbon	Melbourne	Apr 19, 2018	28 Day
Alkalinity (speciated) - Method: APHA 2320 Alkalinity by Titration	Melbourne	Apr 19, 2018	14 Day
NEPM 2013 Metals without Cr6+ (As, Be, B, Cd, Co, Cr, Cu, Hg, Pb, Ni, Mn, Se, Zn) - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Melbourne	Apr 18, 2018	180 Days
NEPM 2013 Filtered Metals without Cr6+ (As, Be, B, Cd, Co, Cr, Cu, Hg, Pb, Ni, Mn, Se, Zn) - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Melbourne	Apr 18, 2018	28 Day
Eurofins mgt Suite B11			
Chloride - Method: LTM-INO-4090 Chloride by Discrete Analyser	Melbourne	Apr 18, 2018	28 Day
Sulphate (as SO4) - Method: LTM-INO-4110 Sulfate by Discrete Analyser	Melbourne	Apr 18, 2018	28 Day
Alkali Metals - Method: USEPA 6010 Alkali Metals	Melbourne	Apr 18, 2018	180 Day



Tel: (03) 8687 8000

Page 1
of 1

Special Instructions:										
As per quote #180206GHDV, dated 6 February 2018										
TURN AROUND TIME REQUIRED										
<input type="checkbox"/> 1 Working Day	<input type="checkbox"/> 2 Working Days	<input type="checkbox"/> 3 Working Days	<input type="checkbox"/> 4 Working Days	<input checked="" type="checkbox"/> 5 Working Days (standard)	Other _____					
SAMPLE RECEIPT										
Relinquished by: Matthew Moore	Date: 17.04.2018	Received by: Catherine EF/ma	Date: 17/4	DELIVERED BY COURIER LAB	<input checked="" type="checkbox"/>	SAMPLE STATUS				
Organisation: GHD	Time: 9:00	Organisation: EF/ma	Time: 10:32	GHD	<input type="checkbox"/>	<input checked="" type="checkbox"/> Security Sealed				
ANALYTICAL SCHEDULE										
Relinquished by: Matthew Moore	Date: 17.04.2018	Received by: _____	Date: _____	RECEIVED BY	<input type="checkbox"/>	<input checked="" type="checkbox"/> Chilled				
Organisation: GHD	Time: 9:00	Organisation: _____	Time: _____	FAX	<input type="checkbox"/>	<input type="checkbox"/> Frozen				
					HAND	<input checked="" type="checkbox"/>	<input type="checkbox"/> Ambient			
RECEIVING LABORATORY TO CONFIRM RECEIPT OF ANALYTICAL SCHEDULE BY EMAIL TO: matthew.moore5@ghd.com										

Checked By _____ Date _____

Squid

Enviro Sample Vic

From: Mary Makarios
Sent: Wednesday, 18 April 2018 9:40 AM
To: Enviro Sample Vic
Cc: Matthew Moore
Subject: FW: GHD - bottle delivery (quote 180206GHDV)
Attachments: EurofinsMGT_2018.04.16.pdf

Hi Matthew-
We should be able to add those tests in,
We will let you know if we don't have enough samples once its logged in and sent to the labs.

Cheers,

Mary Makarios
Phone : +61 3 8564 5088
Email : MaryMakarios@eurofins.com

From: Matthew Moore [mailto:Matthew.Moore5@ghd.com]
Sent: Tuesday, 17 April 2018 6:19 PM
To: Rhonda Chouman
Cc: Mary Makarios
Subject: GHD - bottle delivery (quote 180206GHDV)

EXTERNAL EMAIL*

Hi Rhonda,

Today I sent a set of groundwater samples for GHD job no. 31/35006/0813.

If possible we would like to add some additional analysis to the COC.

Can you please let me know whether this is possible based on the bottles we've supplied? The additional analysis in the COC (attached) has been highlighted in yellow.

Cheers

Matthew Moore
Hydrogeologist, Water Resources

GHD

T: +61 3 8687 8308 | V: 318308 | E: matthew.moore5@ghd.com
180 Lonsdale St Melbourne VIC 3000 Australia | www.ghd.com

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Please consider our environment before printing this email

From: Matthew Moore
Sent: Friday, 13 April 2018 7:26 AM
To: 'Mary Makarios' <MaryMakarios@eurofins.com>; Rhonda Chouman (InTouch) <rhondachouman@eurofins.com>
Subject: RE: GHD - bottle delivery (quote 180206GHDV)

Thank you Mary and Rhonda.

Sample Receipt Advice

Company name: **GHD Pty Ltd VIC**
Contact name: **Matthew Moore**
Project name: **BULLEEN VIC 3105**
Project ID: **31/35006/0813**
COC number: **Not provided**
Turn around time: **5 Day**
Date/Time received: **Apr 17, 2018 10:32 AM**
Eurofins | mgt reference: **594417**

Sample information

- ☒ A detailed list of analytes logged into our LIMS, is included in the attached summary table.
- ☒ All samples have been received as described on the above COC.
- ☒ COC has been completed correctly.
- ☒ Attempt to chill was evident.
- ☒ Appropriately preserved sample containers have been used.
- ☒ All samples were received in good condition.
- ☒ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
- ☒ Appropriate sample containers have been used.
- ☒ Sample containers for volatile analysis received with zero headspace.
- ☒ Split sample sent to requested external lab.
- ☒ Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

Contact notes

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

Mary Makarios on Phone : +61 3 8564 5000 or by e.mail: MaryMakarios@eurofins.com

Results will be delivered electronically via e.mail to Matthew Moore - matthew.moore5@ghd.com.

Company Name: GHD Pty Ltd VIC
Address: Level 8, 180 Lonsdale St
Melbourne
VIC 3000
Project Name: BULLEEN VIC 3105
Project ID: 31/35006/0813

Order No.:
Report #: 594417
Phone: 8687 8000
Fax: 8687 8111

Received: Apr 17, 2018 10:32 AM
Due: Apr 24, 2018
Priority: 5 Day
Contact Name: Matthew Moore

Eurofins | mgt Analytical Services Manager : Mary Makarios

Sample Detail						Carbon Dioxide (free)	Conductivity (at 25°C)	Hydroxide Alkalinity (as CaCO ₃)	pH (at 25°C)	Total Alkalinity (as CaCO ₃)	Total Dissolved Solids	Total Organic Carbon	Eurofins mgt Suite B11	NEPM 2013 Metals without Cr6+ (As, Be, B, Cd, Co, Cr, Cu, Hg, Pb, Ni, Mn, NO _x , NO ₂ , NO ₃ , NH ₃ , Total P, Reactive P	NEPM 2013 Filtered Metals without Cr6+ (As, Be, B, Cd, Co, Cr, Cu, Hg, Pb, Ni, Mn, Se, Zn)
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217															
Brisbane Laboratory - NATA Site # 20794															
Perth Laboratory - NATA Site # 23736															
External Laboratory															
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID										
1	NEL-BH093 / 160418	Apr 16, 2018		Water	M18-Ap19697	X	X	X	X	X	X	X	X	X	X
2	NEL-BH107 / 160418	Apr 16, 2018		Water	M18-Ap19698	X	X	X	X	X	X	X	X	X	X
3	NEL-BH106 / 160418	Apr 16, 2018		Water	M18-Ap19699	X	X	X	X	X	X	X	X	X	X
4	NEL-BH083 / 160418	Apr 16, 2018		Water	M18-Ap19700	X	X	X	X	X	X	X	X	X	X
5	NEL-BH037 / 160418	Apr 16, 2018		Water	M18-Ap19701	X	X	X	X	X	X	X	X	X	X
6	RB01 / 160418	Apr 16, 2018		Water	M18-Ap19702		X		X		X	X	X	X	

Company Name: GHD Pty Ltd VIC
Address: Level 8, 180 Lonsdale St
Melbourne
VIC 3000

Project Name: BULLEEN VIC 3105
Project ID: 31/35006/0813

Order No.:
Report #: 594417
Phone: 8687 8000
Fax: 8687 8111

Received: Apr 17, 2018 10:32 AM
Due: Apr 24, 2018
Priority: 5 Day
Contact Name: Matthew Moore

Eurofins | mgt Analytical Services Manager : Mary Makarios

Sample Detail	Carbon Dioxide (free)	Conductivity (at 25°C)	Hydroxide Alkalinity (as CaCO ₃)	pH (at 25°C)	Total Alkalinity (as CaCO ₃)	Total Dissolved Solids	Total Organic Carbon	Eurofins mgt Suite B11	NEPM 2013 Metals without Cr6+ (As, Be, B, Cd, Co, Cr, Cu, Hg, Pb, Ni, Mn, NO _x , NO ₂ , NO ₃ , NH ₃ , Total P, Reactive P	Eurofins mgt Suite B19E: Total N, TKN, NO _x , NO ₂ , NO ₃ , NH ₃ , Total P, Reactive P	NEPM 2013 Metals without Cr6+ (As, Be, B, Cd, Co, Cr, Cu, Hg, Pb, Ni, Mn, Se, Zn)
Melbourne Laboratory - NATA Site # 1254 & 14271	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217											
Brisbane Laboratory - NATA Site # 20794											
Perth Laboratory - NATA Site # 23736											
Test Counts	5	6	5	6	5	6	6	6	1	6	5

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	Quality Systems Manual ver 5.1 US Department of Defense
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.1 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " - " in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Ammonia (as N)	mg/L	< 0.01			0.01	Pass	
Carbon Dioxide (free)	mg/L	< 5			5	Pass	
Chloride	mg/L	< 1			1	Pass	
Nitrate & Nitrite (as N)	mg/L	< 0.05			0.05	Pass	
Nitrate (as N)	mg/L	< 0.02			0.02	Pass	
Nitrite (as N)	mg/L	< 0.02			0.02	Pass	
Phosphate total (as P)	mg/L	< 0.05			0.05	Pass	
Phosphorus reactive (as P)	mg/L	< 0.05			0.05	Pass	
Sulphate (as SO ₄)	mg/L	< 5			5	Pass	
Total Dissolved Solids	mg/L	< 10			10	Pass	
Total Kjeldahl Nitrogen (as N)	mg/L	< 0.2			0.2	Pass	
Total Organic Carbon	mg/L	< 5			5	Pass	
Method Blank							
Alkalinity (speciated)							
Bicarbonate Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Carbonate Alkalinity (as CaCO ₃)	mg/L	< 10			10	Pass	
Hydroxide Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Total Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Method Blank							
Alkali Metals							
Calcium	mg/L	< 0.5			0.5	Pass	
Magnesium	mg/L	< 0.5			0.5	Pass	
Potassium	mg/L	< 0.5			0.5	Pass	
Sodium	mg/L	< 0.5			0.5	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/L	< 0.001			0.001	Pass	
Arsenic (filtered)	mg/L	< 0.001			0.001	Pass	
Beryllium	mg/L	< 0.001			0.001	Pass	
Beryllium (filtered)	mg/L	< 0.001			0.001	Pass	
Boron	mg/L	< 0.05			0.05	Pass	
Boron (filtered)	mg/L	< 0.05			0.05	Pass	
Cadmium	mg/L	< 0.0002			0.0002	Pass	
Cadmium (filtered)	mg/L	< 0.0002			0.0002	Pass	
Chromium	mg/L	< 0.001			0.001	Pass	
Chromium (filtered)	mg/L	< 0.001			0.001	Pass	
Cobalt	mg/L	< 0.001			0.001	Pass	
Cobalt (filtered)	mg/L	< 0.001			0.001	Pass	
Copper	mg/L	< 0.001			0.001	Pass	
Copper (filtered)	mg/L	< 0.001			0.001	Pass	
Lead	mg/L	< 0.001			0.001	Pass	
Lead (filtered)	mg/L	< 0.001			0.001	Pass	
Manganese	mg/L	< 0.005			0.005	Pass	
Manganese (filtered)	mg/L	< 0.005			0.005	Pass	
Mercury	mg/L	< 0.0001			0.0001	Pass	
Mercury (filtered)	mg/L	< 0.0001			0.0001	Pass	
Nickel	mg/L	< 0.001			0.001	Pass	
Nickel (filtered)	mg/L	< 0.001			0.001	Pass	
Selenium	mg/L	< 0.001			0.001	Pass	
Selenium (filtered)	mg/L	< 0.001			0.001	Pass	
Zinc	mg/L	< 0.005			0.005	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Zinc (filtered)	mg/L	< 0.005			0.005	Pass	
LCS - % Recovery							
Ammonia (as N)	%	102			70-130	Pass	
Chloride	%	112			70-130	Pass	
Nitrate & Nitrite (as N)	%	97			70-130	Pass	
Nitrate (as N)	%	97			70-130	Pass	
Nitrite (as N)	%	100			70-130	Pass	
Phosphate total (as P)	%	94			70-130	Pass	
Phosphorus reactive (as P)	%	108			70-130	Pass	
Sulphate (as SO ₄)	%	107			70-130	Pass	
Total Dissolved Solids	%	96			70-130	Pass	
Total Kjeldahl Nitrogen (as N)	%	126			70-130	Pass	
Total Organic Carbon	%	106			70-130	Pass	
LCS - % Recovery							
Alkalinity (speciated)							
Bicarbonate Alkalinity (as CaCO ₃)	%	90			70-130	Pass	
Carbonate Alkalinity (as CaCO ₃)	%	99			70-130	Pass	
Total Alkalinity (as CaCO ₃)	%	104			70-130	Pass	
LCS - % Recovery							
Alkali Metals							
Calcium	%	118			70-130	Pass	
Magnesium	%	117			70-130	Pass	
Potassium	%	109			70-130	Pass	
Sodium	%	108			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	88			80-120	Pass	
Arsenic (filtered)	%	88			80-120	Pass	
Beryllium	%	95			80-120	Pass	
Boron	%	115			80-120	Pass	
Boron (filtered)	%	115			80-120	Pass	
Cadmium	%	90			80-120	Pass	
Cadmium (filtered)	%	90			80-120	Pass	
Chromium	%	86			80-120	Pass	
Chromium (filtered)	%	86			80-120	Pass	
Cobalt	%	87			80-120	Pass	
Cobalt (filtered)	%	87			80-120	Pass	
Copper	%	87			80-120	Pass	
Copper (filtered)	%	87			80-120	Pass	
Lead	%	89			80-120	Pass	
Lead (filtered)	%	89			80-120	Pass	
Manganese	%	89			80-120	Pass	
Manganese (filtered)	%	89			80-120	Pass	
Mercury	%	86			75-125	Pass	
Mercury (filtered)	%	86			70-130	Pass	
Nickel	%	87			80-120	Pass	
Nickel (filtered)	%	87			80-120	Pass	
Selenium	%	88			80-120	Pass	
Selenium (filtered)	%	88			80-120	Pass	
Zinc	%	88			80-120	Pass	
Zinc (filtered)	%	88			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
				Result 1					
Ammonia (as N)	M18-Ap19462	NCP	%	96			70-130	Pass	
Chloride	P18-Ap19131	NCP	%	70			70-130	Pass	
Nitrate & Nitrite (as N)	M18-Ap19462	NCP	%	97			70-130	Pass	
Nitrate (as N)	M18-Ap19462	NCP	%	97			70-130	Pass	
Nitrite (as N)	M18-Ap19462	NCP	%	94			70-130	Pass	
Phosphorus reactive (as P)	P18-Ap19131	NCP	%	76			70-130	Pass	
Sulphate (as SO ₄)	M18-Ap19494	NCP	%	102			70-130	Pass	
Spike - % Recovery									
Alkalinity (speciated)				Result 1					
Bicarbonate Alkalinity (as CaCO ₃)	M18-Ap19919	NCP	%	83			70-130	Pass	
Total Alkalinity (as CaCO ₃)	P18-Ap19151	NCP	%	86			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic (filtered)	M18-Ap19462	NCP	%	92			70-130	Pass	
Beryllium (filtered)	M18-Ap19462	NCP	%	94			75-125	Pass	
Boron (filtered)	M18-Ap19462	NCP	%	109			75-125	Pass	
Cadmium (filtered)	M18-Ap19462	NCP	%	91			70-130	Pass	
Chromium (filtered)	M18-Ap19462	NCP	%	89			70-130	Pass	
Cobalt (filtered)	M18-Ap19462	NCP	%	89			75-125	Pass	
Copper (filtered)	M18-Ap19462	NCP	%	88			70-130	Pass	
Lead (filtered)	M18-Ap19462	NCP	%	89			70-130	Pass	
Manganese (filtered)	M18-Ap19462	NCP	%	91			70-130	Pass	
Nickel (filtered)	M18-Ap19462	NCP	%	97			70-130	Pass	
Selenium (filtered)	M18-Ap19462	NCP	%	94			70-130	Pass	
Zinc (filtered)	M18-Ap19462	NCP	%	92			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	M18-Ap21947	NCP	%	82			75-125	Pass	
Beryllium	M18-Ap21947	NCP	%	85			75-125	Pass	
Boron	M18-Ap21947	NCP	%	85			75-125	Pass	
Cadmium	M18-Ap21947	NCP	%	84			75-125	Pass	
Chromium	M18-Ap21947	NCP	%	79			75-125	Pass	
Cobalt	M18-Ap21947	NCP	%	81			75-125	Pass	
Copper	M18-Ap21947	NCP	%	81			75-125	Pass	
Lead	M18-Ap21947	NCP	%	84			75-125	Pass	
Manganese	M18-Ap21947	NCP	%	81			75-125	Pass	
Mercury	M18-Ap21947	NCP	%	83			70-130	Pass	
Nickel	M18-Ap21947	NCP	%	80			75-125	Pass	
Selenium	M18-Ap21947	NCP	%	82			75-125	Pass	
Zinc	M18-Ap21947	NCP	%	84			75-125	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
				Result 1	Result 2	RPD			
Ammonia (as N)	M18-Ap19462	NCP	mg/L	0.02	0.02	11	30%	Pass	
Chloride	P18-Ap19131	NCP	mg/L	82	87	7.0	30%	Pass	
Conductivity (at 25°C)	M18-Ap20863	NCP	uS/cm	13000	15000	15	30%	Pass	
Nitrate & Nitrite (as N)	M18-Ap19462	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
Nitrate (as N)	M18-Ap19462	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Nitrite (as N)	M18-Ap19462	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
pH (at 25°C)	M18-Ap20863	NCP	pH Units	7.6	7.6	pass	30%	Pass	
Phosphate total (as P)	M18-Ap19827	NCP	mg/L	0.10	0.11	11	30%	Pass	
Phosphorus reactive (as P)	P18-Ap19130	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1	Result 2	RPD	Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
				Result 1	Result 2	RPD			
Sulphate (as SO ₄)	P18-Ap19131	NCP	mg/L	34	34	1.0	30%	Pass	
Total Dissolved Solids	M18-Ap19766	NCP	mg/L	15000	12000	24	30%	Pass	
Total Kjeldahl Nitrogen (as N)	M18-Ap19827	NCP	mg/L	0.6	0.5	16	30%	Pass	
Total Organic Carbon	M18-Ap15581	NCP	mg/L	48	48	<1	30%	Pass	
Duplicate									
Alkalinity (speciated)				Result 1	Result 2	RPD			
Bicarbonate Alkalinity (as CaCO ₃)	M18-Ap20863	NCP	mg/L	490	570	15	30%	Pass	
Carbonate Alkalinity (as CaCO ₃)	M18-Ap20863	NCP	mg/L	< 10	< 10	<1	30%	Pass	
Hydroxide Alkalinity (as CaCO ₃)	M18-Ap20863	NCP	mg/L	< 20	< 20	<1	30%	Pass	
Total Alkalinity (as CaCO ₃)	M18-Ap20863	NCP	mg/L	490	570	15	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic (filtered)	M18-Ap19462	NCP	mg/L	0.008	0.008	7.0	30%	Pass	
Beryllium (filtered)	M18-Ap19462	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Boron (filtered)	M18-Ap19462	NCP	mg/L	0.14	0.15	6.0	30%	Pass	
Cadmium (filtered)	M18-Ap19462	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium (filtered)	M18-Ap19462	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cobalt (filtered)	M18-Ap19462	NCP	mg/L	0.002	0.003	8.0	30%	Pass	
Copper (filtered)	M18-Ap19462	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Lead (filtered)	M18-Ap19462	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Manganese (filtered)	M18-Ap19462	NCP	mg/L	0.022	0.024	7.0	30%	Pass	
Mercury (filtered)	P18-Ap19130	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel (filtered)	M18-Ap19462	NCP	mg/L	0.10	0.11	7.0	30%	Pass	
Selenium (filtered)	M18-Ap19462	NCP	mg/L	0.001	0.001	9.0	30%	Pass	
Zinc (filtered)	M18-Ap19462	NCP	mg/L	0.020	0.021	5.0	30%	Pass	
Duplicate									
Alkali Metals				Result 1	Result 2	RPD			
Calcium	M18-Ap19700	CP	mg/L	180	180	1.0	30%	Pass	
Magnesium	M18-Ap19700	CP	mg/L	440	440	<1	30%	Pass	
Potassium	M18-Ap19700	CP	mg/L	37	37	2.0	30%	Pass	
Sodium	M18-Ap19700	CP	mg/L	2800	2800	1.0	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M18-Ap21947	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Beryllium	M18-Ap21947	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Boron	M18-Ap21947	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
Cadmium	M18-Ap21947	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium	M18-Ap21947	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cobalt	M18-Ap21947	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper	M18-Ap21947	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Lead	M18-Ap21947	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Manganese	M18-Ap21947	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Mercury	M18-Ap21947	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel	M18-Ap21947	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Selenium	M18-Ap21947	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Zinc	M18-Ap21947	NCP	mg/L	< 0.005	< 0.005	<1	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

Authorised By

Mary Makarios	Analytical Services Manager
Alex Petridis	Senior Analyst-Metal (VIC)
Michael Brancati	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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CERTIFICATE OF ANALYSIS

Work Order : **EM1806339**
Client : **GHD PTY LTD**
Contact : **MR MATTHEW MOORE**
Address : **LEVEL 8, 180 LONSDALE ST**
MELBOURNE VIC, AUSTRALIA 3001
Telephone : **----**
Project : **31350060813**
Order number : **----**
C-O-C number : **----**
Sampler : **LS, MM**
Site : **Bulleen, VIC 3105**
Quote number : **ME/124/18 - North East Link**
No. of samples received : **5**
No. of samples analysed : **5**

Page : 1 of 2
Laboratory : Environmental Division Melbourne
Contact : Shirley LeCornu
Address : 4 Westall Rd Springvale VIC Australia 3171
Telephone : +61-3-8549 9630
Date Samples Received : 17-Apr-2018 11:40
Date Analysis Commenced : 01-May-2018
Issue Date : 01-May-2018 16:28



Accreditation No. 825
 Accredited for compliance with
 ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Samantha Smith	Laboratory Coordinator	WRG Subcontracting, Springvale, VIC



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
 LOR = Limit of reporting
 ^ = This result is computed from individual analyte detections at or above the level of reporting
 ø = ALS is not NATA accredited for these tests.
 ~ = Indicates an estimated value.

- SRB (MM669) is conducted by ALS Scoresby NATA accreditation no. 992, site no. 989. NATA accreditation does not cover performance of this method.

Analytical Results

Sub-Matrix: **WATER**
 (Matrix: **WATER**)

Client sample ID

				NEL_BH093 / 160418	NEL_BH107 / 160418	NEL_BH106 / 160418	NEL_BH083 / 160418	NEL_BH037 / 160418
Client sampling date / time				16-Apr-2018 00:00	16-Apr-2018 00:00	16-Apr-2018 00:00	16-Apr-2018 00:00	16-Apr-2018 00:00
Compound	CAS Number	LOR	Unit	EM1806339-001	EM1806339-002	EM1806339-003	EM1806339-004	EM1806339-005
				Result	Result	Result	Result	Result
MM669: Sulphate Reducing Bacteria								
Sulphate Reducing Bacteria Population Estimate	----	20	pac/mL	120000	120000	1400	1400	320
Aggressivity	----	1	-	High	High	Medium	Medium	Medium



180 Latrobe Street, Melbourne VIC 3000

Tel: (03) 8687 8000

Page 1

of 1

Environmental Division
Melbourne
Work Order Reference
EM1806339



Telephone : + 61-3-8549 9600

Checked By: _____ Date: _____

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : EM1806339

<p>Client : GHD PTY LTD</p> <p>Contact : MR MATTHEW MOORE</p> <p>Address : LEVEL 8, 180 LONSDALE ST MELBOURNE VIC, AUSTRALIA 3001</p> <p>E-mail : matthew.moore5@ghd.com</p> <p>Telephone : ----</p> <p>Facsimile : ----</p> <p>Project : 31350060813</p> <p>Order number :</p> <p>C-O-C number : ----</p> <p>Site : Bulleen, VIC 3105</p> <p>Sampler : LS, MM</p>	<p>Laboratory : Environmental Division Melbourne</p> <p>Contact : Shirley LeCornu</p> <p>Address : 4 Westall Rd Springvale VIC Australia 3171</p> <p>E-mail : shirley.lecornu@Alsglobal.com</p> <p>Telephone : +61-3-8549 9630</p> <p>Facsimile : +61-3-8549 9626</p> <p>Page : 1 of 3</p> <p>Quote number : EM2018GHDSE0003 (ME/124/18 - North East Link)</p> <p>QC Level : NEPM 2013 B3 & ALS QC Standard</p>
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Dates

<p>Date Samples Received : 17-Apr-2018 11:40</p> <p>Client Requested Due : 02-May-2018</p> <p>Date :</p>	<p>Issue Date : 17-Apr-2018</p> <p>Scheduled Reporting Date : 02-May-2018</p>
--	--

Delivery Details

<p>Mode of Delivery : Carrier</p> <p>No. of coolers/boxes : 1</p> <p>Receipt Detail :</p>	<p>Security Seal : Intact.</p> <p>Temperature : 3.4°C - Ice present</p> <p>No. of samples received / analysed : 5 / 5</p>
---	---

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **Analytical work for this work order will be conducted at ALS Scoresby.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**



Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- No sample container / preservation non-compliance exists.

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - MM669 (Subcontracted) Sulphate Reducing Bacteria (BART)
EM1806339-001	16-Apr-2018 00:00	NEL_BH093 / 160418	✓
EM1806339-002	16-Apr-2018 00:00	NEL_BH107 / 160418	✓
EM1806339-003	16-Apr-2018 00:00	NEL_BH106 / 160418	✓
EM1806339-004	16-Apr-2018 00:00	NEL_BH083 / 160418	✓
EM1806339-005	16-Apr-2018 00:00	NEL_BH037 / 160418	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.



Requested Deliverables

ACCOUNTS PAYABLE (Brisbane)

- A4 - AU Tax Invoice (INV)

Email ap-fss@ghd.com

ALL ACCOUNTS

- A4 - AU Tax Invoice (INV)

Email ap-fss@ghd.com

GHD LAB REPORTS

- *AU Certificate of Analysis - NATA (COA)
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)
- EDI Format - ESDAT (ESDAT)
- Electronic SRN for ESDat (ESRN_ESDAT)

[illegible]

MATTHEW MOORE

- *AU Certificate of Analysis - NATA (COA)
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)
- A4 - AU Tax Invoice (INV)
- Chain of Custody (CoC) (COC)
- EDI Format - ENMRG (ENMRG)
- EDI Format - ESDAT (ESDAT)
- Electronic SRN for ESdat (ESRN_ESDAT)

[illegible]

TIMOTHY ANDERSON

- *AU Certificate of Analysis - NATA (COA)
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)
- A4 - AU Tax Invoice (INV)
- Chain of Custody (CoC) (COC)
- EDI Format - ENMRG (ENMRG)
- EDI Format - ESDAT (ESDAT)
- Electronic SRN for ESdat (ESRN_ESDAT)

[illegible]

QUALITY CONTROL REPORT

Work Order	: EM1806339	Page	: 1 of 3
Client	: GHD PTY LTD	Laboratory	: Environmental Division Melbourne
Contact	: MR MATTHEW MOORE	Contact	: Shirley LeCornu
Address	: LEVEL 8, 180 LONSDALE ST MELBOURNE VIC, AUSTRALIA 3001	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +61-3-8549 9630
Project	: 31350060813	Date Samples Received	: 17-Apr-2018
Order number	:	Date Analysis Commenced	: 01-May-2018
C-O-C number	: ----	Issue Date	: 01-May-2018
Sampler	: LS, MM		
Site	: Bulleen, VIC 3105		
Quote number	: ME/124/18 - North East Link		
No. of samples received	: 5		
No. of samples analysed	: 5		



This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Samantha Smith	Laboratory Coordinator	WRG Subcontracting, Springvale, VIC



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key :
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
= Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

- **No Laboratory Duplicate (DUP) Results are required to be reported.**



Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

- **No Method Blank (MB) or Laboratory Control Spike (LCS) Results are required to be reported.**

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**
-

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: EM1806339	Page	: 1 of 4
Client	: GHD PTY LTD	Laboratory	: Environmental Division Melbourne
Contact	: MR MATTHEW MOORE	Telephone	: +61-3-8549 9630
Project	: 31350060813	Date Samples Received	: 17-Apr-2018
Site	: Bulleen, VIC 3105	Issue Date	: 01-May-2018
Sampler	: LS, MM	No. of samples received	: 5
Order number	:	No. of samples analysed	: 5

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO** Method Blank value outliers occur.
- **NO** Duplicate outliers occur.
- **NO** Laboratory Control outliers occur.
- **NO** Matrix Spike outliers occur.
- For all regular sample matrices, **NO** surrogate recovery outliers occur.

Outliers : Analysis Holding Time Compliance

- **NO** Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- **NO** Quality Control Sample Frequency Outliers exist.



Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix:

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation



Quality Control Parameter Frequency Compliance

- No Quality Control data available for this section.



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Sulphate Reducing Bacteria (BART)	MM669	WATER	Specialist microbiological analysis subcontracted to ALS Scoresby (NATA accreditation does not cover this service).

Certificate of Analysis

GHD Melbourne
Level 8, 180 Lonsdale St
Melbourne
VIC 3000



NATA Accredited
Accreditation Number 1261
Site Number 1254

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or
measurements included in this document are traceable
to Australian/national standards.

Attention: Matthew Moore

Report 594757-W
Project name BULLEEN VIC 3105
Project ID 31/35006/0813
Received Date Apr 18, 2018

Client Sample ID			NEL-BH078/170418 Water M18-Ap22347 Apr 17, 2018	NEL-BH076A/170418 Water M18-Ap22348 Apr 17, 2018	NEL-BH076/170418 Water M18-Ap22349 Apr 17, 2018	NEL-BH071/170418 Water M18-Ap22350 Apr 17, 2018
Sample Matrix						
Eurofins mgt Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
Ammonia (as N)	0.01	mg/L	0.85	0.77	0.90	< 0.01
Carbon Dioxide (free)	5	mg/L	49	280	630	410
Chloride	1	mg/L	2500	1400	1800	2800
Conductivity (at 25°C)	1	uS/cm	8100	4300	5500	9300
Nitrate & Nitrite (as N)	0.05	mg/L	< 0.05	< 0.05	< 0.05	0.75
Nitrate (as N)	0.02	mg/L	< 0.02	< 0.02	< 0.02	0.71
Nitrite (as N)	0.02	mg/L	< 0.02	0.05	< 0.02	0.04
pH (at 25°C)	0.1	pH Units	7.3	6.3	6.0	6.5
Phosphate total (as P)	0.05	mg/L	0.23	0.24	2.2	0.20
Phosphorus reactive (as P)	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
Sulphate (as SO4)	5	mg/L	270	110	160	180
Total Dissolved Solids	10	mg/L	4300	2300	2200	5200
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	1.2	1.1	1.2	< 0.2
Total Nitrogen (as N)	0.2	mg/L	1.2	1.1	1.2	0.8
Total Organic Carbon	5	mg/L	< 5	6.9	31	22
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	500	340	330	770
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	< 10	< 10	< 10
Hydroxide Alkalinity (as CaCO3)	20	mg/L	< 20	< 20	< 20	< 20
Total Alkalinity (as CaCO3)	20	mg/L	500	340	330	770
Alkali Metals						
Calcium	0.5	mg/L	67	53	59	90
Magnesium	0.5	mg/L	180	87	91	220
Potassium	0.5	mg/L	12	7.6	14	7.3
Sodium	0.5	mg/L	1300	620	880	1500
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	0.003	0.002	0.001	0.006
Beryllium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Boron (filtered)	0.05	mg/L	0.13	0.12	0.12	0.25
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Cobalt (filtered)	0.001	mg/L	< 0.001	< 0.001	0.001	0.004
Copper (filtered)	0.001	mg/L	0.019	0.025	0.011	0.051
Lead (filtered)	0.001	mg/L	0.002	0.002	< 0.001	0.003

Client Sample ID			NEL-BH078/170418	NEL-BH076A/170418	NEL-BH076/170418	NEL-BH071/170418
Sample Matrix			Water	Water	Water	Water
Eurofins mgt Sample No.			M18-Ap22347	M18-Ap22348	M18-Ap22349	M18-Ap22350
Date Sampled			Apr 17, 2018	Apr 17, 2018	Apr 17, 2018	Apr 17, 2018
Test/Reference	LOR	Unit				
Heavy Metals						
Manganese (filtered)	0.005	mg/L	0.52	0.43	0.34	0.77
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.024	0.026	0.13	0.035
Selenium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	0.004
Zinc (filtered)	0.005	mg/L	0.033	0.060	0.10	0.13

Client Sample ID			RB02/170418
Sample Matrix			Water
Eurofins mgt Sample No.			M18-Ap22351
Date Sampled			Apr 17, 2018
Test/Reference	LOR	Unit	
Ammonia (as N)	0.01	mg/L	< 0.01
Chloride	1	mg/L	< 1
Conductivity (at 25°C)	1	uS/cm	< 1
Nitrate & Nitrite (as N)	0.05	mg/L	< 0.05
Nitrate (as N)	0.02	mg/L	< 0.02
Nitrite (as N)	0.02	mg/L	< 0.02
pH (at 25°C)	0.1	pH Units	4.6
Phosphate total (as P)	0.05	mg/L	< 0.05
Phosphorus reactive (as P)	0.05	mg/L	< 0.05
Sulphate (as SO4)	5	mg/L	< 5
Total Dissolved Solids	10	mg/L	< 10
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	< 0.2
Total Nitrogen (as N)	0.2	mg/L	< 0.2
Total Organic Carbon	5	mg/L	< 5
Alkalinity (speciated)			
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	< 20
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10
Alkali Metals			
Calcium	0.5	mg/L	< 0.5
Magnesium	0.5	mg/L	< 0.5
Potassium	0.5	mg/L	< 0.5
Sodium	0.5	mg/L	< 0.5
Heavy Metals			
Arsenic (filtered)	0.001	mg/L	< 0.001
Beryllium (filtered)	0.001	mg/L	< 0.001
Boron (filtered)	0.05	mg/L	< 0.05
Cadmium (filtered)	0.0002	mg/L	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001
Cobalt (filtered)	0.001	mg/L	< 0.001
Copper (filtered)	0.001	mg/L	< 0.001
Lead (filtered)	0.001	mg/L	< 0.001
Manganese (filtered)	0.005	mg/L	< 0.005
Mercury (filtered)	0.0001	mg/L	< 0.0001
Nickel (filtered)	0.001	mg/L	< 0.001

Client Sample ID			RB02/170418
Sample Matrix			Water
Eurofins mgt Sample No.			M18-Ap22351
Date Sampled			Apr 17, 2018
Test/Reference	LOR	Unit	
Heavy Metals			
Selenium (filtered)	0.001	mg/L	< 0.001
Zinc (filtered)	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 B19E: Total N, TKN, NOx, NO2, NO3, NH3, Total P, Reactive P			
Ammonia (as N) - Method: APHA 4500-NH3 Ammonia Nitrogen by FIA	Melbourne	Apr 20, 2018	28 Day
Nitrate & Nitrite (as N) - Method: APHA 4500-NO3/NO2 Nitrate-Nitrite Nitrogen by FIA	Melbourne	Apr 20, 2018	28 Day
Nitrate (as N) - Method: APHA 4500-NO3 Nitrate Nitrogen by FIA	Melbourne	Apr 20, 2018	28 Day
Nitrite (as N) - Method: APHA 4500-NO2 Nitrite Nitrogen by FIA	Melbourne	Apr 20, 2018	2 Day
Phosphate total (as P) - Method: APHA 4500-P E. Phosphorous	Melbourne	Apr 20, 2018	28 Day
Phosphorus reactive (as P) - Method: APHA4500-PO4	Melbourne	Apr 20, 2018	2 Day
Total Kjeldahl Nitrogen (as N) - Method: LTM-INO-4310 TKN in Waters & Soils by FIA	Melbourne	Apr 20, 2018	7 Day
Carbon Dioxide (free) - Method: APHA 4500-CO2 C. Free Carbon Dioxide by Titration	Melbourne	Apr 20, 2018	24 Hours
Conductivity (at 25°C) - Method: LTM-INO-4030 Conductivity	Melbourne	Apr 20, 2018	28 Day
pH (at 25°C) - Method: LTM-GEN-7090 pH in water by ISE	Melbourne	Apr 20, 2018	0 Hours
Total Dissolved Solids - Method: LTM-INO-4170 Total Dissolved Solids in Water	Melbourne	Apr 20, 2018	7 Day
Total Organic Carbon - Method: APHA 5310B Total Organic Carbon	Melbourne	Apr 23, 2018	28 Day
Alkalinity (speciated) - Method: APHA 2320 Alkalinity by Titration	Melbourne	Apr 20, 2018	14 Day
NEPM 2013 Filtered Metals without Cr6+ (As, Be, B, Cd, Co, Cr, Cu, Hg, Pb, Ni, Mn, Se, Zn) - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Melbourne	Apr 20, 2018	28 Day
Eurofins mgt Suite B11			
Chloride - Method: LTM-INO-4090 Chloride by Discrete Analyser	Melbourne	Apr 20, 2018	28 Day
Sulphate (as SO4) - Method: LTM-INO-4110 Sulfate by Discrete Analyser	Melbourne	Apr 20, 2018	28 Day
Alkali Metals - Method: USEPA 6010 Alkali Metals	Melbourne	Apr 20, 2018	180 Day



GHD
180 Latrobe Street, Melbourne VIC 3000

Tel: (03) 8687 8000

CHAIN OF CUSTODY

Page 1

of 1

Golder Job Number: 31/35006/0813 Job Location: Bulleen, VIC 3105 Laboratory Issued To: Eurofins MGT Order No.: Sampled By: M. Moore and L. Spurr Job Contact: Matthew Moore (0490 784 218), Tim Anderson (03 8687 8203) Contact Email: matthew.moore5@ghd.com timothy.anderson@ghd.com						Major Ions	Major Cations	Nutrients	Physico-Chemical Parameters (pH, EC, TDS, TOC)	MEPM Metals Suite	TRH C6 - C40	BTEXN	PAH	Phenols	OC / OP / PCB	VOCs / SVOCs	PFAS suite	Free CO2	Alkalinity (Hydroxide as CaCO3, Total as CaCO3, bicarbonate alkalinity as CaCO3)	HOLD				
# OBSERVATIONS	SAMPLE DATE	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DEPTH (m)	No. OF CONTAINERS																			
	17.04.2018	NEL-BH078 / 170418	WATER	-	4	X	X	X	X	X														
	17.04.2018	NEL-BH076 A / 170418	WATER	-	4	X	X	X	X	X														
	17.04.2018	NEL-BH076 / 170418	WATER	-	4	X	X	X	X	X														
	17.04.2018	NEL-BH071 / 170418	WATER	-	4	X	X	X	X	X														
	17.04.2018	RB02 / 170418	RB	-	4	X	X	X	X	X														

Special Instructions:

As per quote #180206GHDV, dated 6 February 2018

<input type="checkbox"/> 1 Working Day <input type="checkbox"/> 2 Working Days <input type="checkbox"/> 3 Working Days <input type="checkbox"/> 4 Working Days <input checked="" type="checkbox"/> 5 Working Days (standard) Other:				TURN AROUND TIME REQUIRED			
Relinquished by: Matthew Moore Organisation: GHD		Date: 18.04.2018 Time: 9:00		Received by: D JONES Organisation: Eurofins		Date: 18/4/18 Time: 1:28 pm	
Relinquished by: Matthew Moore Organisation: GHD		Date: 18.04.2018 Time: 9:00		Received by:		Date:	
RECEIVING LABORATORY TO CONFIRM RECEIPT OF ANALYTICAL SCHEDULE BY EMAIL TO: matthew.moore5@ghd.com							

Checked By: Date:

Report # 594757

Sample Receipt Advice

Company name: **GHD Pty Ltd VIC**
Contact name: **Matthew Moore**
Project name: **BULLEEN VIC 3105**
Project ID: **31/35006/0813**
COC number: **Not provided**
Turn around time: **5 Day**
Date/Time received: **Apr 18, 2018 1:28 PM**
Eurofins | mgt reference: **594757**

Sample information

- ☒ A detailed list of analytes logged into our LIMS, is included in the attached summary table.
- ☒ All samples have been received as described on the above COC.
- ☒ COC has been completed correctly.
- ☒ Attempt to chill was evident.
- ☒ Appropriately preserved sample containers have been used.
- ☒ All samples were received in good condition.
- ☒ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
- ☒ Appropriate sample containers have been used.
- ☒ Sample containers for volatile analysis received with zero headspace.
- ☐ Split sample sent to requested external lab.
- ☐ Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

Contact notes

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

Mary Makarios on Phone : +61 3 8564 5000 or by e.mail: MaryMakarios@eurofins.com

Results will be delivered electronically via e.mail to Matthew Moore - matthew.moore5@ghd.com.

Company Name: GHD Pty Ltd VIC
Address: Level 8, 180 Lonsdale St
Melbourne
VIC 3000

Project Name: BULLEEN VIC 3105
Project ID: 31/35006/0813

Order No.:
Report #: 594757
Phone: 8687 8000
Fax: 8687 8111

Received: Apr 18, 2018 1:28 PM
Due: Apr 26, 2018
Priority: 5 Day
Contact Name: Matthew Moore

Eurofins | mgt Analytical Services Manager : Mary Makarios

Sample Detail						Carbon Dioxide (free)	Conductivity (at 25°C)	pH (at 25°C)	Total Dissolved Solids	Total Organic Carbon	Alkalinity (speciated)	Eurofins mgt Suite B11	Eurofins mgt Suite B19E: Total N, TKN, NOx, NO2, NO3, NH3, Total P, Reactive P	NEPM 2013 Filtered Metals without Cr6+ (As, Be, B, Cd, Co, Cr, Cu, Hg, Pb, Ni, Mn,
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217														
Brisbane Laboratory - NATA Site # 20794														
Perth Laboratory - NATA Site # 23736														
External Laboratory														
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID									
1	NEL-BH078/170418	Apr 17, 2018		Water	M18-Ap22347	X	X	X	X	X	X	X	X	X
2	NEL-BH076A/170418	Apr 17, 2018		Water	M18-Ap22348	X	X	X	X	X	X	X	X	X
3	NEL-BH076/170418	Apr 17, 2018		Water	M18-Ap22349	X	X	X	X	X	X	X	X	X
4	NEL-BH071/170418	Apr 17, 2018		Water	M18-Ap22350	X	X	X	X	X	X	X	X	X
5	RB02/170418	Apr 17, 2018		Water	M18-Ap22351		X	X	X	X		X	X	X
Test Counts						4	5	5	5	5	4	5	5	5

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	Quality Systems Manual ver 5.1 US Department of Defense
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.1 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " - " in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Ammonia (as N)	mg/L	< 0.01			0.01	Pass	
Chloride	mg/L	< 1			1	Pass	
Nitrate & Nitrite (as N)	mg/L	< 0.05			0.05	Pass	
Nitrate (as N)	mg/L	< 0.02			0.02	Pass	
Nitrite (as N)	mg/L	< 0.02			0.02	Pass	
Phosphate total (as P)	mg/L	< 0.05			0.05	Pass	
Phosphorus reactive (as P)	mg/L	< 0.05			0.05	Pass	
Sulphate (as SO ₄)	mg/L	< 5			5	Pass	
Total Dissolved Solids	mg/L	< 10			10	Pass	
Total Kjeldahl Nitrogen (as N)	mg/L	< 0.2			0.2	Pass	
Total Organic Carbon	mg/L	< 5			5	Pass	
Method Blank							
Alkalinity (speciated)							
Bicarbonate Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Carbonate Alkalinity (as CaCO ₃)	mg/L	< 10			10	Pass	
Hydroxide Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Total Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Method Blank							
Alkali Metals							
Calcium	mg/L	< 0.5			0.5	Pass	
Magnesium	mg/L	< 0.5			0.5	Pass	
Potassium	mg/L	< 0.5			0.5	Pass	
Sodium	mg/L	< 0.5			0.5	Pass	
Method Blank							
Heavy Metals							
Arsenic (filtered)	mg/L	< 0.001			0.001	Pass	
Beryllium (filtered)	mg/L	< 0.001			0.001	Pass	
Boron (filtered)	mg/L	< 0.05			0.05	Pass	
Cadmium (filtered)	mg/L	< 0.0002			0.0002	Pass	
Chromium (filtered)	mg/L	< 0.001			0.001	Pass	
Cobalt (filtered)	mg/L	< 0.001			0.001	Pass	
Copper (filtered)	mg/L	< 0.001			0.001	Pass	
Lead (filtered)	mg/L	< 0.001			0.001	Pass	
Manganese (filtered)	mg/L	< 0.005			0.005	Pass	
Mercury (filtered)	mg/L	< 0.0001			0.0001	Pass	
Nickel (filtered)	mg/L	< 0.001			0.001	Pass	
Selenium (filtered)	mg/L	< 0.001			0.001	Pass	
Zinc (filtered)	mg/L	< 0.005			0.005	Pass	
LCS - % Recovery							
Ammonia (as N)	%	93			70-130	Pass	
Chloride	%	119			70-130	Pass	
Nitrate & Nitrite (as N)	%	92			70-130	Pass	
Nitrate (as N)	%	88			70-130	Pass	
Nitrite (as N)	%	101			70-130	Pass	
Phosphate total (as P)	%	93			70-130	Pass	
Phosphorus reactive (as P)	%	113			70-130	Pass	
Sulphate (as SO ₄)	%	103			70-130	Pass	
Total Dissolved Solids	%	98			70-130	Pass	
Total Kjeldahl Nitrogen (as N)	%	98			70-130	Pass	
Total Organic Carbon	%	99			70-130	Pass	
LCS - % Recovery							

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Alkalinity (speciated)									
Carbonate Alkalinity (as CaCO ₃)			%	89			70-130	Pass	
Total Alkalinity (as CaCO ₃)			%	94			70-130	Pass	
LCS - % Recovery									
Alkali Metals									
Calcium			%	95			70-130	Pass	
Magnesium			%	105			70-130	Pass	
Potassium			%	89			70-130	Pass	
Sodium			%	100			70-130	Pass	
LCS - % Recovery									
Heavy Metals									
Arsenic (filtered)			%	112			80-120	Pass	
Boron (filtered)			%	115			80-120	Pass	
Cadmium (filtered)			%	93			80-120	Pass	
Chromium (filtered)			%	102			80-120	Pass	
Cobalt (filtered)			%	110			80-120	Pass	
Copper (filtered)			%	106			80-120	Pass	
Lead (filtered)			%	106			80-120	Pass	
Manganese (filtered)			%	112			80-120	Pass	
Mercury (filtered)			%	93			70-130	Pass	
Nickel (filtered)			%	107			80-120	Pass	
Selenium (filtered)			%	101			80-120	Pass	
Zinc (filtered)			%	112			80-120	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
				Result 1					
Ammonia (as N)	S18-Ap26355	NCP	%	89			70-130	Pass	
Chloride	M18-Ap22030	NCP	%	97			70-130	Pass	
Nitrate & Nitrite (as N)	S18-Ap26355	NCP	%	89			70-130	Pass	
Nitrate (as N)	S18-Ap26355	NCP	%	89			70-130	Pass	
Nitrite (as N)	S18-Ap26355	NCP	%	106			70-130	Pass	
Phosphorus reactive (as P)	P18-Ap22548	NCP	%	74			70-130	Pass	
Sulphate (as SO ₄)	M18-Ap22029	NCP	%	96			70-130	Pass	
Spike - % Recovery									
				Result 1					
Bicarbonate Alkalinity (as CaCO ₃)	M18-Ap22444	NCP	%	98			70-130	Pass	
Carbonate Alkalinity (as CaCO ₃)	M18-Ap23238	NCP	%	81			70-130	Pass	
Total Alkalinity (as CaCO ₃)	P18-Ap22542	NCP	%	84			70-130	Pass	
Spike - % Recovery									
				Result 1					
Arsenic (filtered)	M18-Ap22446	NCP	%	117			70-130	Pass	
Beryllium (filtered)	M18-Ap22446	NCP	%	115			75-125	Pass	
Boron (filtered)	M18-Ap22446	NCP	%	114			75-125	Pass	
Cadmium (filtered)	M18-Ap22446	NCP	%	99			70-130	Pass	
Chromium (filtered)	M18-Ap22446	NCP	%	104			70-130	Pass	
Cobalt (filtered)	M18-Ap22446	NCP	%	112			75-125	Pass	
Copper (filtered)	M18-Ap22446	NCP	%	109			70-130	Pass	
Lead (filtered)	M18-Ap22446	NCP	%	109			70-130	Pass	
Manganese (filtered)	M18-Ap22446	NCP	%	115			70-130	Pass	
Mercury (filtered)	M18-Ap25493	NCP	%	88			70-130	Pass	
Nickel (filtered)	M18-Ap22446	NCP	%	114			70-130	Pass	
Selenium (filtered)	M18-Ap22446	NCP	%	111			70-130	Pass	
Zinc (filtered)	M18-Ap22446	NCP	%	117			70-130	Pass	
Spike - % Recovery									

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Alkali Metals				Result 1					
Calcium	M18-Ap22350	CP	%	107			70-130	Pass	
Magnesium	M18-Ap22350	CP	%	113			70-130	Pass	
Potassium	M18-Ap22350	CP	%	95			70-130	Pass	
Sodium	M18-Ap22350	CP	%	116			70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
				Result 1	Result 2	RPD			
Ammonia (as N)	S18-Ap26355	NCP	mg/L	2.2	2.2	1.0	30%	Pass	
Carbon Dioxide (free)	M18-Ap24317	NCP	mg/L	**	75	22	30%	Pass	
Chloride	M18-Ap22347	CP	mg/L	2500	2500	<1	30%	Pass	
Conductivity (at 25°C)	M18-Ap22347	CP	uS/cm	8100	8300	2.0	30%	Pass	
Nitrate & Nitrite (as N)	S18-Ap26355	NCP	mg/L	0.76	0.80	6.0	30%	Pass	
Nitrate (as N)	S18-Ap26355	NCP	mg/L	0.64	0.70	9.0	30%	Pass	
Nitrite (as N)	S18-Ap26355	NCP	mg/L	0.12	0.11	13	30%	Pass	
pH (at 25°C)	M18-Ap22347	CP	pH Units	7.3	7.4	pass	30%	Pass	
Phosphorus reactive (as P)	P18-Ap22547	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
Sulphate (as SO ₄)	M18-Ap22347	CP	mg/L	270	290	4.0	30%	Pass	
Total Dissolved Solids	M18-Ap22347	CP	mg/L	4300	3900	10	30%	Pass	
Total Kjeldahl Nitrogen (as N)	M18-Ap22044	NCP	mg/L	< 0.2	< 0.2	<1	30%	Pass	
Duplicate									
Alkalinity (speciated)				Result 1	Result 2	RPD			
Bicarbonate Alkalinity (as CaCO ₃)	M18-Ap22347	CP	mg/L	500	470	6.0	30%	Pass	
Carbonate Alkalinity (as CaCO ₃)	M18-Ap22347	CP	mg/L	< 10	< 10	<1	30%	Pass	
Hydroxide Alkalinity (as CaCO ₃)	M18-Ap22347	CP	mg/L	< 20	< 20	<1	30%	Pass	
Total Alkalinity (as CaCO ₃)	M18-Ap22347	CP	mg/L	500	470	6.0	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic (filtered)	M18-Ap22446	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Beryllium (filtered)	M18-Ap22446	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Boron (filtered)	M18-Ap22446	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
Cadmium (filtered)	M18-Ap22446	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium (filtered)	M18-Ap22446	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cobalt (filtered)	M18-Ap22446	NCP	mg/L	0.003	0.003	1.0	30%	Pass	
Copper (filtered)	M18-Ap22446	NCP	mg/L	0.017	0.017	3.0	30%	Pass	
Lead (filtered)	M18-Ap22446	NCP	mg/L	0.001	0.001	1.0	30%	Pass	
Manganese (filtered)	M18-Ap22446	NCP	mg/L	0.006	0.006	6.0	30%	Pass	
Mercury (filtered)	M18-Ap22446	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel (filtered)	M18-Ap22446	NCP	mg/L	0.12	0.12	3.0	30%	Pass	
Selenium (filtered)	M18-Ap22446	NCP	mg/L	0.002	0.002	13	30%	Pass	
Zinc (filtered)	M18-Ap22446	NCP	mg/L	0.057	0.058	3.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Phosphate total (as P)	M18-Ap22349	CP	mg/L	2.2	2.6	18	30%	Pass	
Total Organic Carbon	M18-Ap22349	CP	mg/L	31	30	5.0	30%	Pass	
Duplicate									
Alkali Metals				Result 1	Result 2	RPD			
Calcium	M18-Ap22350	CP	mg/L	90	87	4.0	30%	Pass	
Magnesium	M18-Ap22350	CP	mg/L	220	210	3.0	30%	Pass	
Potassium	M18-Ap22350	CP	mg/L	7.3	7.4	1.0	30%	Pass	
Sodium	M18-Ap22350	CP	mg/L	1500	1500	3.0	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

Authorised By

Mary Makarios	Analytical Services Manager
Alex Petridis	Senior Analyst-Metal (VIC)
Michael Brancati	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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CERTIFICATE OF ANALYSIS

Work Order : **EM1806408**
Client : **GHD PTY LTD**
Contact : **MR MATTHEW MOORE**
Address : **LEVEL 8, 180 LONSDALE ST**
MELBOURNE VIC, AUSTRALIA 3001
Telephone : **----**
Project : **31350060813**
Order number : **----**
C-O-C number : **----**
Sampler : **LS, MM**
Site : **Bulleen, VIC 3105**
Quote number : **ME/124/18 - North East Link**
No. of samples received : **4**
No. of samples analysed : **4**

Page : 1 of 2
Laboratory : Environmental Division Melbourne
Contact : Shirley LeCornu
Address : 4 Westall Rd Springvale VIC Australia 3171
Telephone : +61-3-8549 9630
Date Samples Received : 18-Apr-2018 12:20
Date Analysis Commenced : 02-May-2018
Issue Date : 02-May-2018 09:46



Accreditation No. 825
 Accredited for compliance with
 ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Samantha Smith	Laboratory Coordinator	WRG Subcontracting, Springvale, VIC



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
 LOR = Limit of reporting
 ^ = This result is computed from individual analyte detections at or above the level of reporting
 ø = ALS is not NATA accredited for these tests.
 ~ = Indicates an estimated value.

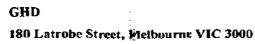
- SRB (MM669) is conducted by ALS Scoresby NATA accreditation no. 992, site no. 989. NATA accreditation does not cover performance of this method.

Analytical Results

Sub-Matrix: **WATER**
 (Matrix: **WATER**)

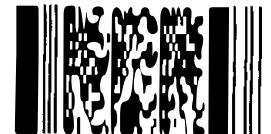
Client sample ID

				NEL-BH078 / 170418	NEL-BH076 A / 170418	NEL-BH076 / 170418	NEL-BH071 / 170418	----
Client sampling date / time				17-Apr-2018 00:00	17-Apr-2018 00:00	17-Apr-2018 00:00	17-Apr-2018 00:00	----
Compound	CAS Number	LOR	Unit	EM1806408-001	EM1806408-002	EM1806408-003	EM1806408-004	-----
				Result	Result	Result	Result	----
MM669: Sulphate Reducing Bacteria								
Sulphate Reducing Bacteria Population Estimate	----	20	pac/mL	27000	6000	<20	6000	----
Aggressivity	----	1	-	High	High	Low	High	----



CHAIN OF CUSTODY

Environmental Division
Melbourne
Work Order Reference
EM1806408



Telephone : + 61-3-8549 9600

Special Instructions:									
TURN AROUND TIME REQUIRED									
<input type="checkbox"/> 1 Working Day	<input type="checkbox"/> 2 Working Days	<input type="checkbox"/> 3 Working Days	<input type="checkbox"/> 4 Working Days	<input checked="" type="checkbox"/> 5 Working Days (standard)	Other _____				
SAMPLE RECEIPT									
Relinquished by: Matthew Moore	Date: 18.04.2018	Received by: <i>PC</i>	Date: 18/4/18	DELIVERED BY: COURIER/LAB <input checked="" type="checkbox"/>	SAMPLE STATUS: <input checked="" type="checkbox"/> Security Sealed				
Organisation: GHD	Time: 9:00	Organisation: _____	Time: 12:20	GHD <input type="checkbox"/>	<input checked="" type="checkbox"/> Chilled				
ANALYTICAL SCHEDULE									
Relinquished by: Matthew Moore	Date: 18.04.2018	Received by: _____	Date: _____	RECEIVED BY: _____	<input type="checkbox"/> Frozen				
Organisation: GHD	Time: 9:00	Organisation: _____	Time: _____	FAX <input type="checkbox"/>	<input type="checkbox"/> Ambient				
RECEIVING LABORATORY TO CONFIRM RECEIPT OF ANALYTICAL SCHEDULE BY EMAIL TO: matthew.moore@ghd.com									

Checked By: _____ Date: _____

QUALITY CONTROL REPORT

Work Order	: EM1806408	Page	: 1 of 3
Client	: GHD PTY LTD	Laboratory	: Environmental Division Melbourne
Contact	: MR MATTHEW MOORE	Contact	: Shirley LeCornu
Address	: LEVEL 8, 180 LONSDALE ST MELBOURNE VIC, AUSTRALIA 3001	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +61-3-8549 9630
Project	: 31350060813	Date Samples Received	: 18-Apr-2018
Order number	: ----	Date Analysis Commenced	: 02-May-2018
C-O-C number	: ----	Issue Date	: 02-May-2018
Sampler	: LS, MM		
Site	: Bulleen, VIC 3105		
Quote number	: ME/124/18 - North East Link		
No. of samples received	: 4		
No. of samples analysed	: 4		



This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Samantha Smith	Laboratory Coordinator	WRG Subcontracting, Springvale, VIC



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
 CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
 LOR = Limit of reporting
 RPD = Relative Percentage Difference
 # = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

- **No Laboratory Duplicate (DUP) Results are required to be reported.**



Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

- **No Method Blank (MB) or Laboratory Control Spike (LCS) Results are required to be reported.**

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**
-

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: EM1806408	Page	: 1 of 4
Client	: GHD PTY LTD	Laboratory	: Environmental Division Melbourne
Contact	: MR MATTHEW MOORE	Telephone	: +61-3-8549 9630
Project	: 31350060813	Date Samples Received	: 18-Apr-2018
Site	: Bulleen, VIC 3105	Issue Date	: 02-May-2018
Sampler	: LS, MM	No. of samples received	: 4
Order number	: ----	No. of samples analysed	: 4

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO** Method Blank value outliers occur.
- **NO** Duplicate outliers occur.
- **NO** Laboratory Control outliers occur.
- **NO** Matrix Spike outliers occur.
- For all regular sample matrices, **NO** surrogate recovery outliers occur.

Outliers : Analysis Holding Time Compliance

- **NO** Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- **NO** Quality Control Sample Frequency Outliers exist.



Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix:

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation



Quality Control Parameter Frequency Compliance

- No Quality Control data available for this section.



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Sulphate Reducing Bacteria (BART)	MM669	WATER	Specialist microbiological analysis subcontracted to ALS Scoresby (NATA accreditation does not cover this service).

Certificate of Analysis

GHD Melbourne
 Level 8, 180 Lonsdale St
 Melbourne
 VIC 3000



NATA Accredited
 Accreditation Number 1261
 Site Number 1254

Accredited for compliance with ISO/IEC 17025 – Testing
 The results of the tests, calibrations and/or
 measurements included in this document are traceable
 to Australian/national standards.

Attention: **Matthew Moore**

Report **594938-W**
 Project name BULLEEN VIC 3105
 Project ID 31/35006/0813
 Received Date Apr 19, 2018

Client Sample ID			NEL-BH140/180418 Water M18-Ap23578 Apr 18, 2018	NEL-BH039/180418 Water M18-Ap23579 Apr 18, 2018	QC1/180418 Water M18-Ap23580 Apr 18, 2018	RB03/180418 Water M18-Ap23581 Apr 18, 2018
Sample Matrix						
Eurofins mgt Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	0.02	mg/L	-	< 0.02	< 0.02	-
TRH C10-C14	0.05	mg/L	-	< 0.05	< 0.05	-
TRH C15-C28	0.1	mg/L	-	< 0.1	< 0.1	-
TRH C29-C36	0.1	mg/L	-	< 0.1	< 0.1	-
TRH C10-36 (Total)	0.1	mg/L	-	< 0.1	< 0.1	-
BTEX						
Benzene	0.001	mg/L	-	< 0.001	< 0.001	-
Toluene	0.001	mg/L	-	< 0.001	< 0.001	-
Ethylbenzene	0.001	mg/L	-	< 0.001	< 0.001	-
m&p-Xylenes	0.002	mg/L	-	< 0.002	< 0.002	-
o-Xylene	0.001	mg/L	-	< 0.001	< 0.001	-
Xylenes - Total	0.003	mg/L	-	< 0.003	< 0.003	-
4-Bromofluorobenzene (surr.)	1	%	-	113	115	-
Volatile Organics						
1.1-Dichloroethane	0.001	mg/L	-	< 0.001	< 0.001	-
1.1-Dichloroethene	0.001	mg/L	-	< 0.001	< 0.001	-
1.1.1-Trichloroethane	0.001	mg/L	-	< 0.001	< 0.001	-
1.1.1.2-Tetrachloroethane	0.001	mg/L	-	< 0.001	< 0.001	-
1.1.2-Trichloroethane	0.001	mg/L	-	< 0.001	< 0.001	-
1.1.2.2-Tetrachloroethane	0.001	mg/L	-	< 0.001	< 0.001	-
1.2-Dibromoethane	0.001	mg/L	-	< 0.001	< 0.001	-
1.2-Dichlorobenzene	0.001	mg/L	-	< 0.001	< 0.001	-
1.2-Dichloroethane	0.001	mg/L	-	< 0.001	< 0.001	-
1.2-Dichloropropane	0.001	mg/L	-	< 0.001	< 0.001	-
1.2.3-Trichloropropane	0.001	mg/L	-	< 0.001	< 0.001	-
1.2.4-Trimethylbenzene	0.001	mg/L	-	< 0.001	< 0.001	-
1.3-Dichlorobenzene	0.001	mg/L	-	< 0.001	< 0.001	-
1.3-Dichloropropane	0.001	mg/L	-	< 0.001	< 0.001	-
1.3.5-Trimethylbenzene	0.001	mg/L	-	< 0.001	< 0.001	-
1.4-Dichlorobenzene	0.001	mg/L	-	< 0.001	< 0.001	-
2-Butanone (MEK)	0.001	mg/L	-	< 0.001	< 0.001	-
2-Propanone (Acetone)	0.001	mg/L	-	< 0.001	< 0.001	-
4-Chlorotoluene	0.001	mg/L	-	< 0.001	< 0.001	-
4-Methyl-2-pentanone (MIBK)	0.001	mg/L	-	< 0.001	< 0.001	-
Allyl chloride	0.001	mg/L	-	< 0.001	< 0.001	-

Client Sample ID			NEL-BH140/180418 Water	NEL-BH039/180418 Water	QC1/180418 Water	RB03/180418 Water
Sample Matrix			M18-Ap23578	M18-Ap23579	M18-Ap23580	M18-Ap23581
Eurofins mgt Sample No.			Apr 18, 2018	Apr 18, 2018	Apr 18, 2018	Apr 18, 2018
Date Sampled						
Test/Reference	LOR	Unit				
Volatile Organics						
Benzene	0.001	mg/L	-	< 0.001	< 0.001	-
Bromobenzene	0.001	mg/L	-	< 0.001	< 0.001	-
Bromochloromethane	0.001	mg/L	-	< 0.001	< 0.001	-
Bromodichloromethane	0.001	mg/L	-	< 0.001	< 0.001	-
Bromoform	0.001	mg/L	-	< 0.001	< 0.001	-
Bromomethane	0.001	mg/L	-	< 0.001	< 0.001	-
Carbon disulfide	0.001	mg/L	-	< 0.001	< 0.001	-
Carbon Tetrachloride	0.001	mg/L	-	< 0.001	< 0.001	-
Chlorobenzene	0.001	mg/L	-	< 0.001	< 0.001	-
Chloroethane	0.001	mg/L	-	< 0.001	< 0.001	-
Chloroform	0.005	mg/L	-	< 0.005	< 0.005	-
Chloromethane	0.001	mg/L	-	< 0.001	< 0.001	-
cis-1.2-Dichloroethene	0.001	mg/L	-	< 0.001	< 0.001	-
cis-1.3-Dichloropropene	0.001	mg/L	-	< 0.001	< 0.001	-
Dibromochloromethane	0.001	mg/L	-	< 0.001	< 0.001	-
Dibromomethane	0.001	mg/L	-	< 0.001	< 0.001	-
Dichlorodifluoromethane	0.001	mg/L	-	< 0.001	< 0.001	-
Ethylbenzene	0.001	mg/L	-	< 0.001	< 0.001	-
Iodomethane	0.001	mg/L	-	< 0.001	< 0.001	-
Isopropyl benzene (Cumene)	0.001	mg/L	-	< 0.001	< 0.001	-
m&p-Xylenes	0.002	mg/L	-	< 0.002	< 0.002	-
Methylene Chloride	0.001	mg/L	-	< 0.001	< 0.001	-
o-Xylene	0.001	mg/L	-	< 0.001	< 0.001	-
Styrene	0.001	mg/L	-	< 0.001	< 0.001	-
Tetrachloroethene	0.001	mg/L	-	< 0.001	< 0.001	-
Toluene	0.001	mg/L	-	< 0.001	< 0.001	-
trans-1.2-Dichloroethene	0.001	mg/L	-	< 0.001	< 0.001	-
trans-1.3-Dichloropropene	0.001	mg/L	-	< 0.001	< 0.001	-
Trichloroethene	0.001	mg/L	-	< 0.001	< 0.001	-
Trichlorofluoromethane	0.001	mg/L	-	< 0.001	< 0.001	-
Vinyl chloride	0.001	mg/L	-	< 0.001	< 0.001	-
Xylenes - Total	0.003	mg/L	-	< 0.003	< 0.003	-
Total MAH*	0.003	mg/L	-	< 0.003	< 0.003	-
Vic EPA IWRG 621 CHC (Total)*	0.005	mg/L	-	< 0.005	< 0.005	-
Vic EPA IWRG 621 Other CHC (Total)*	0.005	mg/L	-	< 0.005	< 0.005	-
4-Bromofluorobenzene (surr.)	1	%	-	113	115	-
Toluene-d8 (surr.)	1	%	-	101	105	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.01	mg/L	-	< 0.01	< 0.01	-
TRH C6-C10	0.02	mg/L	-	< 0.02	< 0.02	-
TRH C6-C10 less BTEX (F1) ^{N04}	0.02	mg/L	-	< 0.02	< 0.02	-
TRH >C10-C16	0.05	mg/L	-	< 0.05	< 0.05	-
TRH >C10-C16 less Naphthalene (F2) ^{N01}	0.05	mg/L	-	< 0.05	< 0.05	-
TRH >C16-C34	0.1	mg/L	-	< 0.1	< 0.1	-
TRH >C34-C40	0.1	mg/L	-	< 0.1	< 0.1	-

Client Sample ID			NEL-BH140/180418 Water M18-Ap23578 Apr 18, 2018	NEL-BH039/180418 Water M18-Ap23579 Apr 18, 2018	QC1/180418 Water M18-Ap23580 Apr 18, 2018	RB03/180418 Water M18-Ap23581 Apr 18, 2018
Sample Matrix						
Eurofins mgt Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.001	mg/L	-	< 0.01	< 0.01	-
Acenaphthylene	0.001	mg/L	-	< 0.01	< 0.01	-
Anthracene	0.001	mg/L	-	< 0.001	< 0.001	-
Benz(a)anthracene	0.001	mg/L	-	< 0.001	< 0.001	-
Benzo(a)pyrene	0.001	mg/L	-	< 0.001	< 0.001	-
Benzo(b&j)fluoranthene ^{N07}	0.001	mg/L	-	< 0.001	< 0.001	-
Benzo(g,h,i)perylene	0.001	mg/L	-	< 0.001	< 0.001	-
Benzo(k)fluoranthene	0.001	mg/L	-	< 0.001	< 0.001	-
Chrysene	0.001	mg/L	-	< 0.001	< 0.001	-
Dibenz(a,h)anthracene	0.001	mg/L	-	< 0.001	< 0.001	-
Fluoranthene	0.001	mg/L	-	< 0.001	< 0.001	-
Fluorene	0.001	mg/L	-	< 0.01	< 0.01	-
Indeno(1.2.3-cd)pyrene	0.001	mg/L	-	< 0.001	< 0.001	-
Naphthalene	0.001	mg/L	-	< 0.001	< 0.001	-
Phenanthrene	0.001	mg/L	-	< 0.001	< 0.001	-
Pyrene	0.001	mg/L	-	< 0.001	< 0.001	-
Total PAH*	0.001	mg/L	-	< 0.01	< 0.01	-
2-Fluorobiphenyl (surr.)	1	%	-	64	56	-
p-Terphenyl-d14 (surr.)	1	%	-	71	58	-
Organochlorine Pesticides						
Chlordanes - Total	0.001	mg/L	-	< 0.001	< 0.001	-
4,4'-DDD	0.0001	mg/L	-	< 0.0001	< 0.0001	-
4,4'-DDE	0.0001	mg/L	-	< 0.0001	< 0.0001	-
4,4'-DDT	0.0001	mg/L	-	< 0.0001	< 0.0001	-
a-BHC	0.0001	mg/L	-	< 0.0001	< 0.0001	-
Aldrin	0.0001	mg/L	-	< 0.0001	< 0.0001	-
b-BHC	0.0001	mg/L	-	< 0.0001	< 0.0001	-
d-BHC	0.0001	mg/L	-	< 0.0001	< 0.0001	-
Dieldrin	0.0001	mg/L	-	< 0.0001	< 0.0001	-
Endosulfan I	0.0001	mg/L	-	< 0.0001	< 0.0001	-
Endosulfan II	0.0001	mg/L	-	< 0.0001	< 0.0001	-
Endosulfan sulphate	0.0001	mg/L	-	< 0.0001	< 0.0001	-
Endrin	0.0001	mg/L	-	< 0.0001	< 0.0001	-
Endrin aldehyde	0.0001	mg/L	-	< 0.0001	< 0.0001	-
Endrin ketone	0.0001	mg/L	-	< 0.0001	< 0.0001	-
g-BHC (Lindane)	0.0001	mg/L	-	< 0.0001	< 0.0001	-
Heptachlor	0.0001	mg/L	-	< 0.0001	< 0.0001	-
Heptachlor epoxide	0.0001	mg/L	-	< 0.0001	< 0.0001	-
Hexachlorobenzene	0.0001	mg/L	-	< 0.0001	< 0.0001	-
Methoxychlor	0.0001	mg/L	-	< 0.0001	< 0.0001	-
Toxaphene	0.01	mg/L	-	< 0.01	< 0.01	-
Aldrin and Dieldrin (Total)*	0.0001	mg/L	-	< 0.0001	< 0.0001	-
DDT + DDE + DDD (Total)*	0.0001	mg/L	-	< 0.0001	< 0.0001	-
Vic EPA IWRG 621 OCP (Total)*	0.001	mg/L	-	< 0.001	< 0.001	-
Vic EPA IWRG 621 Other OCP (Total)*	0.001	mg/L	-	< 0.001	< 0.001	-
Dibutylchloroendate (surr.)	1	%	-	121	90	-
Tetrachloro-m-xylene (surr.)	1	%	-	116	97	-

Client Sample ID			NEL-BH140/180418 Water M18-Ap23578 Apr 18, 2018	NEL-BH039/180418 Water M18-Ap23579 Apr 18, 2018	QC1/180418 Water M18-Ap23580 Apr 18, 2018	RB03/180418 Water M18-Ap23581 Apr 18, 2018
Sample Matrix						
Eurofins mgt Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Azinphos-methyl	0.002	mg/L	-	< 0.002	< 0.002	-
Bolstar	0.002	mg/L	-	< 0.002	< 0.002	-
Chlorfenvinphos	0.002	mg/L	-	< 0.002	< 0.002	-
Chlorpyrifos	0.02	mg/L	-	< 0.02	< 0.02	-
Chlorpyrifos-methyl	0.002	mg/L	-	< 0.002	< 0.002	-
Coumaphos	0.02	mg/L	-	< 0.02	< 0.02	-
Demeton-S	0.02	mg/L	-	< 0.02	< 0.02	-
Demeton-O	0.002	mg/L	-	< 0.002	< 0.002	-
Diazinon	0.002	mg/L	-	< 0.002	< 0.002	-
Dichlorvos	0.002	mg/L	-	< 0.002	< 0.002	-
Dimethoate	0.002	mg/L	-	< 0.002	< 0.002	-
Disulfoton	0.002	mg/L	-	< 0.002	< 0.002	-
EPN	0.002	mg/L	-	< 0.002	< 0.002	-
Ethion	0.002	mg/L	-	< 0.002	< 0.002	-
Ethoprop	0.002	mg/L	-	< 0.002	< 0.002	-
Ethyl parathion	0.002	mg/L	-	< 0.002	< 0.002	-
Fenitrothion	0.002	mg/L	-	< 0.002	< 0.002	-
Fensulfothion	0.002	mg/L	-	< 0.002	< 0.002	-
Fenthion	0.002	mg/L	-	< 0.002	< 0.002	-
Malathion	0.002	mg/L	-	< 0.002	< 0.002	-
Merphos	0.002	mg/L	-	< 0.002	< 0.002	-
Methyl parathion	0.002	mg/L	-	< 0.002	< 0.002	-
Mevinphos	0.002	mg/L	-	< 0.002	< 0.002	-
Monocrotophos	0.002	mg/L	-	< 0.002	< 0.002	-
Naled	0.002	mg/L	-	< 0.002	< 0.002	-
Omethoate	0.002	mg/L	-	< 0.002	< 0.002	-
Phorate	0.002	mg/L	-	< 0.002	< 0.002	-
Pirimiphos-methyl	0.02	mg/L	-	< 0.02	< 0.02	-
Pyrazophos	0.002	mg/L	-	< 0.002	< 0.002	-
Ronnel	0.002	mg/L	-	< 0.002	< 0.002	-
Terbufos	0.002	mg/L	-	< 0.002	< 0.002	-
Tetrachlorvinphos	0.002	mg/L	-	< 0.002	< 0.002	-
Tokuthion	0.002	mg/L	-	< 0.002	< 0.002	-
Trichloronate	0.002	mg/L	-	< 0.002	< 0.002	-
Triphenylphosphate (surr.)	1	%	-	121	57	-
Polychlorinated Biphenyls						
Aroclor-1016	0.001	mg/L	-	< 0.001	< 0.001	-
Aroclor-1221	0.001	mg/L	-	< 0.001	< 0.001	-
Aroclor-1232	0.001	mg/L	-	< 0.001	< 0.001	-
Aroclor-1242	0.001	mg/L	-	< 0.001	< 0.001	-
Aroclor-1248	0.001	mg/L	-	< 0.001	< 0.001	-
Aroclor-1254	0.001	mg/L	-	< 0.001	< 0.001	-
Aroclor-1260	0.001	mg/L	-	< 0.001	< 0.001	-
Total PCB*	0.001	mg/L	-	< 0.001	< 0.001	-
Dibutylchloredate (surr.)	1	%	-	121	90	-
Tetrachloro-m-xylene (surr.)	1	%	-	116	97	-

Client Sample ID			NEL-BH140/180418 Water M18-Ap23578 Apr 18, 2018	NEL-BH039/180418 Water M18-Ap23579 Apr 18, 2018	QC1/180418 Water M18-Ap23580 Apr 18, 2018	RB03/180418 Water M18-Ap23581 Apr 18, 2018
Sample Matrix						
Eurofins mgt Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
Phenols (Halogenated)						
2-Chlorophenol	0.003	mg/L	-	< 0.003	< 0.003	-
2,4-Dichlorophenol	0.003	mg/L	-	< 0.003	< 0.003	-
2,4,5-Trichlorophenol	0.01	mg/L	-	< 0.01	< 0.01	-
2,4,6-Trichlorophenol	0.01	mg/L	-	< 0.01	< 0.01	-
2,6-Dichlorophenol	0.003	mg/L	-	< 0.003	< 0.003	-
4-Chloro-3-methylphenol	0.01	mg/L	-	< 0.01	< 0.01	-
Pentachlorophenol	0.01	mg/L	-	< 0.01	< 0.01	-
Tetrachlorophenols - Total	0.03	mg/L	-	< 0.03	< 0.03	-
Total Halogenated Phenol*	0.01	mg/L	-	< 0.01	< 0.01	-
Phenols (non-Halogenated)						
2-Cyclohexyl-4,6-dinitrophenol	0.1	mg/L	-	< 0.1	< 0.1	-
2-Methyl-4,6-dinitrophenol	0.03	mg/L	-	< 0.03	< 0.03	-
2-Methylphenol (o-Cresol)	0.003	mg/L	-	< 0.003	< 0.003	-
2-Nitrophenol	0.01	mg/L	-	< 0.01	< 0.01	-
2,4-Dimethylphenol	0.003	mg/L	-	< 0.003	< 0.003	-
2,4-Dinitrophenol	0.03	mg/L	-	< 0.03	< 0.03	-
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	-	< 0.006	< 0.006	-
4-Nitrophenol	0.03	mg/L	-	< 0.03	< 0.03	-
Dinoseb	0.1	mg/L	-	< 0.1	< 0.1	-
Phenol	0.003	mg/L	-	< 0.003	< 0.003	-
Total Non-Halogenated Phenol*	0.1	mg/L	-	< 0.1	< 0.1	-
Phenol-d6 (surr.)	1	%	-	26	48	-
Semivolatile Organics						
2-Methyl-4,6-dinitrophenol	0.03	mg/L	-	< 0.03	< 0.03	-
1-Chloronaphthalene	0.005	mg/L	-	< 0.01	< 0.01	-
1-Naphthylamine	0.005	mg/L	-	< 0.01	< 0.01	-
1,2-Dichlorobenzene	0.005	mg/L	-	< 0.005	< 0.005	-
1,2,3-Trichlorobenzene	0.005	mg/L	-	< 0.005	< 0.005	-
1,2,3,4-Tetrachlorobenzene	0.005	mg/L	-	< 0.01	< 0.01	-
1,2,3,5-Tetrachlorobenzene	0.005	mg/L	-	< 0.005	< 0.005	-
1,2,4-Trichlorobenzene	0.005	mg/L	-	< 0.005	< 0.005	-
1,2,4,5-Tetrachlorobenzene	0.005	mg/L	-	< 0.005	< 0.005	-
1,3-Dichlorobenzene	0.005	mg/L	-	< 0.005	< 0.005	-
1,3,5-Trichlorobenzene	0.005	mg/L	-	< 0.005	< 0.005	-
1,4-Dichlorobenzene	0.005	mg/L	-	< 0.005	< 0.005	-
2-Chloronaphthalene	0.005	mg/L	-	< 0.01	< 0.01	-
2-Chlorophenol	0.003	mg/L	-	< 0.003	< 0.003	-
2-Methylnaphthalene	0.005	mg/L	-	< 0.005	< 0.005	-
2-Methylphenol (o-Cresol)	0.003	mg/L	-	< 0.003	< 0.003	-
2-Naphthylamine	0.005	mg/L	-	< 0.01	< 0.01	-
2-Nitroaniline	0.005	mg/L	-	< 0.01	< 0.01	-
2-Nitrophenol	0.01	mg/L	-	< 0.01	< 0.01	-
2-Picoline	0.005	mg/L	-	< 0.005	< 0.005	-
2,3,4,6-Tetrachlorophenol	0.01	mg/L	-	< 0.01	< 0.01	-
2,4-Dichlorophenol	0.003	mg/L	-	< 0.003	< 0.003	-
2,4-Dimethylphenol	0.003	mg/L	-	< 0.003	< 0.003	-
2,4-Dinitrophenol	0.03	mg/L	-	< 0.03	< 0.03	-
2,4-Dinitrotoluene	0.005	mg/L	-	< 0.01	< 0.01	-
2,4,5-Trichlorophenol	0.01	mg/L	-	< 0.01	< 0.01	-

Client Sample ID			NEL-BH140/180418 Water M18-Ap23578 Apr 18, 2018	NEL-BH039/180418 Water M18-Ap23579 Apr 18, 2018	QC1/180418 Water M18-Ap23580 Apr 18, 2018	RB03/180418 Water M18-Ap23581 Apr 18, 2018
Sample Matrix						
Eurofins mgt Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
Semivolatile Organics						
2,4,6-Trichlorophenol	0.01	mg/L	-	< 0.01	< 0.01	-
2,6-Dichlorophenol	0.003	mg/L	-	< 0.003	< 0.003	-
2,6-Dinitrotoluene	0.005	mg/L	-	< 0.01	< 0.01	-
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	-	< 0.006	< 0.006	-
3-Methylcholanthrene	0.005	mg/L	-	< 0.005	< 0.005	-
3,3'-Dichlorobenzidine	0.005	mg/L	-	< 0.005	< 0.005	-
4-Aminobiphenyl	0.005	mg/L	-	< 0.005	< 0.005	-
4-Bromophenyl phenyl ether	0.005	mg/L	-	< 0.005	< 0.005	-
4-Chloro-3-methylphenol	0.01	mg/L	-	< 0.01	< 0.01	-
4-Chlorophenyl phenyl ether	0.005	mg/L	-	< 0.01	< 0.01	-
4-Nitrophenol	0.03	mg/L	-	< 0.03	< 0.03	-
4,4'-DDD	0.005	mg/L	-	< 0.005	< 0.005	-
4,4'-DDE	0.005	mg/L	-	< 0.005	< 0.005	-
4,4'-DDT	0.005	mg/L	-	< 0.005	< 0.005	-
7,12-Dimethylbenz(a)anthracene	0.005	mg/L	-	< 0.005	< 0.005	-
a-BHC	0.005	mg/L	-	< 0.005	< 0.005	-
Acenaphthene	0.001	mg/L	-	< 0.01	< 0.01	-
Acenaphthylene	0.001	mg/L	-	< 0.01	< 0.01	-
Acetophenone	0.005	mg/L	-	< 0.005	< 0.005	-
Aldrin	0.005	mg/L	-	< 0.005	< 0.005	-
Aniline	0.005	mg/L	-	< 0.005	< 0.005	-
Anthracene	0.001	mg/L	-	< 0.001	< 0.001	-
b-BHC	0.005	mg/L	-	< 0.005	< 0.005	-
Benz(a)anthracene	0.001	mg/L	-	< 0.001	< 0.001	-
Benzo(a)pyrene	0.001	mg/L	-	< 0.001	< 0.001	-
Benzo(b&j)fluoranthene ^{N07}	0.001	mg/L	-	< 0.001	< 0.001	-
Benzo(g,h,i)perylene	0.001	mg/L	-	< 0.001	< 0.001	-
Benzo(k)fluoranthene	0.001	mg/L	-	< 0.001	< 0.001	-
Benzyl chloride	0.005	mg/L	-	< 0.005	< 0.005	-
Bis(2-chloroethoxy)methane	0.005	mg/L	-	< 0.005	< 0.005	-
Bis(2-chloroisopropyl)ether	0.005	mg/L	-	< 0.005	< 0.005	-
Bis(2-ethylhexyl)phthalate	0.005	mg/L	-	< 0.005	< 0.005	-
Butyl benzyl phthalate	0.005	mg/L	-	< 0.005	< 0.005	-
Chrysene	0.001	mg/L	-	< 0.001	< 0.001	-
d-BHC	0.005	mg/L	-	< 0.005	< 0.005	-
Di-n-butyl phthalate	0.005	mg/L	-	< 0.005	< 0.005	-
Di-n-octyl phthalate	0.005	mg/L	-	< 0.005	< 0.005	-
Dibenz(a,h)anthracene	0.001	mg/L	-	< 0.001	< 0.001	-
Dibenz(a,j)acridine	0.005	mg/L	-	< 0.005	< 0.005	-
Dibenzofuran	0.005	mg/L	-	< 0.01	< 0.01	-
Dieldrin	0.005	mg/L	-	< 0.005	< 0.005	-
Diethyl phthalate	0.005	mg/L	-	< 0.01	< 0.01	-
Dimethyl phthalate	0.005	mg/L	-	< 0.01	< 0.01	-
Dimethylaminoazobenzene	0.005	mg/L	-	< 0.005	< 0.005	-
Diphenylamine	0.005	mg/L	-	< 0.01	< 0.01	-
Endosulfan I	0.005	mg/L	-	< 0.005	< 0.005	-
Endosulfan II	0.005	mg/L	-	< 0.005	< 0.005	-
Endosulfan sulphate	0.005	mg/L	-	< 0.005	< 0.005	-
Endrin	0.005	mg/L	-	< 0.005	< 0.005	-

Client Sample ID			NEL-BH140/180418 Water M18-Ap23578 Apr 18, 2018	NEL-BH039/180418 Water M18-Ap23579 Apr 18, 2018	QC1/180418 Water M18-Ap23580 Apr 18, 2018	RB03/180418 Water M18-Ap23581 Apr 18, 2018
Sample Matrix						
Eurofins mgt Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
Semivolatile Organics						
Endrin aldehyde	0.005	mg/L	-	< 0.005	< 0.005	-
Endrin ketone	0.005	mg/L	-	< 0.005	< 0.005	-
Fluoranthene	0.001	mg/L	-	< 0.001	< 0.001	-
Fluorene	0.001	mg/L	-	< 0.01	< 0.01	-
g-BHC (Lindane)	0.005	mg/L	-	< 0.005	< 0.005	-
Heptachlor	0.005	mg/L	-	< 0.005	< 0.005	-
Heptachlor epoxide	0.005	mg/L	-	< 0.005	< 0.005	-
Hexachlorobenzene	0.005	mg/L	-	< 0.005	< 0.005	-
Hexachlorobutadiene	0.005	mg/L	-	< 0.005	< 0.005	-
Hexachlorocyclopentadiene	0.005	mg/L	-	< 0.005	< 0.005	-
Hexachloroethane	0.005	mg/L	-	< 0.005	< 0.005	-
Indeno(1.2.3-cd)pyrene	0.001	mg/L	-	< 0.001	< 0.001	-
Methoxychlor	0.005	mg/L	-	< 0.005	< 0.005	-
N-Nitrosodibutylamine	0.005	mg/L	-	< 0.005	< 0.005	-
N-Nitrosodipropylamine	0.005	mg/L	-	< 0.005	< 0.005	-
N-Nitrosopiperidine	0.005	mg/L	-	< 0.005	< 0.005	-
Naphthalene	0.001	mg/L	-	< 0.001	< 0.001	-
Nitrobenzene	0.05	mg/L	-	< 0.05	< 0.05	-
Pentachlorobenzene	0.005	mg/L	-	< 0.01	< 0.01	-
Pentachloronitrobenzene	0.005	mg/L	-	< 0.005	< 0.005	-
Pentachlorophenol	0.01	mg/L	-	< 0.01	< 0.01	-
Phenanthrene	0.001	mg/L	-	< 0.001	< 0.001	-
Phenol	0.003	mg/L	-	< 0.003	< 0.003	-
Pronamide	0.005	mg/L	-	< 0.005	< 0.005	-
Pyrene	0.001	mg/L	-	< 0.001	< 0.001	-
Trifluralin	0.005	mg/L	-	< 0.005	< 0.005	-
Phenol-d6 (surr.)	1	%	-	26	48	-
Nitrobenzene-d5 (surr.)	1	%	-	65	53	-
2-Fluorobiphenyl (surr.)	1	%	-	64	56	-
2.4.6-Tribromophenol (surr.)	1	%	-	33	int	-
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA) ^{N11}	0.05	ug/L	-	< 0.05	< 0.05	-
Perfluoropentanoic acid (PFPeA) ^{N11}	0.01	ug/L	-	< 0.01	< 0.01	-
Perfluorohexanoic acid (PFHxA) ^{N11}	0.01	ug/L	-	< 0.01	< 0.01	-
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.01	ug/L	-	< 0.01	< 0.01	-
Perfluorooctanoic acid (PFOA) ^{N11}	0.01	ug/L	-	< 0.01	< 0.01	-
Perfluorononanoic acid (PFNA) ^{N11}	0.01	ug/L	-	< 0.01	< 0.01	-
Perfluorodecanoic acid (PFDA) ^{N11}	0.01	ug/L	-	< 0.01	< 0.01	-
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.01	ug/L	-	< 0.01	< 0.01	-
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.01	ug/L	-	< 0.01	< 0.01	-
Perfluorotridecanoic acid (PFTTrDA) ^{N15}	0.01	ug/L	-	< 0.01	< 0.01	-
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.01	ug/L	-	< 0.01	< 0.01	-
13C4-PFBA (surr.)	1	%	-	92	84	-
13C5-PFPeA (surr.)	1	%	-	139	118	-
13C5-PFHxA (surr.)	1	%	-	140	126	-
13C4-PFHpA (surr.)	1	%	-	147	134	-
13C8-PFOA (surr.)	1	%	-	167	149	-
13C5-PFNA (surr.)	1	%	-	163	152	-
13C6-PFDA (surr.)	1	%	-	125	120	-

Client Sample ID			NEL-BH140/180418 Water M18-Ap23578 Apr 18, 2018	NEL-BH039/180418 Water M18-Ap23579 Apr 18, 2018	QC1/180418 Water M18-Ap23580 Apr 18, 2018	RB03/180418 Water M18-Ap23581 Apr 18, 2018
Sample Matrix						
Eurofins mgt Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
13C2-PFUnDA (surr.)	1	%	-	95	100	-
13C2-PFDoDA (surr.)	1	%	-	118	126	-
13C2-PFTeDA (surr.)	1	%	-	79	86	-
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.05	ug/L	-	< 0.05	< 0.05	-
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.05	ug/L	-	< 0.05	< 0.05	-
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.05	ug/L	-	< 0.05	< 0.05	-
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) ^{N11}	0.05	ug/L	-	< 0.05	< 0.05	-
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE) ^{N11}	0.05	ug/L	-	< 0.05	< 0.05	-
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.05	ug/L	-	< 0.05	< 0.05	-
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.05	ug/L	-	< 0.05	< 0.05	-
13C8-FOSA (surr.)	1	%	-	89	87	-
D3-N-MeFOSA (surr.)	1	%	-	81	76	-
D5-N-EtFOSA (surr.)	1	%	-	88	90	-
D7-N-MeFOSE (surr.)	1	%	-	85	84	-
D9-N-EtFOSE (surr.)	1	%	-	76	77	-
D5-N-EtFOSAA (surr.)	1	%	-	101	108	-
D3-N-MeFOSAA (surr.)	1	%	-	107	118	-
Perfluoroalkyl sulfonic acids (PFSA's)						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.01	ug/L	-	< 0.01	< 0.01	-
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.01	ug/L	-	< 0.01	< 0.01	-
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.01	ug/L	-	< 0.01	< 0.01	-
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.01	ug/L	-	< 0.01	< 0.01	-
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.01	ug/L	-	< 0.01	< 0.01	-
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.01	ug/L	-	< 0.01	< 0.01	-
13C3-PFBS (surr.)	1	%	-	134	120	-
18O2-PFHxS (surr.)	1	%	-	149	138	-
13C8-PFOS (surr.)	1	%	-	144	138	-
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.01	ug/L	-	< 0.01	< 0.01	-
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA) ^{N11}	0.05	ug/L	-	< 0.05	< 0.05	-
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.01	ug/L	-	< 0.01	< 0.01	-
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N15}	0.01	ug/L	-	< 0.01	< 0.01	-
13C2-4:2 FTSA (surr.)	1	%	-	170	156	-
13C2-6:2 FTSA (surr.)	1	%	-	INT	INT	-
13C2-8:2 FTSA (surr.)	1	%	-	184	179	-
PFASs Summations						
Sum (PFHxS + PFOS)*	0.01	ug/L	-	< 0.01	< 0.01	-
Sum of US EPA PFAS (PFOS + PFOA)*	0.01	ug/L	-	< 0.01	< 0.01	-
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	-	< 0.01	< 0.01	-
Sum of WA DER PFAS (n=10)*	0.05	ug/L	-	< 0.05	< 0.05	-
Sum of PFASs (n=28)*	0.1	ug/L	-	< 0.1	< 0.1	-

Client Sample ID			NEL-BH140/180418 Water M18-Ap23578 Apr 18, 2018	NEL-BH039/180418 Water M18-Ap23579 Apr 18, 2018	QC1/180418 Water M18-Ap23580 Apr 18, 2018	RB03/180418 Water M18-Ap23581 Apr 18, 2018
Sample Matrix						
Eurofins mgt Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
Ammonia (as N)	0.01	mg/L	0.04	0.35	0.35	< 0.01
Carbon Dioxide (free)	5	mg/L	91	69	71	70
Chloride	1	mg/L	2400	820	810	< 1
Chromium (hexavalent)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Conductivity (at 25°C)	1	uS/cm	8300	2700	2500	< 1
Nitrate & Nitrite (as N)	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
Nitrate (as N)	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Nitrite (as N)	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
pH (at 25°C)	0.1	pH Units	7.8	6.9	6.8	5.3
Phosphate total (as P)	0.05	mg/L	0.11	0.42	0.76	< 0.05
Phosphorus reactive (as P)	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
Sulphate (as SO ₄)	5	mg/L	160	58	58	< 5
Total Dissolved Solids	10	mg/L	4200	1300	1200	< 10
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	< 0.2	0.6	1.1	< 0.2
Total Nitrogen (as N)	0.2	mg/L	< 0.2	0.6	1.1	< 0.2
Total Organic Carbon	5	mg/L	< 5	< 5	< 5	< 5
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO ₃)	20	mg/L	660	350	300	< 20
Carbonate Alkalinity (as CaCO ₃)	10	mg/L	< 10	< 10	< 10	< 10
Hydroxide Alkalinity (as CaCO ₃)	20	mg/L	< 20	< 20	< 20	< 20
Total Alkalinity (as CaCO ₃)	20	mg/L	660	350	300	< 20
Heavy Metals						
Arsenic	0.001	mg/L	-	-	-	< 0.001
Arsenic (filtered)	0.001	mg/L	< 0.001	0.002	0.002	-
Beryllium	0.001	mg/L	-	-	-	< 0.001
Beryllium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Boron	0.05	mg/L	-	-	-	< 0.05
Boron (filtered)	0.05	mg/L	0.20	0.08	0.08	-
Cadmium	0.0002	mg/L	-	-	-	< 0.0002
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	-
Cobalt	0.001	mg/L	-	-	-	< 0.001
Cobalt (filtered)	0.001	mg/L	0.002	< 0.001	< 0.001	-
Copper	0.001	mg/L	-	-	-	< 0.001
Copper (filtered)	0.001	mg/L	0.010	< 0.001	< 0.001	-
Lead	0.001	mg/L	-	-	-	< 0.001
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Manganese	0.005	mg/L	-	-	-	< 0.005
Manganese (filtered)	0.005	mg/L	0.44	0.62	0.67	-
Mercury	0.0001	mg/L	-	-	-	< 0.0001
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	-
Nickel	0.001	mg/L	-	-	-	< 0.001
Nickel (filtered)	0.001	mg/L	0.023	0.024	0.025	-
Selenium	0.001	mg/L	-	-	-	< 0.001
Selenium (filtered)	0.001	mg/L	0.003	< 0.001	< 0.001	-
Zinc	0.005	mg/L	-	-	-	< 0.005
Zinc (filtered)	0.005	mg/L	0.065	0.018	0.007	-

Client Sample ID			NEL-BH140/180418	NEL-BH039/180418	QC1/180418	RB03/180418
Sample Matrix			Water	Water	Water	Water
Eurofins mgt Sample No.			M18-Ap23578	M18-Ap23579	M18-Ap23580	M18-Ap23581
Date Sampled			Apr 18, 2018	Apr 18, 2018	Apr 18, 2018	Apr 18, 2018
Test/Reference	LOR	Unit				
Alkali Metals						
Calcium	0.5	mg/L	77	33	33	< 0.5
Magnesium	0.5	mg/L	170	63	63	< 0.5
Potassium	0.5	mg/L	24	3.0	3.2	< 0.5
Sodium	0.5	mg/L	1700	440	440	< 0.5

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C36	Melbourne	Apr 20, 2018	7 Day
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: TRH C6-C40 - LTM-ORG-2010	Melbourne	Apr 20, 2018	7 Day
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: TRH C6-C40 - LTM-ORG-2010	Melbourne	Apr 20, 2018	7 Day
BTEX and Naphthalene			
BTEX - Method: TRH C6-C40 - LTM-ORG-2010	Melbourne	Apr 20, 2018	14 Day
Volatile Organics - Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices	Melbourne	Apr 20, 2018	7 Days
Semivolatile Organics - Method: LTM-ORG-2190 SVOC in Water & Soil by GC-MS	Melbourne	Apr 20, 2018	7 Day
Polycyclic Aromatic Hydrocarbons - Method: LTM-ORG-2130 PAH and Phenols in Soil and Water	Melbourne	Apr 20, 2018	7 Day
Organochlorine Pesticides - Method: LTM-ORG-2220 OCP & PCB in Soil and Water	Melbourne	Apr 20, 2018	7 Day
Organophosphorus Pesticides - Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS	Melbourne	Apr 20, 2018	7 Day
Polychlorinated Biphenyls - Method: LTM-ORG-2220 OCP & PCB in Soil and Water	Melbourne	Apr 20, 2018	7 Days
Carbon Dioxide (free) - Method: APHA 4500-CO2 C. Free Carbon Dioxide by Titration	Melbourne	Apr 20, 2018	24 Hours
Conductivity (at 25°C) - Method: LTM-INO-4030 Conductivity	Melbourne	Apr 20, 2018	28 Day
pH (at 25°C) - Method: LTM-GEN-7090 pH in water by ISE	Melbourne	Apr 20, 2018	0 Hours
Total Dissolved Solids - Method: LTM-INO-4170 Total Dissolved Solids in Water	Melbourne	Apr 20, 2018	7 Day
Total Organic Carbon - Method: APHA 5310B Total Organic Carbon	Melbourne	Apr 23, 2018	28 Day
Alkalinity (speciated) - Method: APHA 2320 Alkalinity by Titration	Melbourne	Apr 20, 2018	14 Day
Phenols (IWRG 621)			
Phenols (Halogenated) - Method: LTM-ORG-2130 PAH and Phenols in Soil and Water	Melbourne	Apr 20, 2018	7 Days
Phenols (non-Halogenated) - Method: LTM-ORG-2130 PAH and Phenols in Soil and Water	Melbourne	Apr 20, 2018	7 Day
Per- and Polyfluoroalkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Apr 24, 2018	14 Day
Perfluoroalkyl sulfonamido substances - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Apr 24, 2018	14 Day
Perfluoroalkyl sulfonic acids (PFASs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Apr 24, 2018	14 Day
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Apr 24, 2018	14 Day
Eurofins mgt Suite B19E: Total N, TKN, NOx, NO2, NO3, NH3, Total P, Reactive P			
Ammonia (as N) - Method: APHA 4500-NH3 Ammonia Nitrogen by FIA	Melbourne	Apr 20, 2018	28 Day

Description	Testing Site	Extracted	Holding Time
Nitrate & Nitrite (as N) - Method: APHA 4500-NO3/NO2 Nitrate-Nitrite Nitrogen by FIA	Melbourne	Apr 20, 2018	28 Day
Nitrate (as N) - Method: APHA 4500-NO3 Nitrate Nitrogen by FIA	Melbourne	Apr 20, 2018	28 Day
Nitrite (as N) - Method: APHA 4500-NO2 Nitrite Nitrogen by FIA	Melbourne	Apr 20, 2018	2 Day
Phosphate total (as P) - Method: APHA 4500-P E. Phosphorous	Melbourne	Apr 20, 2018	28 Day
Phosphorus reactive (as P) - Method: APHA4500-PO4	Melbourne	Apr 20, 2018	2 Day
Total Kjeldahl Nitrogen (as N) - Method: LTM-INO-4310 TKN in Waters & Soils by FIA	Melbourne	Apr 20, 2018	7 Day
Eurofins mgt Suite B11			
Chloride - Method: LTM-INO-4090 Chloride by Discrete Analyser	Melbourne	Apr 20, 2018	28 Day
Sulphate (as SO4) - Method: LTM-INO-4110 Sulfate by Discrete Analyser	Melbourne	Apr 20, 2018	28 Day
Alkali Metals - Method: USEPA 6010 Alkali Metals	Melbourne	Apr 20, 2018	180 Day
Chromium (hexavalent) - Method: Cr (VI) by MGT 1170A	Melbourne	Apr 20, 2018	28 Day
Heavy Metals (filtered) - Method: LTM-MET-3040 Metals in Waters by ICP-MS	Melbourne	Apr 20, 2018	180 Day
Mobil Metals : Metals M15 - Method: LTM-MET-3040 Metals in Waters by ICP-MS	Melbourne	Apr 20, 2018	28 Day
Heavy Metals - Method: LTM-MET-3040 Metals in Waters by ICP-MS	Melbourne	Apr 20, 2018	180 Day



GHD
180 Latrobe Street, Melbourne VIC 3000

Tel: (03) 8687 8000

CHAIN OF CUSTODY

Page 1

of 1

Golder Job Number: 31/35006/0813
Job Location: Bulleen, VIC 3105
Laboratory Issued To: EurofinsMGT
Order No.:
Sampled By: M. Moore and L. Spurr
Job Contact: Matthew Moore (0490 784 218), Tim Anderson (03 8687 8208)
Contact Email: matthew.moore5@ghd.com timothy.anderson@ghd.com

# OBSERVATIONS	SAMPLE DATE	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DEPTH (m)	No. OF CONTAINERS	Major Ions	Major Cations	Nutrients	Physio-Chemical Parameters (pH, EC, TDS, TOC)	NEPM Metals Suite	TRH C6 - C40	BTEXN	PAH	Phenols	OC / OP / PCB	VOCs / SVOCs	PFAS suite	SRB	Free CO2	Alkalinity (hydroxide as CaCO3, total as CaCO3, bicarbonate alkalinity as	HOLD
	18.04.2018	NEL-BH140 / 180418	WATER	-	4	X	X	X	X	X										X	X
	18.04.2018	NEL-BH039 / 180418	WATER	-	11	X	X	X	X	X	X	X	X	X	X	X	X			X	X
	18.04.2018	QC1 / 180418	WATER	-	11	X	X	X	X	X	X	X	X	X	X	X	X			X	X
	18.04.2018	RB03 / 180418	RB		4	X	X	X	X	X											

Special Instructions:

Note, at NEL-BH091, only 6 bottles could be filled, due to low recharge of groundwater well. Please analyse as much as possible from the available bottles.

TURN AROUND TIME REQUIRED

☐ 1 Working Day ☐ 2 Working Days ☐ 3 Working Days ☐ 4 Working Days ☒ 5 Working Days (standard) Other _____

SAMPLE RECEIPT

Relinquished by: Matthew Moore
Organisation: GHD

Date: 19.04.2018
Time: 9:00

Received by: *Julpa Patel*
Organisation: *mat*

Date: 19/4/18
Time: 11:38 AM

DELIVERED BY:
COURIER/LAB ☒
GHD ☐

SAMPLE STATUS
☒ Security Sealed
☒ Chilled
☐ Frozen
☐ Ambient

ANALYTICAL SCHEDULE

Relinquished by: Matthew Moore
Organisation: GHD

Date: 19.04.2018
Time: 9:00

Received by:
Organisation:

Date:
Time:

RECEIVED BY:
FAX ☐
HAND ☒

RECEIVING LABORATORY TO CONFIRM RECEIPT OF ANALYTICAL SCHEDULE BY EMAIL TO: matthew.moore5@ghd.com

Checked By: _____ Date: _____

594938

Sample Receipt Advice

Company name: **GHD Pty Ltd VIC**
Contact name: **Matthew Moore**
Project name: **BULLEEN VIC 3105**
Project ID: **31/35006/0813**
COC number: **Not provided**
Turn around time: **5 Day**
Date/Time received: **Apr 19, 2018 11:38 AM**
Eurofins | mgt reference: **594938**

Sample information

- ☒ A detailed list of analytes logged into our LIMS, is included in the attached summary table.
- ☒ All samples have been received as described on the above COC.
- ☒ COC has been completed correctly.
- ☒ Attempt to chill was evident.
- ☒ Appropriately preserved sample containers have been used.
- ☒ All samples were received in good condition.
- ☒ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
- ☒ Appropriate sample containers have been used.
- ☒ Sample containers for volatile analysis received with zero headspace.
- ☒ Split sample sent to requested external lab.
- ☒ Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

Contact notes

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

Mary Makarios on Phone : +61 3 8564 5000 or by e.mail: MaryMakarios@eurofins.com

Results will be delivered electronically via e.mail to Matthew Moore - matthew.moore5@ghd.com.

Company Name: GHD Pty Ltd VIC
Address: Level 8, 180 Lonsdale St
Melbourne
VIC 3000

Project Name: BULLEEN VIC 3105
Project ID: 31/35006/0813

Order No.:
Report #: 594938
Phone: 8687 8000
Fax: 8687 8111

Received: Apr 19, 2018 11:38 AM
Due: Apr 27, 2018
Priority: 5 Day
Contact Name: Matthew Moore

Eurofins | mgt Analytical Services Manager : Mary Makarios

Sample Detail						Carbon Dioxide (free)	Conductivity (at 25°C)	pH (at 25°C)	Total Dissolved Solids	Total Organic Carbon	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Organophosphorus Pesticides	Polychlorinated Biphenyls	Alkalinity (specified)	Phenols (IWRG 621)	Eurofins mgt Suite B11	NEPM 2013 Metals : Metals M13	NEPM 2013 Metals : Metals M13 filtered	BTEX and Naphthalene	Total Recoverable Hydrocarbons	Eurofins mgt Suite SVV: SVOCC/VOC	Eurofins mgt Suite B19E: Total N, TKN, NOx, NO2, NO3, NH3, Total P, Reactive P	Per- and Polyfluoroalkyl Substances (PFASs)
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217																								
Brisbane Laboratory - NATA Site # 20794																								X
Perth Laboratory - NATA Site # 23736																								
External Laboratory																								
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID																			
1	NEL-BH140/180418	Apr 18, 2018		Water	M18-Ap23578	X	X	X	X	X					X		X		X					X
2	NEL-BH039/180418	Apr 18, 2018		Water	M18-Ap23579	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X
3	QC1/180418	Apr 18, 2018		Water	M18-Ap23580	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X
4	RB03/180418	Apr 18, 2018		Water	M18-Ap23581	X	X	X	X	X					X		X	X						X
Test Counts						4	4	4	4	4	2	2	2	2	4	2	4	1	3	2	2	2	4	2

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	Quality Systems Manual ver 5.1 US Department of Defense
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.1 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " - " in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
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							
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	
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	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
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							
Phenols (Halogenated)							
Tetrachlorophenols - Total	mg/L	< 0.03			0.03	Pass	
Method Blank							
Phenols (non-Halogenated)							
2-Cyclohexyl-4,6-dinitrophenol	mg/L	< 0.1			0.1	Pass	
Dinoseb	mg/L	< 0.1			0.1	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.05			0.05	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.01			0.01	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.01			0.01	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.01			0.01	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.01			0.01	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.01			0.01	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.01			0.01	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.01			0.01	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.01			0.01	Pass	
Perfluorotridecanoic acid (PFTTrDA)	ug/L	< 0.01			0.01	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.01			0.01	Pass	
Method Blank							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.05			0.05	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.05			0.05	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.05			0.05	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	ug/L	< 0.05			0.05	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	ug/L	< 0.05			0.05	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.05			0.05	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.05			0.05	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSA's)							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.01			0.01	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.01			0.01	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.01			0.01	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.01			0.01	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.01			0.01	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.01			0.01	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.01			0.01	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	ug/L	< 0.05			0.05	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.01			0.01	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.01			0.01	Pass	
Method Blank							
Ammonia (as N)	mg/L	< 0.01			0.01	Pass	
Chloride	mg/L	< 1			1	Pass	
Chromium (hexavalent)	mg/L	< 0.001			0.001	Pass	
Nitrate & Nitrite (as N)	mg/L	< 0.05			0.05	Pass	
Nitrate (as N)	mg/L	< 0.02			0.02	Pass	
Nitrite (as N)	mg/L	< 0.02			0.02	Pass	
Phosphate total (as P)	mg/L	< 0.05			0.05	Pass	
Phosphorus reactive (as P)	mg/L	< 0.05			0.05	Pass	
Sulphate (as SO ₄)	mg/L	< 5			5	Pass	
Total Dissolved Solids	mg/L	< 10			10	Pass	
Total Kjeldahl Nitrogen (as N)	mg/L	< 0.2			0.2	Pass	
Total Organic Carbon	mg/L	< 5			5	Pass	
Method Blank							
Alkalinity (speciated)							
Bicarbonate Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Carbonate Alkalinity (as CaCO ₃)	mg/L	< 10			10	Pass	
Hydroxide Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Total Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/L	< 0.001			0.001	Pass	
Arsenic (filtered)	mg/L	< 0.001			0.001	Pass	
Beryllium	mg/L	< 0.001			0.001	Pass	
Beryllium (filtered)	mg/L	< 0.001			0.001	Pass	
Boron	mg/L	< 0.05			0.05	Pass	
Boron (filtered)	mg/L	< 0.05			0.05	Pass	
Cadmium	mg/L	< 0.0002			0.0002	Pass	
Cadmium (filtered)	mg/L	< 0.0002			0.0002	Pass	
Cobalt	mg/L	< 0.001			0.001	Pass	
Cobalt (filtered)	mg/L	< 0.001			0.001	Pass	
Copper	mg/L	< 0.001			0.001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Copper (filtered)	mg/L	< 0.001			0.001	Pass	
Lead	mg/L	< 0.001			0.001	Pass	
Lead (filtered)	mg/L	< 0.001			0.001	Pass	
Manganese	mg/L	< 0.005			0.005	Pass	
Manganese (filtered)	mg/L	< 0.005			0.005	Pass	
Mercury	mg/L	< 0.0001			0.0001	Pass	
Mercury (filtered)	mg/L	< 0.0001			0.0001	Pass	
Nickel	mg/L	< 0.001			0.001	Pass	
Nickel (filtered)	mg/L	< 0.001			0.001	Pass	
Selenium	mg/L	< 0.001			0.001	Pass	
Selenium (filtered)	mg/L	< 0.001			0.001	Pass	
Zinc	mg/L	< 0.005			0.005	Pass	
Zinc (filtered)	mg/L	< 0.005			0.005	Pass	
Method Blank							
Alkali Metals							
Calcium	mg/L	< 0.5			0.5	Pass	
Magnesium	mg/L	< 0.5			0.5	Pass	
Potassium	mg/L	< 0.5			0.5	Pass	
Sodium	mg/L	< 0.5			0.5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	121			70-130	Pass	
TRH C10-C14	%	124			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	117			70-130	Pass	
Toluene	%	105			70-130	Pass	
Ethylbenzene	%	95			70-130	Pass	
m&p-Xylenes	%	97			70-130	Pass	
Xylenes - Total	%	98			70-130	Pass	
LCS - % Recovery							
Volatile Organics							
1.1-Dichloroethene	%	83			70-130	Pass	
1.1.1-Trichloroethane	%	104			70-130	Pass	
1.2-Dichlorobenzene	%	97			70-130	Pass	
1.2-Dichloroethane	%	119			70-130	Pass	
Trichloroethene	%	104			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	87			70-130	Pass	
TRH C6-C10	%	118			70-130	Pass	
TRH >C10-C16	%	125			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	77			70-130	Pass	
Pyrene	%	73			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	78			70-130	Pass	
4.4'-DDD	%	87			70-130	Pass	
4.4'-DDE	%	102			70-130	Pass	
4.4'-DDT	%	129			70-130	Pass	
a-BHC	%	87			70-130	Pass	
Aldrin	%	83			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
b-BHC	%	93			70-130	Pass	
d-BHC	%	106			70-130	Pass	
Dieldrin	%	101			70-130	Pass	
Endosulfan I	%	94			70-130	Pass	
Endosulfan II	%	101			70-130	Pass	
Endosulfan sulphate	%	99			70-130	Pass	
Endrin	%	127			70-130	Pass	
Endrin aldehyde	%	76			70-130	Pass	
Endrin ketone	%	109			70-130	Pass	
g-BHC (Lindane)	%	99			70-130	Pass	
Heptachlor epoxide	%	96			70-130	Pass	
Hexachlorobenzene	%	97			70-130	Pass	
Methoxychlor	%	90			70-130	Pass	
LCS - % Recovery							
Organophosphorus Pesticides							
Diazinon	%	74			70-130	Pass	
Dimethoate	%	73			70-130	Pass	
Ethion	%	110			70-130	Pass	
Fenitrothion	%	112			70-130	Pass	
Methyl parathion	%	81			70-130	Pass	
Mevinphos	%	82			70-130	Pass	
LCS - % Recovery							
Phenols (Halogenated)							
2-Chlorophenol	%	93			30-130	Pass	
4-Chloro-3-methylphenol	%	69			30-130	Pass	
Pentachlorophenol	%	108			30-130	Pass	
LCS - % Recovery							
Phenols (non-Halogenated)							
Phenol	%	43			30-130	Pass	
LCS - % Recovery							
Semivolatile Organics							
1,2,4-Trichlorobenzene	%	80			70-130	Pass	
1,4-Dichlorobenzene	%	106			70-130	Pass	
2,4-Dinitrotoluene	%	72			70-130	Pass	
N-Nitrosodipropylamine	%	79			70-130	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	104			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	107			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	98			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	105			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	100			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	101			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	98			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	91			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	101			50-150	Pass	
Perfluorotridecanoic acid (PFTTrDA)	%	112			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	113			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	98			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	88			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	85			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	%	120			50-150	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	%	85			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	100			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	103			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSA's)							
Perfluorobutanesulfonic acid (PFBS)	%	88			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	87			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	87			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	98			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	96			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	73			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	107			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	%	106			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	92			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	63			50-150	Pass	
LCS - % Recovery							
Ammonia (as N)	%	93			70-130	Pass	
Chloride	%	119			70-130	Pass	
Nitrate & Nitrite (as N)	%	88			70-130	Pass	
Nitrate (as N)	%	88			70-130	Pass	
Nitrite (as N)	%	101			70-130	Pass	
Phosphate total (as P)	%	91			70-130	Pass	
Phosphorus reactive (as P)	%	113			70-130	Pass	
Sulphate (as SO ₄)	%	103			70-130	Pass	
Total Dissolved Solids	%	98			70-130	Pass	
Total Kjeldahl Nitrogen (as N)	%	97			70-130	Pass	
Total Organic Carbon	%	99			70-130	Pass	
LCS - % Recovery							
Alkalinity (speciated)							
Carbonate Alkalinity (as CaCO ₃)	%	101			70-130	Pass	
Total Alkalinity (as CaCO ₃)	%	101			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	100			80-120	Pass	
Arsenic (filtered)	%	94			80-120	Pass	
Beryllium	%	110			80-120	Pass	
Boron	%	100			80-120	Pass	
Boron (filtered)	%	108			80-120	Pass	
Cadmium	%	90			80-120	Pass	
Cadmium (filtered)	%	82			80-120	Pass	
Cobalt	%	99			80-120	Pass	
Cobalt (filtered)	%	91			80-120	Pass	
Copper	%	98			80-120	Pass	
Copper (filtered)	%	89			80-120	Pass	
Lead	%	102			80-120	Pass	
Lead (filtered)	%	91			80-120	Pass	
Manganese	%	98			80-120	Pass	
Manganese (filtered)	%	94			80-120	Pass	
Mercury	%	95			75-125	Pass	
Mercury (filtered)	%	83			70-130	Pass	
Nickel	%	97			80-120	Pass	
Nickel (filtered)	%	91			80-120	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Selenium			%	99			80-120	Pass	
Selenium (filtered)			%	91			80-120	Pass	
Zinc			%	99			80-120	Pass	
Zinc (filtered)			%	92			80-120	Pass	
LCS - % Recovery									
Alkali Metals									
Calcium			%	117			70-130	Pass	
Magnesium			%	120			70-130	Pass	
Potassium			%	103			70-130	Pass	
Sodium			%	105			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)	S18-Ap26355	NCP	%	89			70-130	Pass	
Chloride	M18-Ap22030	NCP	%	97			70-130	Pass	
Chromium (hexavalent)	S18-Ap24236	NCP	%	107			70-130	Pass	
Nitrate & Nitrite (as N)	S18-Ap26355	NCP	%	89			70-130	Pass	
Nitrate (as N)	S18-Ap26355	NCP	%	89			70-130	Pass	
Nitrite (as N)	P18-Ap24334	NCP	%	101			70-130	Pass	
Phosphorus reactive (as P)	P18-Ap26668	NCP	%	80			70-130	Pass	
Sulphate (as SO4)	M18-Ap22029	NCP	%	96			70-130	Pass	
Spike - % Recovery									
Alkalinity (speciated)				Result 1					
Total Alkalinity (as CaCO3)	M18-Ap29669	NCP	%	89			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Mercury (filtered)	M18-Ap23701	NCP	%	73			70-130	Pass	
Spike - % Recovery									
Alkali Metals				Result 1					
Calcium	M18-Ap23598	NCP	%	129			70-130	Pass	
Magnesium	M18-Ap23598	NCP	%	131			70-130	Fail	Q08
Potassium	M18-Ap23598	NCP	%	115			70-130	Pass	
Sodium	M18-Ap23598	NCP	%	134			70-130	Fail	Q08
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C10-C14	M18-Ap23472	NCP	%	121			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	M18-Ap23472	NCP	%	117			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	M18-Ap15604	NCP	%	80			70-130	Pass	
Pyrene	M18-Ap15604	NCP	%	71			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	M18-Ap25380	NCP	%	102			70-130	Pass	
4,4'-DDD	M18-Ap19847	NCP	%	78			70-130	Pass	
4,4'-DDE	M18-Ap19847	NCP	%	77			70-130	Pass	
4,4'-DDT	M18-Ap19847	NCP	%	118			70-130	Pass	
a-BHC	M18-Ap19847	NCP	%	71			70-130	Pass	
Aldrin	M18-Ap19847	NCP	%	71			70-130	Pass	
b-BHC	M18-Ap19847	NCP	%	78			70-130	Pass	
d-BHC	M18-Ap19847	NCP	%	79			70-130	Pass	
Dieldrin	M18-Ap19847	NCP	%	78			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endosulfan I	M18-Ap19847	NCP	%	73			70-130	Pass	
Endosulfan II	M18-Ap19847	NCP	%	81			70-130	Pass	
Endosulfan sulphate	M18-Ap19847	NCP	%	88			70-130	Pass	
Endrin	M18-Ap19847	NCP	%	111			70-130	Pass	
Endrin aldehyde	M18-Ap19847	NCP	%	78			70-130	Pass	
Endrin ketone	M18-Ap19847	NCP	%	88			70-130	Pass	
g-BHC (Lindane)	M18-Ap19847	NCP	%	77			70-130	Pass	
Heptachlor	M18-Ap19847	NCP	%	102			70-130	Pass	
Heptachlor epoxide	M18-Ap19847	NCP	%	78			70-130	Pass	
Hexachlorobenzene	M18-Ap19847	NCP	%	74			70-130	Pass	
Methoxychlor	M18-Ap19847	NCP	%	112			70-130	Pass	
Spike - % Recovery									
Organophosphorus Pesticides				Result 1					
Diazinon	P18-Ap21557	NCP	%	75			70-130	Pass	
Dimethoate	P18-Ap21557	NCP	%	77			70-130	Pass	
Ethion	P18-Ap21557	NCP	%	126			70-130	Pass	
Fenitrothion	P18-Ap21557	NCP	%	123			70-130	Pass	
Methyl parathion	M18-Ap19847	NCP	%	99			70-130	Pass	
Mevinphos	P18-Ap21557	NCP	%	88			70-130	Pass	
Spike - % Recovery									
Phenols (Halogenated)				Result 1					
2-Chlorophenol	M18-Ap15604	NCP	%	66			30-130	Pass	
4-Chloro-3-methylphenol	M18-Ap15604	NCP	%	91			30-130	Pass	
Pentachlorophenol	M18-Ap15604	NCP	%	54			30-130	Pass	
Spike - % Recovery									
Phenols (non-Halogenated)				Result 1					
Phenol	M18-Ap15604	NCP	%	97			30-130	Pass	
Spike - % Recovery									
Semivolatile Organics				Result 1					
1,2,4-Trichlorobenzene	M18-Ap15604	NCP	%	88			70-130	Pass	
1,4-Dichlorobenzene	M18-Ap15604	NCP	%	107			70-130	Pass	
2,4-Dinitrotoluene	M18-Ap15604	NCP	%	75			70-130	Pass	
N-Nitrosodipropylamine	M18-Ap15604	NCP	%	123			70-130	Pass	
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1					
Perfluorobutanoic acid (PFBA)	A18-Ap26181	NCP	%	98			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	A18-Ap26181	NCP	%	101			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	A18-Ap26181	NCP	%	98			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	A18-Ap26181	NCP	%	102			50-150	Pass	
Perfluorooctanoic acid (PFOA)	A18-Ap26181	NCP	%	99			50-150	Pass	
Perfluorononanoic acid (PFNA)	A18-Ap26181	NCP	%	99			50-150	Pass	
Perfluorodecanoic acid (PFDA)	A18-Ap26181	NCP	%	93			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	A18-Ap26181	NCP	%	81			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	A18-Ap26181	NCP	%	90			50-150	Pass	
Perfluorotridecanoic acid (PFTTrDA)	A18-Ap26181	NCP	%	102			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	A18-Ap26181	NCP	%	94			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances				Result 1					
Perfluorooctane sulfonamide (FOSA)	A18-Ap26181	NCP	%	92			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	A18-Ap26181	NCP	%	74			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	A18-Ap26181	NCP	%	74			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	A18-Ap26181	NCP	%	113			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	A18-Ap26181	NCP	%	90			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	A18-Ap26181	NCP	%	90			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	A18-Ap26181	NCP	%	92			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSA's)				Result 1					
Perfluorobutanesulfonic acid (PFBS)	A18-Ap26181	NCP	%	87			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	A18-Ap26181	NCP	%	89			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	A18-Ap26181	NCP	%	87			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	A18-Ap26181	NCP	%	98			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	A18-Ap26181	NCP	%	88			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	A18-Ap26181	NCP	%	64			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	A18-Ap26181	NCP	%	101			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	A18-Ap26181	NCP	%	106			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	A18-Ap26181	NCP	%	94			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	A18-Ap26181	NCP	%	127			50-150	Pass	
Spike - % Recovery									
Alkalinity (speciated)				Result 1					
Bicarbonate Alkalinity (as CaCO ₃)	M18-Ap22444	NCP	%	98			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic (filtered)	M18-Ap23580	CP	%	93			70-130	Pass	
Beryllium (filtered)	M18-Ap23580	CP	%	108			75-125	Pass	
Boron (filtered)	M18-Ap23580	CP	%	114			75-125	Pass	
Cadmium (filtered)	M18-Ap23580	CP	%	75			70-130	Pass	
Cobalt (filtered)	M18-Ap23580	CP	%	89			75-125	Pass	
Copper (filtered)	M18-Ap23580	CP	%	85			70-130	Pass	
Lead (filtered)	M18-Ap23580	CP	%	84			70-130	Pass	
Manganese (filtered)	M18-Ap23580	CP	%	70			70-130	Pass	
Nickel (filtered)	M18-Ap23580	CP	%	87			70-130	Pass	
Selenium (filtered)	M18-Ap23580	CP	%	77			70-130	Pass	
Zinc (filtered)	M18-Ap23580	CP	%	87			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	M18-Ap24311	NCP	%	85			75-125	Pass	
Beryllium	M18-Ap24311	NCP	%	90			75-125	Pass	
Boron	M18-Ap24311	NCP	%	87			75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Cadmium	M18-Ap24311	NCP	%	75			75-125	Pass	
Cobalt	M18-Ap24311	NCP	%	82			75-125	Pass	
Copper	M18-Ap24311	NCP	%	82			75-125	Pass	
Lead	M18-Ap24311	NCP	%	86			75-125	Pass	
Manganese	M18-Ap24311	NCP	%	115			75-125	Pass	
Mercury	M18-Ap24311	NCP	%	88			70-130	Pass	
Nickel	M18-Ap24311	NCP	%	82			75-125	Pass	
Selenium	M18-Ap24311	NCP	%	79			75-125	Pass	
Zinc	M18-Ap24311	NCP	%	91			75-125	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
				Result 1	Result 2	RPD			
Ammonia (as N)	P18-Ap24334	NCP	mg/L	0.03	0.03	9.0	30%	Pass	
Conductivity (at 25°C)	M18-Ap23237	NCP	uS/cm	49	50	2.0	30%	Pass	
Nitrate & Nitrite (as N)	P18-Ap24334	NCP	mg/L	0.06	0.06	2.0	30%	Pass	
Nitrate (as N)	P18-Ap24334	NCP	mg/L	0.06	0.06	2.0	30%	Pass	
Nitrite (as N)	P18-Ap24334	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
pH (at 25°C)	M18-Ap23237	NCP	pH Units	**	4.9	pass	30%	Pass	
Phosphate total (as P)	M18-Ap23062	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
Total Kjeldahl Nitrogen (as N)	M18-Ap23062	NCP	mg/L	1.9	1.8	4.0	30%	Pass	
Total Organic Carbon	M18-Ap24871	NCP	mg/L	< 5	< 5	<1	30%	Pass	
Duplicate									
Alkalinity (speciated)				Result 1	Result 2	RPD			
Bicarbonate Alkalinity (as CaCO ₃)	M18-Ap29668	NCP	mg/L	150	140	2.0	30%	Pass	
Carbonate Alkalinity (as CaCO ₃)	M18-Ap29668	NCP	mg/L	< 10	< 10	<1	30%	Pass	
Hydroxide Alkalinity (as CaCO ₃)	M18-Ap29668	NCP	mg/L	< 20	< 20	<1	30%	Pass	
Total Alkalinity (as CaCO ₃)	M18-Ap29668	NCP	mg/L	150	140	2.0	30%	Pass	
Duplicate									
Alkali Metals				Result 1	Result 2	RPD			
Calcium	M18-Ap23598	NCP	mg/L	< 5	< 5	<1	30%	Pass	
Magnesium	M18-Ap23598	NCP	mg/L	22	24	9.0	30%	Pass	
Potassium	M18-Ap23598	NCP	mg/L	18	18	1.0	30%	Pass	
Sodium	M18-Ap23598	NCP	mg/L	640	680	5.0	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C10-C14	M18-Ap21166	NCP	mg/L	0.13	0.12	6.0	30%	Pass	
TRH C15-C28	M18-Ap21166	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36	M18-Ap21166	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-Ap21166	NCP	mg/L	0.15	0.14	7.0	30%	Pass	
TRH >C16-C34	M18-Ap21166	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH >C34-C40	M18-Ap21166	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	M18-Ap22226	NCP	mg/L	0.074	0.075	1.0	30%	Pass	
Acenaphthylene	M18-Ap22226	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Anthracene	M18-Ap22226	NCP	mg/L	0.013	0.016	18	30%	Pass	
Benz(a)anthracene	M18-Ap22226	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(a)pyrene	M18-Ap22226	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(b&j)fluoranthene	M18-Ap22226	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(g,h,i)perylene	M18-Ap22226	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(k)fluoranthene	M18-Ap22226	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Chrysene	M18-Ap22226	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	

Duplicate								
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD		
Dibenz(a,h)anthracene	M18-Ap22226	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Fluoranthene	M18-Ap22226	NCP	mg/L	0.018	0.017	7.0	30%	Pass
Fluorene	M18-Ap22226	NCP	mg/L	0.036	0.036	1.0	30%	Pass
Indeno(1.2.3-cd)pyrene	M18-Ap22226	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Naphthalene	M18-Ap22226	NCP	mg/L	0.13	0.12	5.0	30%	Pass
Phenanthrene	M18-Ap22226	NCP	mg/L	0.094	0.10	6.0	30%	Pass
Pyrene	M18-Ap22226	NCP	mg/L	0.011	0.011	6.0	30%	Pass
Duplicate								
Organochlorine Pesticides				Result 1	Result 2	RPD		
Chlordanes - Total	M18-Ap21535	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
4,4'-DDD	M18-Ap21535	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
4,4'-DDE	M18-Ap21535	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
4,4'-DDT	M18-Ap21535	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
a-BHC	M18-Ap21535	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Aldrin	M18-Ap21535	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
b-BHC	M18-Ap21535	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
d-BHC	M18-Ap21535	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Dieldrin	M18-Ap21535	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Endosulfan I	M18-Ap21535	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Endosulfan II	M18-Ap21535	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Endosulfan sulphate	M18-Ap21535	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Endrin	M18-Ap21535	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Endrin aldehyde	M18-Ap21535	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Endrin ketone	M18-Ap21535	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
g-BHC (Lindane)	M18-Ap21535	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Heptachlor	M18-Ap21535	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Heptachlor epoxide	M18-Ap21535	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Hexachlorobenzene	M18-Ap21535	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Methoxychlor	M18-Ap21535	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Duplicate								
Organophosphorus Pesticides				Result 1	Result 2	RPD		
Azinphos-methyl	M18-Ap21535	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Bolstar	M18-Ap21535	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Chlorfenvinphos	M18-Ap21535	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Chlorpyrifos	M18-Ap21535	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass
Chlorpyrifos-methyl	M18-Ap21535	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Coumaphos	M18-Ap21535	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass
Demeton-S	M18-Ap21535	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass
Demeton-O	M18-Ap21535	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Diazinon	M18-Ap21535	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Dichlorvos	M18-Ap21535	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Dimethoate	M18-Ap21535	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Disulfoton	M18-Ap21535	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
EPN	M18-Ap21535	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Ethion	M18-Ap21535	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Ethoprop	M18-Ap21535	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Ethyl parathion	M18-Ap21535	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Fenitrothion	M18-Ap21535	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Fensulfotioin	M18-Ap21535	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Fenthion	M18-Ap21535	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Malathion	M18-Ap21535	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Merphos	M18-Ap21535	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Methyl parathion	M18-Ap21535	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Mevinphos	M18-Ap21535	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass

Duplicate								
Organophosphorus Pesticides				Result 1	Result 2	RPD		
Monocrotophos	M18-Ap21535	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Naled	M18-Ap21535	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Omethoate	M18-Ap21535	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Phorate	M18-Ap21535	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Pirimiphos-methyl	M18-Ap21535	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass
Pyrazophos	M18-Ap21535	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Ronnel	M18-Ap21535	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Terbufos	M18-Ap21535	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Tetrachlorvinphos	M18-Ap21535	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Tokuthion	M18-Ap21535	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Trichloronate	M18-Ap21535	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Duplicate								
Phenols (Halogenated)				Result 1	Result 2	RPD		
2-Chlorophenol	M18-Ap22226	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass
2,4-Dichlorophenol	M18-Ap22226	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass
2,4,5-Trichlorophenol	M18-Ap22226	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass
2,4,6-Trichlorophenol	M18-Ap22226	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass
2,6-Dichlorophenol	M18-Ap22226	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass
4-Chloro-3-methylphenol	M18-Ap22226	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass
Pentachlorophenol	M18-Ap22226	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass
Tetrachlorophenols - Total	M18-Ap22226	NCP	mg/L	< 0.03	< 0.03	<1	30%	Pass
Duplicate								
Phenols (non-Halogenated)				Result 1	Result 2	RPD		
2-Cyclohexyl-4,6-dinitrophenol	M18-Ap22226	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass
2-Methyl-4,6-dinitrophenol	M18-Ap22226	NCP	mg/L	< 0.03	< 0.03	<1	30%	Pass
2-Methylphenol (o-Cresol)	M18-Ap22226	NCP	mg/L	0.006	0.006	3.0	30%	Pass
2-Nitrophenol	M18-Ap22226	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass
2,4-Dimethylphenol	M18-Ap22226	NCP	mg/L	0.024	0.024	1.0	30%	Pass
2,4-Dinitrophenol	M18-Ap22226	NCP	mg/L	< 0.03	< 0.03	<1	30%	Pass
3&4-Methylphenol (m&p-Cresol)	M18-Ap22226	NCP	mg/L	< 0.006	< 0.006	<1	30%	Pass
4-Nitrophenol	M18-Ap22226	NCP	mg/L	< 0.03	< 0.03	<1	30%	Pass
Dinoseb	M18-Ap22226	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass
Phenol	M18-Ap22226	NCP	mg/L	0.003	0.003	1.0	30%	Pass
Duplicate								
Semivolatile Organics				Result 1	Result 2	RPD		
1-Chloronaphthalene	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1-Naphthylamine	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,2-Dichlorobenzene	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,2,3-Trichlorobenzene	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,2,3,4-Tetrachlorobenzene	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,2,3,5-Tetrachlorobenzene	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,2,4-Trichlorobenzene	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,2,4,5-Tetrachlorobenzene	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,3-Dichlorobenzene	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,3,5-Trichlorobenzene	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,4-Dichlorobenzene	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
2-Chloronaphthalene	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
2-Methylnaphthalene	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
2-Naphthylamine	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
2-Nitroaniline	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
2-Picoline	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
2,3,4,6-Tetrachlorophenol	M18-Ap22226	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass
2,4-Dinitrotoluene	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
2,6-Dinitrotoluene	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass

Duplicate								
Semivolatile Organics				Result 1	Result 2	RPD		
3-Methylcholanthrene	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
3,3'-Dichlorobenzidine	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
4-Aminobiphenyl	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
4-Bromophenyl phenyl ether	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
4-Chlorophenyl phenyl ether	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
4,4'-DDD	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
4,4'-DDE	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
4,4'-DDT	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
7,12-Dimethylbenz(a)anthracene	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
a-BHC	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Acetophenone	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Aldrin	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Aniline	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
b-BHC	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Benzyl chloride	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Bis(2-chloroethoxy)methane	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Bis(2-chloroisopropyl)ether	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Bis(2-ethylhexyl)phthalate	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Butyl benzyl phthalate	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
d-BHC	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Di-n-butyl phthalate	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Di-n-octyl phthalate	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Dibenz(a,j)acridine	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Dibenzofuran	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Dieldrin	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Diethyl phthalate	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Dimethyl phthalate	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Dimethylaminoazobenzene	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Diphenylamine	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Endosulfan I	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Endosulfan II	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Endosulfan sulphate	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Endrin	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Endrin aldehyde	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Endrin ketone	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
g-BHC (Lindane)	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Heptachlor	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Heptachlor epoxide	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Hexachlorobenzene	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Hexachlorobutadiene	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Hexachlorocyclopentadiene	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Hexachloroethane	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Methoxychlor	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
N-Nitrosodibutylamine	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
N-Nitrosodipropylamine	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
N-Nitrosopiperidine	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Nitrobenzene	M18-Ap22226	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass
Pentachlorobenzene	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Pentachloronitrobenzene	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Pronamide	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Trifluralin	M18-Ap22226	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass

Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD		
Perfluorobutanoic acid (PFBA)	M18-Ap25660	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
Perfluoropentanoic acid (PFPeA)	M18-Ap25660	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorohexanoic acid (PFHxA)	M18-Ap25660	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoroheptanoic acid (PFHpA)	M18-Ap25660	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorooctanoic acid (PFOA)	M18-Ap25660	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorononanoic acid (PFNA)	M18-Ap25660	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorodecanoic acid (PFDA)	M18-Ap25660	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoroundecanoic acid (PFUnDA)	M18-Ap25660	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorododecanoic acid (PFDoDA)	M18-Ap25660	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorotridecanoic acid (PFTrDA)	M18-Ap25660	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorotetradecanoic acid (PFTeDA)	M18-Ap25660	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD		
Perfluorooctane sulfonamide (FOSA)	M18-Ap25660	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	M18-Ap25660	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	M18-Ap25660	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	M18-Ap25660	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	M18-Ap25660	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	M18-Ap25660	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	M18-Ap25660	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	M18-Ap25660	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	M18-Ap25660	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	M18-Ap25660	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	M18-Ap25660	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	M18-Ap25660	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	M18-Ap25660	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)				Result 1	Result 2	RPD		
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	M18-Ap25660	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	M18-Ap25660	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	M18-Ap25660	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	M18-Ap25660	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
Carbon Dioxide (free)	M18-Ap23237	NCP	mg/L	77	100	27	30%	Pass
Phosphorus reactive (as P)	M18-Ap23579	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass

Duplicate								
				Result 1	Result 2	RPD		
Chloride	M18-Ap23580	CP	mg/L	810	770	4.0	30%	Pass
Sulphate (as SO ₄)	M18-Ap23580	CP	mg/L	58	59	2.0	30%	Pass
Total Dissolved Solids	M18-Ap23580	CP	mg/L	1200	1100	6.0	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic (filtered)	M18-Ap23580	CP	mg/L	0.002	0.002	9.0	30%	Pass
Beryllium (filtered)	M18-Ap23580	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Boron (filtered)	M18-Ap23580	CP	mg/L	0.08	0.08	<1	30%	Pass
Cadmium (filtered)	M18-Ap23580	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Cobalt (filtered)	M18-Ap23580	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Copper (filtered)	M18-Ap23580	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Lead (filtered)	M18-Ap23580	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Manganese (filtered)	M18-Ap23580	CP	mg/L	0.67	0.61	9.0	30%	Pass
Mercury (filtered)	M18-Ap23580	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Nickel (filtered)	M18-Ap23580	CP	mg/L	0.025	0.023	8.0	30%	Pass
Selenium (filtered)	M18-Ap23580	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Zinc (filtered)	M18-Ap23580	CP	mg/L	0.007	0.007	6.0	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
Chromium (hexavalent)	M18-Ap23581	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	M18-Ap24311	NCP	mg/L	0.008	0.008	3.0	30%	Pass
Beryllium	M18-Ap24311	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Boron	M18-Ap24311	NCP	mg/L	0.07	0.07	6.0	30%	Pass
Cadmium	M18-Ap24311	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Cobalt	M18-Ap24311	NCP	mg/L	0.004	0.004	1.0	30%	Pass
Copper	M18-Ap24311	NCP	mg/L	0.006	0.006	1.0	30%	Pass
Lead	M18-Ap24311	NCP	mg/L	0.007	0.007	2.0	30%	Pass
Manganese	M18-Ap24927	NCP	mg/L	0.74	0.78	5.0	30%	Pass
Mercury	M18-Ap24311	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Nickel	M18-Ap24311	NCP	mg/L	0.009	0.009	1.0	30%	Pass
Selenium	M18-Ap24311	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Zinc	M18-Ap24311	NCP	mg/L	0.039	0.041	5.0	30%	Pass

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
N11	Isotope dilution is used for calibration of each native compound for which an exact labelled analogue is available (Isotope Dilution Quantitation). The isotopically labelled analogues allow identification and recovery correction of the concentration of the associated native PFAS compounds.
N15	Where the native PFAS compound does not have labelled analogue then the quantification is made using the Extracted Internal Standard Analyte with the closest retention time to the analyte and no recovery correction has been made (Internal Standard Quantitation).
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

Authorised By

Mary Makarios	Analytical Services Manager
Alex Petridis	Senior Analyst-Metal (VIC)
Harry Bacalis	Senior Analyst-Volatile (VIC)
Jonathon Angell	Senior Analyst-Organic (QLD)
Joseph Edouard	Senior Analyst-Organic (VIC)
Michael Brancati	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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CERTIFICATE OF ANALYSIS

Work Order : **EM1806473**
Client : **GHD PTY LTD**
Contact : **MR MATTHEW MOORE**
Address : **LEVEL 8, 180 LONSDALE ST**
MELBOURNE VIC, AUSTRALIA 3001
Telephone : **----**
Project : **31350060813**
Order number : **----**
C-O-C number : **----**
Sampler : **L.SPURR, M.MOORE**
Site : **Bulleen, VIC 3105**
Quote number : **ME/124/18 - North East Link**
No. of samples received : **4**
No. of samples analysed : **4**

Page : 1 of 15
Laboratory : Environmental Division Melbourne
Contact : Shirley LeCornu
Address : 4 Westall Rd Springvale VIC Australia 3171
Telephone : +61-3-8549 9630
Date Samples Received : 19-Apr-2018 10:00
Date Analysis Commenced : 19-Apr-2018
Issue Date : 27-Apr-2018 15:55



Accreditation No. 825
 Accredited for compliance with
 ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC
Samantha Smith	Laboratory Coordinator	WRG Subcontracting, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

Ø = ALS is not NATA accredited for these tests.

~ = Indicates an estimated value.

- SRB (MM669) is conducted by ALS Scoresby NATA accreditation no. 992, site no. 989. NATA accreditation does not cover performance of this method.
- It is recognised that TKN is less than ammonia for sample #4. However, the difference is within experimental variation of the methods.
- Ionic balances were calculated using: major anions - chloride, alkalinity and sulfate; and major cations - calcium, magnesium, potassium and sodium.
- ED045G: The presence of thiocyanate can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.
- EP075: 'Sum of PAH' is the sum of the USEPA 16 priority PAHs
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a,h)anthracene (1.0), Benzo(g,h,i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.



Analytical Results

Sub-Matrix: **WATER**
 (Matrix: **WATER**)

Client sample ID

				NEL-BH140 / 180418	NEL-BH039 / 180418	QC1 / 180418	QC2 / 180418	----
Client sampling date / time				18-Apr-2018 00:00	18-Apr-2018 00:00	18-Apr-2018 00:00	18-Apr-2018 00:00	----
Compound	CAS Number	LOR	Unit	EM1806473-001	EM1806473-002	EM1806473-003	EM1806473-004	-----
				Result	Result	Result	Result	----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	----	----	----	6.50	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	----	----	----	2400	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	----	----	----	1420	----
EA165: CO₂ - Free and Total								
Free Carbon Dioxide as CO ₂	85540-96-1	1	mg/L	----	----	----	192	----
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO ₃	DMO-210-001	1	mg/L	----	----	----	<1	----
Carbonate Alkalinity as CaCO ₃	3812-32-6	1	mg/L	----	----	----	<1	----
Bicarbonate Alkalinity as CaCO ₃	71-52-3	1	mg/L	----	----	----	382	----
Total Alkalinity as CaCO ₃	----	1	mg/L	----	----	----	382	----
ED041G: Sulfate (Turbidimetric) as SO₄ 2- by DA								
Sulfate as SO ₄ - Turbidimetric	14808-79-8	1	mg/L	----	----	----	51	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	----	----	----	536	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	----	----	----	26	----
Magnesium	7439-95-4	1	mg/L	----	----	----	51	----
Sodium	7440-23-5	1	mg/L	----	----	----	385	----
Potassium	7440-09-7	1	mg/L	----	----	----	3	----
EG020F: Dissolved Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	----	----	----	0.002	----
Boron	7440-42-8	0.05	mg/L	----	----	----	0.08	----
Barium	7440-39-3	0.001	mg/L	----	----	----	0.333	----
Beryllium	7440-41-7	0.001	mg/L	----	----	----	<0.001	----
Cadmium	7440-43-9	0.0001	mg/L	----	----	----	<0.0001	----
Cobalt	7440-48-4	0.001	mg/L	----	----	----	<0.001	----
Chromium	7440-47-3	0.001	mg/L	----	----	----	<0.001	----
Copper	7440-50-8	0.001	mg/L	----	----	----	<0.001	----
Manganese	7439-96-5	0.001	mg/L	----	----	----	0.597	----
Nickel	7440-02-0	0.001	mg/L	----	----	----	0.024	----
Lead	7439-92-1	0.001	mg/L	----	----	----	<0.001	----
Selenium	7782-49-2	0.01	mg/L	----	----	----	<0.01	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	NEL-BH140 / 180418	NEL-BH039 / 180418	QC1 / 180418	QC2 / 180418	----
Client sampling date / time					18-Apr-2018 00:00	18-Apr-2018 00:00	18-Apr-2018 00:00	18-Apr-2018 00:00	----
Compound	CAS Number	LOR	Unit		EM1806473-001	EM1806473-002	EM1806473-003	EM1806473-004	-----
					Result	Result	Result	Result	----
EG020F: Dissolved Metals by ICP-MS - Continued									
Vanadium	7440-62-2	0.01	mg/L		----	----	----	<0.01	----
Zinc	7440-66-6	0.005	mg/L		----	----	----	0.018	----
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		----	----	----	<0.0001	----
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		----	----	----	0.41	----
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L		----	----	----	<0.01	----
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L		----	----	----	0.02	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		----	----	----	0.02	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L		----	----	----	0.4	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L		----	----	----	0.4	----
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L		----	----	----	0.36	----
EN055: Ionic Balance									
Total Anions	----	0.01	meq/L		----	----	----	23.8	----
Total Cations	----	0.01	meq/L		----	----	----	22.3	----
Ionic Balance	----	0.01	%		----	----	----	3.24	----
EP005: Total Organic Carbon (TOC)									
Total Organic Carbon	----	1	mg/L		----	----	----	3	----
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	1	µg/L		----	----	----	<1	----
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.5	µg/L		----	----	----	<0.5	----
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L		----	----	----	<0.5	----
beta-BHC	319-85-7	0.5	µg/L		----	----	----	<0.5	----
gamma-BHC	58-89-9	0.5	µg/L		----	----	----	<0.5	----
delta-BHC	319-86-8	0.5	µg/L		----	----	----	<0.5	----
Heptachlor	76-44-8	0.5	µg/L		----	----	----	<0.5	----



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Client sample ID

				NEL-BH140 / 180418	NEL-BH039 / 180418	QC1 / 180418	QC2 / 180418	----
Client sampling date / time				18-Apr-2018 00:00	18-Apr-2018 00:00	18-Apr-2018 00:00	18-Apr-2018 00:00	----
Compound	CAS Number	LOR	Unit	EM1806473-001	EM1806473-002	EM1806473-003	EM1806473-004	-----
				Result	Result	Result	Result	----

EP068A: Organochlorine Pesticides (OC) - Continued

Aldrin	309-00-2	0.5	µg/L	----	----	----	<0.5	----
Heptachlor epoxide	1024-57-3	0.5	µg/L	----	----	----	<0.5	----
trans-Chlordane	5103-74-2	0.5	µg/L	----	----	----	<0.5	----
alpha-Endosulfan	959-98-8	0.5	µg/L	----	----	----	<0.5	----
cis-Chlordane	5103-71-9	0.5	µg/L	----	----	----	<0.5	----
Dieldrin	60-57-1	0.5	µg/L	----	----	----	<0.5	----
4,4'-DDE	72-55-9	0.5	µg/L	----	----	----	<0.5	----
Endrin	72-20-8	0.5	µg/L	----	----	----	<0.5	----
beta-Endosulfan	33213-65-9	0.5	µg/L	----	----	----	<0.5	----
4,4'-DDD	72-54-8	0.5	µg/L	----	----	----	<0.5	----
Endrin aldehyde	7421-93-4	0.5	µg/L	----	----	----	<0.5	----
Endosulfan sulfate	1031-07-8	0.5	µg/L	----	----	----	<0.5	----
4,4'-DDT	50-29-3	2.0	µg/L	----	----	----	<2.0	----
Endrin ketone	53494-70-5	0.5	µg/L	----	----	----	<0.5	----
Methoxychlor	72-43-5	2.0	µg/L	----	----	----	<2.0	----
^ Total Chlordane (sum)	----	0.5	µg/L	----	----	----	<0.5	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.5	µg/L	----	----	----	<0.5	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.5	µg/L	----	----	----	<0.5	----

EP068B: Organophosphorus Pesticides (OP)

Dichlorvos	62-73-7	0.5	µg/L	----	----	----	<0.5	----
Demeton-S-methyl	919-86-8	0.5	µg/L	----	----	----	<0.5	----
Monocrotophos	6923-22-4	2.0	µg/L	----	----	----	<2.0	----
Dimethoate	60-51-5	0.5	µg/L	----	----	----	<0.5	----
Diazinon	333-41-5	0.5	µg/L	----	----	----	<0.5	----
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	----	----	----	<0.5	----
Parathion-methyl	298-00-0	2.0	µg/L	----	----	----	<2.0	----
Malathion	121-75-5	0.5	µg/L	----	----	----	<0.5	----
Fenthion	55-38-9	0.5	µg/L	----	----	----	<0.5	----
Chlorpyrifos	2921-88-2	0.5	µg/L	----	----	----	<0.5	----
Parathion	56-38-2	2.0	µg/L	----	----	----	<2.0	----
Pirimphos-ethyl	23505-41-1	0.5	µg/L	----	----	----	<0.5	----
Chlorfenvinphos	470-90-6	0.5	µg/L	----	----	----	<0.5	----
Bromophos-ethyl	4824-78-6	0.5	µg/L	----	----	----	<0.5	----
Fenamiphos	22224-92-6	0.5	µg/L	----	----	----	<0.5	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	NEL-BH140 / 180418	NEL-BH039 / 180418	QC1 / 180418	QC2 / 180418	----
Client sampling date / time					18-Apr-2018 00:00	18-Apr-2018 00:00	18-Apr-2018 00:00	18-Apr-2018 00:00	----
Compound	CAS Number	LOR	Unit		EM1806473-001	EM1806473-002	EM1806473-003	EM1806473-004	-----
					Result	Result	Result	Result	----
EP068B: Organophosphorus Pesticides (OP) - Continued									
Prothiofos	34643-46-4	0.5	µg/L		----	----	----	<0.5	----
Ethion	563-12-2	0.5	µg/L		----	----	----	<0.5	----
Carbophenothion	786-19-6	0.5	µg/L		----	----	----	<0.5	----
Azinphos Methyl	86-50-0	0.5	µg/L		----	----	----	<0.5	----
EP074A: Monocyclic Aromatic Hydrocarbons									
Styrene	100-42-5	5	µg/L		----	----	----	<5	----
Isopropylbenzene	98-82-8	5	µg/L		----	----	----	<5	----
n-Propylbenzene	103-65-1	5	µg/L		----	----	----	<5	----
1,3,5-Trimethylbenzene	108-67-8	5	µg/L		----	----	----	<5	----
sec-Butylbenzene	135-98-8	5	µg/L		----	----	----	<5	----
1,2,4-Trimethylbenzene	95-63-6	5	µg/L		----	----	----	<5	----
tert-Butylbenzene	98-06-6	5	µg/L		----	----	----	<5	----
p-Isopropyltoluene	99-87-6	5	µg/L		----	----	----	<5	----
n-Butylbenzene	104-51-8	5	µg/L		----	----	----	<5	----
EP074B: Oxygenated Compounds									
Vinyl Acetate	108-05-4	50	µg/L		----	----	----	<50	----
2-Butanone (MEK)	78-93-3	50	µg/L		----	----	----	<50	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L		----	----	----	<50	----
2-Hexanone (MBK)	591-78-6	50	µg/L		----	----	----	<50	----
EP074C: Sulfonated Compounds									
Carbon disulfide	75-15-0	5	µg/L		----	----	----	<5	----
EP074D: Fumigants									
2,2-Dichloropropane	594-20-7	5	µg/L		----	----	----	<5	----
1,2-Dichloropropane	78-87-5	5	µg/L		----	----	----	<5	----
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L		----	----	----	<5	----
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L		----	----	----	<5	----
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L		----	----	----	<5	----
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	50	µg/L		----	----	----	<50	----
Chloromethane	74-87-3	50	µg/L		----	----	----	<50	----
Vinyl chloride	75-01-4	50	µg/L		----	----	----	<50	----
Bromomethane	74-83-9	50	µg/L		----	----	----	<50	----
Chloroethane	75-00-3	50	µg/L		----	----	----	<50	----
Trichlorofluoromethane	75-69-4	50	µg/L		----	----	----	<50	----



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Client sample ID

				NEL-BH140 / 180418	NEL-BH039 / 180418	QC1 / 180418	QC2 / 180418	----
Client sampling date / time				18-Apr-2018 00:00	18-Apr-2018 00:00	18-Apr-2018 00:00	18-Apr-2018 00:00	----
Compound	CAS Number	LOR	Unit	EM1806473-001	EM1806473-002	EM1806473-003	EM1806473-004	-----
				Result	Result	Result	Result	----
EP074E: Halogenated Aliphatic Compounds - Continued								
1,1-Dichloroethene	75-35-4	5	µg/L	----	----	----	<5	----
Iodomethane	74-88-4	5	µg/L	----	----	----	<5	----
trans-1,2-Dichloroethene	156-60-5	5	µg/L	----	----	----	<5	----
1,1-Dichloroethane	75-34-3	5	µg/L	----	----	----	<5	----
cis-1,2-Dichloroethene	156-59-2	5	µg/L	----	----	----	<5	----
1,1,1-Trichloroethane	71-55-6	5	µg/L	----	----	----	<5	----
1,1-Dichloropropylene	563-58-6	5	µg/L	----	----	----	<5	----
Carbon Tetrachloride	56-23-5	5	µg/L	----	----	----	<5	----
1,2-Dichloroethane	107-06-2	5	µg/L	----	----	----	<5	----
Trichloroethene	79-01-6	5	µg/L	----	----	----	<5	----
Dibromomethane	74-95-3	5	µg/L	----	----	----	<5	----
1,1,2-Trichloroethane	79-00-5	5	µg/L	----	----	----	<5	----
1,3-Dichloropropane	142-28-9	5	µg/L	----	----	----	<5	----
Tetrachloroethene	127-18-4	5	µg/L	----	----	----	<5	----
1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	----	----	----	<5	----
trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	----	----	----	<5	----
cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	----	----	----	<5	----
1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	----	----	----	<5	----
1,2,3-Trichloropropane	96-18-4	5	µg/L	----	----	----	<5	----
Pentachloroethane	76-01-7	5	µg/L	----	----	----	<5	----
1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	----	----	----	<5	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	----	----	----	<5	----
Bromobenzene	108-86-1	5	µg/L	----	----	----	<5	----
2-Chlorotoluene	95-49-8	5	µg/L	----	----	----	<5	----
4-Chlorotoluene	106-43-4	5	µg/L	----	----	----	<5	----
1,2,3-Trichlorobenzene	87-61-6	5	µg/L	----	----	----	<5	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	----	----	----	<5	----
Bromodichloromethane	75-27-4	5	µg/L	----	----	----	<5	----
Dibromochloromethane	124-48-1	5	µg/L	----	----	----	<5	----
Bromoform	75-25-2	5	µg/L	----	----	----	<5	----
EP075A: Phenolic Compounds								
Phenol	108-95-2	2	µg/L	----	----	----	<2	----



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Client sample ID

				NEL-BH140 / 180418	NEL-BH039 / 180418	QC1 / 180418	QC2 / 180418	----
Client sampling date / time				18-Apr-2018 00:00	18-Apr-2018 00:00	18-Apr-2018 00:00	18-Apr-2018 00:00	----
Compound	CAS Number	LOR	Unit	EM1806473-001	EM1806473-002	EM1806473-003	EM1806473-004	-----
				Result	Result	Result	Result	----
EP075A: Phenolic Compounds - Continued								
2-Chlorophenol	95-57-8	2	µg/L	----	----	----	<2	----
2-Methylphenol	95-48-7	2	µg/L	----	----	----	<2	----
3- & 4-Methylphenol	1319-77-3	4	µg/L	----	----	----	<4	----
2-Nitrophenol	88-75-5	2	µg/L	----	----	----	<2	----
2,4-Dimethylphenol	105-67-9	2	µg/L	----	----	----	<2	----
2,4-Dichlorophenol	120-83-2	2	µg/L	----	----	----	<2	----
2,6-Dichlorophenol	87-65-0	2	µg/L	----	----	----	<2	----
4-Chloro-3-methylphenol	59-50-7	2	µg/L	----	----	----	<2	----
2,4,6-Trichlorophenol	88-06-2	2	µg/L	----	----	----	<2	----
2,4,5-Trichlorophenol	95-95-4	2	µg/L	----	----	----	<2	----
Pentachlorophenol	87-86-5	4	µg/L	----	----	----	<4	----
EP075B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	2	µg/L	----	----	----	<2	----
2-Methylnaphthalene	91-57-6	2	µg/L	----	----	----	<2	----
2-Chloronaphthalene	91-58-7	2	µg/L	----	----	----	<2	----
Acenaphthylene	208-96-8	2	µg/L	----	----	----	<2	----
Acenaphthene	83-32-9	2	µg/L	----	----	----	<2	----
Fluorene	86-73-7	2	µg/L	----	----	----	<2	----
Phenanthrene	85-01-8	2	µg/L	----	----	----	<2	----
Anthracene	120-12-7	2	µg/L	----	----	----	<2	----
Fluoranthene	206-44-0	2	µg/L	----	----	----	<2	----
Pyrene	129-00-0	2	µg/L	----	----	----	<2	----
N-2-Fluorenyl Acetamide	53-96-3	2	µg/L	----	----	----	<2	----
Benz(a)anthracene	56-55-3	2	µg/L	----	----	----	<2	----
Chrysene	218-01-9	2	µg/L	----	----	----	<2	----
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	4	µg/L	----	----	----	<4	----
7,12-Dimethylbenz(a)anthracene	57-97-6	2	µg/L	----	----	----	<2	----
Benzo(a)pyrene	50-32-8	2	µg/L	----	----	----	<2	----
3-Methylcholanthrene	56-49-5	2	µg/L	----	----	----	<2	----
Indeno(1,2,3-cd)pyrene	193-39-5	2	µg/L	----	----	----	<2	----
Dibenz(a,h)anthracene	53-70-3	2	µg/L	----	----	----	<2	----
Benzo(g,h,i)perylene	191-24-2	2	µg/L	----	----	----	<2	----
^ Sum of PAHs	----	2	µg/L	----	----	----	<2	----
^ Benzo(a)pyrene TEQ (zero)	----	2	µg/L	----	----	----	<2	----



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Client sample ID

				NEL-BH140 / 180418	NEL-BH039 / 180418	QC1 / 180418	QC2 / 180418	----
Client sampling date / time				18-Apr-2018 00:00	18-Apr-2018 00:00	18-Apr-2018 00:00	18-Apr-2018 00:00	----
Compound	CAS Number	LOR	Unit	EM1806473-001	EM1806473-002	EM1806473-003	EM1806473-004	-----
				Result	Result	Result	Result	----
EP075C: Phthalate Esters								
Dimethyl phthalate	131-11-3	2	µg/L	----	----	----	<2	----
Diethyl phthalate	84-66-2	2	µg/L	----	----	----	<2	----
Di-n-butyl phthalate	84-74-2	2	µg/L	----	----	----	<2	----
Butyl benzyl phthalate	85-68-7	2	µg/L	----	----	----	<2	----
bis(2-ethylhexyl) phthalate	117-81-7	10	µg/L	----	----	----	<10	----
Di-n-octylphthalate	117-84-0	2	µg/L	----	----	----	<2	----
EP075D: Nitrosamines								
N-Nitrosomethylethylamine	10595-95-6	2	µg/L	----	----	----	<2	----
N-Nitrosodiethylamine	55-18-5	2	µg/L	----	----	----	<2	----
N-Nitrosopyrrolidine	930-55-2	4	µg/L	----	----	----	<4	----
N-Nitrosomorpholine	59-89-2	2	µg/L	----	----	----	<2	----
N-Nitrosodi-n-propylamine	621-64-7	2	µg/L	----	----	----	<2	----
N-Nitrosopiperidine	100-75-4	2	µg/L	----	----	----	<2	----
N-Nitrosodibutylamine	924-16-3	2	µg/L	----	----	----	<2	----
N-Nitrosodiphenyl & Diphenylamine	86-30-6 122-39-4	4	µg/L	----	----	----	<4	----
Methapyrilene	91-80-5	2	µg/L	----	----	----	<2	----
EP075E: Nitroaromatics and Ketones								
2-Picoline	109-06-8	2	µg/L	----	----	----	<2	----
Acetophenone	98-86-2	2	µg/L	----	----	----	<2	----
Nitrobenzene	98-95-3	2	µg/L	----	----	----	<2	----
Isophorone	78-59-1	2	µg/L	----	----	----	<2	----
2,6-Dinitrotoluene	606-20-2	4	µg/L	----	----	----	<4	----
2,4-Dinitrotoluene	121-14-2	4	µg/L	----	----	----	<4	----
1-Naphthylamine	134-32-7	2	µg/L	----	----	----	<2	----
4-Nitroquinoline-N-oxide	56-57-5	2	µg/L	----	----	----	<2	----
5-Nitro-o-toluidine	99-55-8	2	µg/L	----	----	----	<2	----
Azobenzene	103-33-3	2	µg/L	----	----	----	<2	----
1,3,5-Trinitrobenzene	99-35-4	2	µg/L	----	----	----	<2	----
Phenacetin	62-44-2	2	µg/L	----	----	----	<2	----
4-Aminobiphenyl	92-67-1	2	µg/L	----	----	----	<2	----
Pentachloronitrobenzene	82-68-8	2	µg/L	----	----	----	<2	----
Pronamide	23950-58-5	2	µg/L	----	----	----	<2	----
Dimethylaminoazobenzene	60-11-7	2	µg/L	----	----	----	<2	----
Chlorobenzilate	510-15-6	2	µg/L	----	----	----	<2	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	NEL-BH140 / 180418	NEL-BH039 / 180418	QC1 / 180418	QC2 / 180418	----
Client sampling date / time					18-Apr-2018 00:00	18-Apr-2018 00:00	18-Apr-2018 00:00	18-Apr-2018 00:00	----
Compound	CAS Number	LOR	Unit		EM1806473-001	EM1806473-002	EM1806473-003	EM1806473-004	-----
					Result	Result	Result	Result	----
EP075E: Nitroaromatics and Ketones - Continued									
EP075F: Haloethers									
Bis(2-chloroethyl) ether	111-44-4	2	µg/L		----	----	----	<2	----
Bis(2-chloroethoxy) methane	111-91-1	2	µg/L		----	----	----	<2	----
4-Chlorophenyl phenyl ether	7005-72-3	2	µg/L		----	----	----	<2	----
4-Bromophenyl phenyl ether	101-55-3	2	µg/L		----	----	----	<2	----
EP075G: Chlorinated Hydrocarbons									
1,3-Dichlorobenzene	541-73-1	2	µg/L		----	----	----	<2	----
1,4-Dichlorobenzene	106-46-7	2	µg/L		----	----	----	<2	----
1,2-Dichlorobenzene	95-50-1	2	µg/L		----	----	----	<2	----
Hexachloroethane	67-72-1	2	µg/L		----	----	----	<2	----
1,2,4-Trichlorobenzene	120-82-1	2	µg/L		----	----	----	<2	----
Hexachloropropylene	1888-71-7	2	µg/L		----	----	----	<2	----
Hexachlorobutadiene	87-68-3	2	µg/L		----	----	----	<2	----
Hexachlorocyclopentadiene	77-47-4	10	µg/L		----	----	----	<10	----
Pentachlorobenzene	608-93-5	2	µg/L		----	----	----	<2	----
Hexachlorobenzene (HCB)	118-74-1	4	µg/L		----	----	----	<4	----
EP075H: Anilines and Benzidines									
Aniline	62-53-3	2	µg/L		----	----	----	<2	----
4-Chloroaniline	106-47-8	2	µg/L		----	----	----	<2	----
2-Nitroaniline	88-74-4	4	µg/L		----	----	----	<4	----
3-Nitroaniline	99-09-2	4	µg/L		----	----	----	<4	----
Dibenzofuran	132-64-9	2	µg/L		----	----	----	<2	----
4-Nitroaniline	100-01-6	2	µg/L		----	----	----	<2	----
Carbazole	86-74-8	2	µg/L		----	----	----	<2	----
3,3'-Dichlorobenzidine	91-94-1	2	µg/L		----	----	----	<2	----
EP075I: Organochlorine Pesticides									
alpha-BHC	319-84-6	2	µg/L		----	----	----	<2	----
beta-BHC	319-85-7	2	µg/L		----	----	----	<2	----
gamma-BHC	58-89-9	2	µg/L		----	----	----	<2	----
delta-BHC	319-86-8	2	µg/L		----	----	----	<2	----
Heptachlor	76-44-8	2	µg/L		----	----	----	<2	----
Aldrin	309-00-2	2	µg/L		----	----	----	<2	----
Heptachlor epoxide	1024-57-3	2	µg/L		----	----	----	<2	----
alpha-Endosulfan	959-98-8	2	µg/L		----	----	----	<2	----



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Client sample ID

				NEL-BH140 / 180418	NEL-BH039 / 180418	QC1 / 180418	QC2 / 180418	----
Client sampling date / time				18-Apr-2018 00:00	18-Apr-2018 00:00	18-Apr-2018 00:00	18-Apr-2018 00:00	----
Compound	CAS Number	LOR	Unit	EM1806473-001	EM1806473-002	EM1806473-003	EM1806473-004	-----
				Result	Result	Result	Result	----
EP075I: Organochlorine Pesticides - Continued								
4,4'-DDE	72-55-9	2	µg/L	----	----	----	<2	----
Dieldrin	60-57-1	2	µg/L	----	----	----	<2	----
Endrin	72-20-8	2	µg/L	----	----	----	<2	----
beta-Endosulfan	33213-65-9	2	µg/L	----	----	----	<2	----
4,4'-DDD	72-54-8	2	µg/L	----	----	----	<2	----
Endosulfan sulfate	1031-07-8	2	µg/L	----	----	----	<2	----
4,4'-DDT	50-29-3	4	µg/L	----	----	----	<4	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	4	µg/L	----	----	----	<4	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-29-3	4	µg/L	----	----	----	<4	----
EP075J: Organophosphorus Pesticides								
Dichlorvos	62-73-7	2	µg/L	----	----	----	<2	----
Dimethoate	60-51-5	2	µg/L	----	----	----	<2	----
Diazinon	333-41-5	2	µg/L	----	----	----	<2	----
Chlorpyrifos-methyl	5598-13-0	2	µg/L	----	----	----	<2	----
Malathion	121-75-5	2	µg/L	----	----	----	<2	----
Fenthion	55-38-9	2	µg/L	----	----	----	<2	----
Chlorpyrifos	2921-88-2	2	µg/L	----	----	----	<2	----
Pirimphos-ethyl	23505-41-1	2	µg/L	----	----	----	<2	----
Chlorfenvinphos	470-90-6	2	µg/L	----	----	----	<2	----
Prothiofos	34643-46-4	2	µg/L	----	----	----	<2	----
Ethion	563-12-2	2	µg/L	----	----	----	<2	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	----	----	----	<20	----
C10 - C14 Fraction	----	50	µg/L	----	----	----	<50	----
C15 - C28 Fraction	----	100	µg/L	----	----	----	<100	----
C29 - C36 Fraction	----	50	µg/L	----	----	----	<50	----
^ C10 - C36 Fraction (sum)	----	50	µg/L	----	----	----	<50	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	----	----	----	<20	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	----	----	----	<20	----
>C10 - C16 Fraction	----	100	µg/L	----	----	----	<100	----
>C16 - C34 Fraction	----	100	µg/L	----	----	----	<100	----
>C34 - C40 Fraction	----	100	µg/L	----	----	----	<100	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	NEL-BH140 / 180418	NEL-BH039 / 180418	QC1 / 180418	QC2 / 180418	----
Client sampling date / time					18-Apr-2018 00:00	18-Apr-2018 00:00	18-Apr-2018 00:00	18-Apr-2018 00:00	----
Compound	CAS Number	LOR	Unit		EM1806473-001	EM1806473-002	EM1806473-003	EM1806473-004	-----
					Result	Result	Result	Result	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
^ >C10 - C40 Fraction (sum)	----	100	µg/L		----	----	----	<100	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L		----	----	----	<100	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		----	----	----	<1	----
Toluene	108-88-3	2	µg/L		----	----	----	<2	----
Ethylbenzene	100-41-4	2	µg/L		----	----	----	<2	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		----	----	----	<2	----
ortho-Xylene	95-47-6	2	µg/L		----	----	----	<2	----
^ Total Xylenes	----	2	µg/L		----	----	----	<2	----
^ Sum of BTEX	----	1	µg/L		----	----	----	<1	----
Naphthalene	91-20-3	5	µg/L		----	----	----	<5	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		----	----	----	<0.02	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		----	----	----	<0.02	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L		----	----	----	<0.02	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		----	----	----	<0.02	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		----	----	----	<0.01	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		----	----	----	<0.02	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		----	----	----	<0.1	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		----	----	----	<0.02	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		----	----	----	<0.02	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		----	----	----	<0.02	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		----	----	----	<0.01	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		----	----	----	<0.02	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		----	----	----	<0.02	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		----	----	----	<0.02	----



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Client sample ID

				NEL-BH140 / 180418	NEL-BH039 / 180418	QC1 / 180418	QC2 / 180418	----
Client sampling date / time				18-Apr-2018 00:00	18-Apr-2018 00:00	18-Apr-2018 00:00	18-Apr-2018 00:00	----
Compound	CAS Number	LOR	Unit	EM1806473-001	EM1806473-002	EM1806473-003	EM1806473-004	-----
				Result	Result	Result	Result	----
EP231B: Perfluoroalkyl Carboxylic Acids - Continued								
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	----	----	----	<0.02	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	----	----	----	<0.02	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	----	----	----	<0.05	----
EP231C: Perfluoroalkyl Sulfonamides								
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	----	----	----	<0.02	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	----	----	----	<0.05	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	----	----	----	<0.05	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	----	----	----	<0.05	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	----	----	----	<0.05	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	----	----	----	<0.02	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	----	----	----	<0.02	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	----	----	----	<0.05	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	----	----	----	<0.05	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	----	----	----	<0.05	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	----	----	----	<0.05	----
EP231P: PFAS Sums								
Sum of PFAS	----	0.01	µg/L	----	----	----	<0.01	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	----	----	----	<0.01	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	NEL-BH140 / 180418	NEL-BH039 / 180418	QC1 / 180418	QC2 / 180418	----
Client sampling date / time					18-Apr-2018 00:00	18-Apr-2018 00:00	18-Apr-2018 00:00	18-Apr-2018 00:00	----
Compound	CAS Number	LOR	Unit		EM1806473-001	EM1806473-002	EM1806473-003	EM1806473-004	-----
					Result	Result	Result	Result	----
EP231P: PFAS Sums - Continued									
Sum of PFAS (WA DER List)	----	0.01	µg/L		----	----	----	<0.01	----
MM669: Sulphate Reducing Bacteria									
Sulphate Reducing Bacteria Population Estimate	----	20	pac/mL		27000	6000	27000	6000	----
Aggressivity	----	1	-		High	High	High	High	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	1	%		----	----	----	90.6	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.5	%		----	----	----	89.1	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.5	%		----	----	----	107	----
EP074S: VOC Surrogates									
1,2-Dichloroethane-D4	17060-07-0	5	%		----	----	----	89.2	----
Toluene-D8	2037-26-5	5	%		----	----	----	85.1	----
4-Bromofluorobenzene	460-00-4	5	%		----	----	----	87.7	----
EP075S: Acid Extractable Surrogates									
2-Fluorophenol	367-12-4	2	%		----	----	----	53.3	----
Phenol-d6	13127-88-3	2	%		----	----	----	31.1	----
2-Chlorophenol-D4	93951-73-6	2	%		----	----	----	72.3	----
2,4,6-Tribromophenol	118-79-6	2	%		----	----	----	85.4	----
EP075T: Base/Neutral Extractable Surrogates									
Nitrobenzene-D5	4165-60-0	2	%		----	----	----	82.6	----
1,2-Dichlorobenzene-D4	2199-69-1	2	%		----	----	----	79.6	----
2-Fluorobiphenyl	321-60-8	2	%		----	----	----	87.6	----
Anthracene-d10	1719-06-8	2	%		----	----	----	98.4	----
4-Terphenyl-d14	1718-51-0	2	%		----	----	----	110	----
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	2	%		----	----	----	90.7	----
Toluene-D8	2037-26-5	2	%		----	----	----	77.9	----
4-Bromofluorobenzene	460-00-4	2	%		----	----	----	91.3	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		----	----	----	72.4	----
13C8-PFOA	----	0.02	%		----	----	----	80.8	----



Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	41	125
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	117
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	51	127
EP074S: VOC Surrogates			
1,2-Dichloroethane-D4	17060-07-0	72	132
Toluene-D8	2037-26-5	77	132
4-Bromofluorobenzene	460-00-4	67	131
EP075S: Acid Extractable Surrogates			
2-Fluorophenol	367-12-4	10	75
Phenol-d6	13127-88-3	10	65
2-Chlorophenol-D4	93951-73-6	21	103
2,4,6-Tribromophenol	118-79-6	22	120
EP075T: Base/Neutral Extractable Surrogates			
Nitrobenzene-D5	4165-60-0	24	116
1,2-Dichlorobenzene-D4	2199-69-1	23	99
2-Fluorobiphenyl	321-60-8	32	114
Anthracene-d10	1719-06-8	47	119
4-Terphenyl-d14	1718-51-0	44	124
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	73	129
Toluene-D8	2037-26-5	70	125
4-Bromofluorobenzene	460-00-4	71	129
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	130
13C8-PFOA	----	60	130



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CHAIN OF CUSTODY

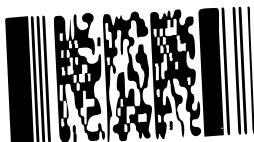
Page 1

of 1

Job Number: 31/35006/0813
Job Location: Bulleen, VIC 3105
Laboratory Issued To: ALS
Order No.:
Sampled By: M. Moore and L. Spurr
Job Contact: Matthew Moore (0490 784 218), Tim Anderson (03 8687 8208)
Contact Email: matthew.moore5@ghd.com timothy.anderson@ghd.com

# OBSERVATIONS	SAMPLE DATE	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DEPTH (m)	No. OF CONTAINERS	Major Ions	Major Cations	Nutrients	Physio-Chemical Parameters (pH, EC, TDS, TOC)	NEPM Metals Suite	TRH C6 - C40	BTEXN	PAH	Phenols	OC / OP / PCB	VOCs / SVOCs	PFAS suite	SRB	Free CO2	Alkalinity Hydroxide as CaCO3 total as CaCO3, bicarbonate alkalinity as	MoLD
1	18.04.2018	NEL-BH140 / 180418	WATER	-	1													X			
2	18.04.2018	NEL-BH037 / 180418	WATER	-	1													X			
3	18.04.2018	QC1 / 180418	WATER	-	1													X			
4	18.04.2018	QC2 / 180418	WATER	-	12	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	

Environmental Division
Melbourne
Work Order Reference
EM1806473



Telephone: + 61-3-8549 9800

Special Instructions:

TURN AROUND TIME REQUIRED

☐ 1 Working Day ☐ 2 Working Days ☐ 3 Working Days ☐ 4 Working Days ☒ 5 Working Days (standard) Other _____

SAMPLE RECEIPT Relinquished by: Matthew Moore Organisation: GHD Date: 19.04.2018 Time: 9:00		Received by: <i>Matthew</i> Organisation: <i>Mr</i> Date: 19/4 Time: 10:00		DELIVERED BY: COURIER/LAB <input checked="" type="checkbox"/> GHD <input type="checkbox"/>	SAMPLE STATUS <input checked="" type="checkbox"/> Security Sealed <input checked="" type="checkbox"/> Chilled <input type="checkbox"/> Frozen <input type="checkbox"/> Ambient
ANALYTICAL SCHEDULE Relinquished by: Matthew Moore Organisation: GHD Date: 19.04.2018 Time: 9:00		Received by: _____ Organisation: _____ Date: _____ Time: _____		RECEIVED BY: FAX <input type="checkbox"/> HAND <input checked="" type="checkbox"/>	

RECEIVING LABORATORY TO CONFIRM RECEIPT OF ANALYTICAL SCHEDULE BY EMAIL TO: matthew.moore5@ghd.com

Checked by: _____ Date: _____

QUALITY CONTROL REPORT

Work Order	: EM1806473	Page	: 1 of 23
Client	: GHD PTY LTD	Laboratory	: Environmental Division Melbourne
Contact	: MR MATTHEW MOORE	Contact	: Shirley LeCornu
Address	: LEVEL 8, 180 LONSDALE ST MELBOURNE VIC, AUSTRALIA 3001	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +61-3-8549 9630
Project	: 31350060813	Date Samples Received	: 19-Apr-2018
Order number	:	Date Analysis Commenced	: 19-Apr-2018
C-O-C number	: ----	Issue Date	: 27-Apr-2018
Sampler	: L.SPURR, M.MOORE		
Site	: Bulleen, VIC 3105		
Quote number	: ME/124/18 - North East Link		
No. of samples received	: 4		
No. of samples analysed	: 4		



This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC
Samantha Smith	Laboratory Coordinator	WRG Subcontracting, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key :
 Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
 CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
 LOR = Limit of reporting
 RPD = Relative Percentage Difference
 # = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EA005P: pH by PC Titrator (QC Lot: 1581981)									
EM1806467-004	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	2.89	2.85	1.39	0% - 20%
EM1806459-021	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	3.74	3.42	8.94	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 1581984)									
EM1806473-004	QC2 / 180418	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	2400	2410	0.416	0% - 20%
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QC Lot: 1582587)									
EM1806423-004	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	3090	3120	0.997	0% - 20%
EM1806438-001	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	1780	1740	1.93	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 1581983)									
EM1806467-004	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.00	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.00	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	<1	0.00	No Limit
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	<1	<1	0.00	No Limit
EM1806473-004	QC2 / 180418	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.00	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.00	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	382	371	2.92	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	382	371	2.92	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 1579759)									
EM1806459-024	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	58	58	0.00	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 1579758)									
EM1806435-004	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	1670	1620	3.04	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 1586284)									
EM1806481-003	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	13	12	0.00	0% - 50%
		ED093F: Magnesium	7439-95-4	1	mg/L	8	7	0.00	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	49	47	4.13	0% - 20%



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
ED093F: Dissolved Major Cations (QC Lot: 1586284) - continued									
EM1806481-003	Anonymous	ED093F: Potassium	7440-09-7	1	mg/L	4	4	0.00	No Limit
EM1806568-006	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	13	13	0.00	0% - 50%
		ED093F: Magnesium	7439-95-4	1	mg/L	7	7	0.00	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	74	73	1.59	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	20	20	0.00	0% - 20%
EG020F: Dissolved Metals by ICP-MS (QC Lot: 1586286)									
EM1806548-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.045	0.045	0.00	0% - 20%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	0.023	0.022	0.00	0% - 20%
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	2.08	2.11	1.15	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.070	0.070	0.00	0% - 20%
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.005	0.012	81.4	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-F: Boron	7440-42-8	0.05	mg/L	2.04	2.40	16.4	0% - 20%
EM1806473-004	QC2 / 180418	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.002	0.002	0.00	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.333	0.334	0.554	0% - 20%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.597	0.603	0.922	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.024	0.024	0.00	0% - 20%
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.018	0.018	0.00	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-F: Boron	7440-42-8	0.05	mg/L	0.08	0.07	14.8	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 1586285)									
EM1806473-004	QC2 / 180418	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EM1806551-014	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 1587115)									
EM1806473-004	QC2 / 180418	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.41	0.43	4.53	0% - 20%
EM1806556-005	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.05	0.05	0.00	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 1579760)									
EM1806459-024	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 1587117)									
EM1806473-004	QC2 / 180418	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.02	0.04	57.5	No Limit
EM1806556-005	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	1.62	1.56	4.09	0% - 20%
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 1586612)									
EM1806438-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	65.5	63.8	2.66	0% - 20%
EM1806502-005	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.6	0.6	0.00	No Limit
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 1586613)									
EM1806438-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	15.0	14.9	0.714	0% - 20%
EM1806502-005	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.28	0.30	5.42	0% - 20%
EP005: Total Organic Carbon (TOC) (QC Lot: 1586785)									
EM1806435-001	Anonymous	EP005: Total Organic Carbon	----	1	mg/L	<5	6	22.8	No Limit
EM1806520-003	Anonymous	EP005: Total Organic Carbon	----	1	mg/L	<5	<5	0.00	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 1579911)									
EM1806473-004	QC2 / 180418	EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	<1	0.00	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 1579912)									
EM1806473-004	QC2 / 180418	EP068: alpha-BHC	319-84-6	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EP068: Aldrin	309-00-2	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EP068: 4,4`-DDE	72-55-9	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EP068: Endrin	72-20-8	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EP068: 4,4`-DDD	72-54-8	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EP068: 4,4`-DDT	50-29-3	2	µg/L	<2.0	<2.0	0.00	No Limit
		EP068: Methoxychlor	72-43-5	2	µg/L	<2.0	<2.0	0.00	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 1579912)									
EM1806473-004	QC2 / 180418	EP068: Dichlorvos	62-73-7	0.5	µg/L	<0.5	<0.5	0.00	No Limit



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 1579912) - continued									
EM1806473-004	QC2 / 180418	EP068: Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EP068: Dimethoate	60-51-5	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EP068: Diazinon	333-41-5	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EP068: Malathion	121-75-5	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EP068: Fenthion	55-38-9	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EP068: Fenamiphos	22224-92-6	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EP068: Prothiofos	34643-46-4	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EP068: Ethion	563-12-2	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EP068: Carbophenothion	786-19-6	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EP068: Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EP068: Monocrotophos	6923-22-4	2	µg/L	<2.0	<2.0	0.00	No Limit
		EP068: Parathion-methyl	298-00-0	2	µg/L	<2.0	<2.0	0.00	No Limit
		EP068: Parathion	56-38-2	2	µg/L	<2.0	<2.0	0.00	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 1579063)									
EM1806473-004	QC2 / 180418	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.00	No Limit
EP074B: Oxygenated Compounds (QC Lot: 1579063)									
EM1806473-004	QC2 / 180418	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.00	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.00	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.00	No Limit
EP074C: Sulfonated Compounds (QC Lot: 1579063)									
EM1806473-004	QC2 / 180418	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.00	No Limit
EP074D: Fumigants (QC Lot: 1579063)									
EM1806473-004	QC2 / 180418	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.00	No Limit



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074D: Fumigants (QC Lot: 1579063) - continued									
EM1806473-004	QC2 / 180418	EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.00	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 1579063)									
EM1806473-004	QC2 / 180418	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.00	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.00	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.00	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.00	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.00	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.00	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 1579063)									
EM1806473-004	QC2 / 180418	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.00	No Limit
EP074G: Trihalomethanes (QC Lot: 1579063)									
EM1806473-004	QC2 / 180418	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.00	No Limit



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074G: Trihalomethanes (QC Lot: 1579063) - continued									
EM1806473-004	QC2 / 180418	EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.00	No Limit
EP075A: Phenolic Compounds (QC Lot: 1579913)									
EM1806473-004	QC2 / 180418	EP075: Phenol	108-95-2	2	µg/L	<2	<2	0.00	No Limit
		EP075: 2-Chlorophenol	95-57-8	2	µg/L	<2	<2	0.00	No Limit
		EP075: 2-Methylphenol	95-48-7	2	µg/L	<2	<2	0.00	No Limit
		EP075: 3- & 4-Methylphenol	1319-77-3	2	µg/L	<4	<4	0.00	No Limit
		EP075: 2-Nitrophenol	88-75-5	2	µg/L	<2	<2	0.00	No Limit
		EP075: 2,4-Dimethylphenol	105-67-9	2	µg/L	<2	<2	0.00	No Limit
		EP075: 2,4-Dichlorophenol	120-83-2	2	µg/L	<2	<2	0.00	No Limit
		EP075: 2,6-Dichlorophenol	87-65-0	2	µg/L	<2	<2	0.00	No Limit
		EP075: 4-Chloro-3-methylphenol	59-50-7	2	µg/L	<2	<2	0.00	No Limit
		EP075: 2,4,6-Trichlorophenol	88-06-2	2	µg/L	<2	<2	0.00	No Limit
		EP075: 2,4,5-Trichlorophenol	95-95-4	2	µg/L	<2	<2	0.00	No Limit
		EP075: Pentachlorophenol	87-86-5	4	µg/L	<4	<4	0.00	No Limit
EP075B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1579913)									
EM1806473-004	QC2 / 180418	EP075: Naphthalene	91-20-3	2	µg/L	<2	<2	0.00	No Limit
		EP075: 2-Methylnaphthalene	91-57-6	2	µg/L	<2	<2	0.00	No Limit
		EP075: 2-Chloronaphthalene	91-58-7	2	µg/L	<2	<2	0.00	No Limit
		EP075: Acenaphthylene	208-96-8	2	µg/L	<2	<2	0.00	No Limit
		EP075: Acenaphthene	83-32-9	2	µg/L	<2	<2	0.00	No Limit
		EP075: Fluorene	86-73-7	2	µg/L	<2	<2	0.00	No Limit
		EP075: Phenanthrene	85-01-8	2	µg/L	<2	<2	0.00	No Limit
		EP075: Anthracene	120-12-7	2	µg/L	<2	<2	0.00	No Limit
		EP075: Fluoranthene	206-44-0	2	µg/L	<2	<2	0.00	No Limit
		EP075: Pyrene	129-00-0	2	µg/L	<2	<2	0.00	No Limit
		EP075: N-2-Fluorenyl Acetamide	53-96-3	2	µg/L	<2	<2	0.00	No Limit
		EP075: Benz(a)anthracene	56-55-3	2	µg/L	<2	<2	0.00	No Limit
		EP075: Chrysene	218-01-9	2	µg/L	<2	<2	0.00	No Limit
		EP075: 7,12-Dimethylbenz(a)anthracene	57-97-6	2	µg/L	<2	<2	0.00	No Limit
		EP075: Benzo(a)pyrene	50-32-8	2	µg/L	<2	<2	0.00	No Limit
		EP075: 3-Methylcholanthrene	56-49-5	2	µg/L	<2	<2	0.00	No Limit
		EP075: Indeno(1,2,3.cd)pyrene	193-39-5	2	µg/L	<2	<2	0.00	No Limit
		EP075: Dibenz(a,h)anthracene	53-70-3	2	µg/L	<2	<2	0.00	No Limit
		EP075: Benzo(g,h,i)perylene	191-24-2	2	µg/L	<2	<2	0.00	No Limit
		EP075: Benzo(a)pyrene TEQ (zero)	----	2	µg/L	<2	<2	0.00	No Limit
		EP075: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	4	µg/L	<4	<4	0.00	No Limit
		EP075C: Phthalate Esters (QC Lot: 1579913)							
EM1806473-004	QC2 / 180418	EP075: bis(2-ethylhexyl) phthalate	117-81-7	10	µg/L	<10	<10	0.00	No Limit
		EP075: Dimethyl phthalate	131-11-3	2	µg/L	<2	<2	0.00	No Limit

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075C: Phthalate Esters (QC Lot: 1579913) - continued									
EM1806473-004	QC2 / 180418	EP075: Diethyl phthalate	84-66-2	2	µg/L	<2	<2	0.00	No Limit
		EP075: Di-n-butyl phthalate	84-74-2	2	µg/L	<2	<2	0.00	No Limit
		EP075: Butyl benzyl phthalate	85-68-7	2	µg/L	<2	<2	0.00	No Limit
		EP075: Di-n-octylphthalate	117-84-0	2	µg/L	<2	<2	0.00	No Limit
EP075D: Nitrosamines (QC Lot: 1579913)									
EM1806473-004	QC2 / 180418	EP075: N-Nitrosomethylethylamine	10595-95-6	2	µg/L	<2	<2	0.00	No Limit
		EP075: N-Nitrosodiethylamine	55-18-5	2	µg/L	<2	<2	0.00	No Limit
		EP075: N-Nitrosomorpholine	59-89-2	2	µg/L	<2	<2	0.00	No Limit
		EP075: N-Nitrosodi-n-propylamine	621-64-7	2	µg/L	<2	<2	0.00	No Limit
		EP075: N-Nitrosopiperidine	100-75-4	2	µg/L	<2	<2	0.00	No Limit
		EP075: N-Nitrosodibutylamine	924-16-3	2	µg/L	<2	<2	0.00	No Limit
		EP075: Methapyrilene	91-80-5	2	µg/L	<2	<2	0.00	No Limit
		EP075: N-Nitrosopyrrolidine	930-55-2	4	µg/L	<4	<4	0.00	No Limit
		EP075: N-Nitrosodiphenyl & Diphenylamine	86-30-6 122-39-4	4	µg/L	<4	<4	0.00	No Limit
EP075E: Nitroaromatics and Ketones (QC Lot: 1579913)									
EM1806473-004	QC2 / 180418	EP075: 2-Picoline	109-06-8	2	µg/L	<2	<2	0.00	No Limit
		EP075: Acetophenone	98-86-2	2	µg/L	<2	<2	0.00	No Limit
		EP075: Nitrobenzene	98-95-3	2	µg/L	<2	<2	0.00	No Limit
		EP075: Isophorone	78-59-1	2	µg/L	<2	<2	0.00	No Limit
		EP075: 1-Naphthylamine	134-32-7	2	µg/L	<2	<2	0.00	No Limit
		EP075: 4-Nitroquinoline-N-oxide	56-57-5	2	µg/L	<2	<2	0.00	No Limit
		EP075: 5-Nitro-o-toluidine	99-55-8	2	µg/L	<2	<2	0.00	No Limit
		EP075: Azobenzene	103-33-3	2	µg/L	<2	<2	0.00	No Limit
		EP075: 1,3,5-Trinitrobenzene	99-35-4	2	µg/L	<2	<2	0.00	No Limit
		EP075: Phenacetin	62-44-2	2	µg/L	<2	<2	0.00	No Limit
		EP075: 4-Aminobiphenyl	92-67-1	2	µg/L	<2	<2	0.00	No Limit
		EP075: Pentachloronitrobenzene	82-68-8	2	µg/L	<2	<2	0.00	No Limit
		EP075: Pronamide	23950-58-5	2	µg/L	<2	<2	0.00	No Limit
		EP075: Dimethylaminoazobenzene	60-11-7	2	µg/L	<2	<2	0.00	No Limit
		EP075: Chlorobenzilate	510-15-6	2	µg/L	<2	<2	0.00	No Limit
		EP075: 2,6-Dinitrotoluene	606-20-2	4	µg/L	<4	<4	0.00	No Limit
		EP075: 2,4-Dinitrotoluene	121-14-2	4	µg/L	<4	<4	0.00	No Limit
		EP075F: Haloethers (QC Lot: 1579913)							
EM1806473-004	QC2 / 180418	EP075: Bis(2-chloroethyl) ether	111-44-4	2	µg/L	<2	<2	0.00	No Limit
		EP075: Bis(2-chloroethoxy) methane	111-91-1	2	µg/L	<2	<2	0.00	No Limit
		EP075: 4-Chlorophenyl phenyl ether	7005-72-3	2	µg/L	<2	<2	0.00	No Limit
		EP075: 4-Bromophenyl phenyl ether	101-55-3	2	µg/L	<2	<2	0.00	No Limit
EP075G: Chlorinated Hydrocarbons (QC Lot: 1579913)									



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075G: Chlorinated Hydrocarbons (QC Lot: 1579913) - continued									
EM1806473-004	QC2 / 180418	EP075: Hexachlorocyclopentadiene	77-47-4	10	µg/L	<10	<10	0.00	No Limit
		EP075: 1,4-Dichlorobenzene	106-46-7	2	µg/L	<2	<2	0.00	No Limit
		EP075: 1,3-Dichlorobenzene	541-73-1	2	µg/L	<2	<2	0.00	No Limit
		EP075: 1,2-Dichlorobenzene	95-50-1	2	µg/L	<2	<2	0.00	No Limit
		EP075: Hexachloroethane	67-72-1	2	µg/L	<2	<2	0.00	No Limit
		EP075: 1,2,4-Trichlorobenzene	120-82-1	2	µg/L	<2	<2	0.00	No Limit
		EP075: Hexachloropropylene	1888-71-7	2	µg/L	<2	<2	0.00	No Limit
		EP075: Hexachlorobutadiene	87-68-3	2	µg/L	<2	<2	0.00	No Limit
		EP075: Pentachlorobenzene	608-93-5	2	µg/L	<2	<2	0.00	No Limit
		EP075: Hexachlorobenzene (HCB)	118-74-1	4	µg/L	<4	<4	0.00	No Limit
EP075H: Anilines and Benzidines (QC Lot: 1579913)									
EM1806473-004	QC2 / 180418	EP075: Aniline	62-53-3	2	µg/L	<2	<2	0.00	No Limit
		EP075: 4-Chloroaniline	106-47-8	2	µg/L	<2	<2	0.00	No Limit
		EP075: Dibenzofuran	132-64-9	2	µg/L	<2	<2	0.00	No Limit
		EP075: 4-Nitroaniline	100-01-6	2	µg/L	<2	<2	0.00	No Limit
		EP075: Carbazole	86-74-8	2	µg/L	<2	<2	0.00	No Limit
		EP075: 3,3'-Dichlorobenzidine	91-94-1	2	µg/L	<2	<2	0.00	No Limit
		EP075: 2-Nitroaniline	88-74-4	4	µg/L	<4	<4	0.00	No Limit
		EP075: 3-Nitroaniline	99-09-2	4	µg/L	<4	<4	0.00	No Limit
EP075I: Organochlorine Pesticides (QC Lot: 1579913)									
EM1806473-004	QC2 / 180418	EP075: alpha-BHC	319-84-6	2	µg/L	<2	<2	0.00	No Limit
		EP075: beta-BHC	319-85-7	2	µg/L	<2	<2	0.00	No Limit
		EP075: gamma-BHC	58-89-9	2	µg/L	<2	<2	0.00	No Limit
		EP075: delta-BHC	319-86-8	2	µg/L	<2	<2	0.00	No Limit
		EP075: Heptachlor	76-44-8	2	µg/L	<2	<2	0.00	No Limit
		EP075: Aldrin	309-00-2	2	µg/L	<2	<2	0.00	No Limit
		EP075: Heptachlor epoxide	1024-57-3	2	µg/L	<2	<2	0.00	No Limit
		EP075: alpha-Endosulfan	959-98-8	2	µg/L	<2	<2	0.00	No Limit
		EP075: 4,4'-DDE	72-55-9	2	µg/L	<2	<2	0.00	No Limit
		EP075: Dieldrin	60-57-1	2	µg/L	<2	<2	0.00	No Limit
		EP075: Endrin	72-20-8	2	µg/L	<2	<2	0.00	No Limit
		EP075: beta-Endosulfan	33213-65-9	2	µg/L	<2	<2	0.00	No Limit
		EP075: 4,4'-DDD	72-54-8	2	µg/L	<2	<2	0.00	No Limit
		EP075: Endosulfan sulfate	1031-07-8	2	µg/L	<2	<2	0.00	No Limit
				EP075: 4,4'-DDT	50-29-3	4	µg/L	<4	<4
EP075J: Organophosphorus Pesticides (QC Lot: 1579913)									
EM1806473-004	QC2 / 180418	EP075: Dichlorvos	62-73-7	2	µg/L	<2	<2	0.00	No Limit
		EP075: Dimethoate	60-51-5	2	µg/L	<2	<2	0.00	No Limit
		EP075: Diazinon	333-41-5	2	µg/L	<2	<2	0.00	No Limit
		EP075: Chlorpyrifos-methyl	5598-13-0	2	µg/L	<2	<2	0.00	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075J: Organophosphorus Pesticides (QC Lot: 1579913) - continued									
EM1806473-004	QC2 / 180418	EP075: Malathion	121-75-5	2	µg/L	<2	<2	0.00	No Limit
		EP075: Fenthion	55-38-9	2	µg/L	<2	<2	0.00	No Limit
		EP075: Chlorpyrifos	2921-88-2	2	µg/L	<2	<2	0.00	No Limit
		EP075: Pirimphos-ethyl	23505-41-1	2	µg/L	<2	<2	0.00	No Limit
		EP075: Chlorfenvinphos	470-90-6	2	µg/L	<2	<2	0.00	No Limit
		EP075: Prothiofos	34643-46-4	2	µg/L	<2	<2	0.00	No Limit
		EP075: Ethion	563-12-2	2	µg/L	<2	<2	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1579062)									
EM1806473-004	QC2 / 180418	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1579914)									
EM1806473-004	QC2 / 180418	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.00	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1579062)									
EM1806473-004	QC2 / 180418	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1579914)									
EM1806473-004	QC2 / 180418	EP071: >C10 - C16 Fraction	----	100	µg/L	<100	<100	0.00	No Limit
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.00	No Limit
EP080: BTEXN (QC Lot: 1579062)									
EM1806473-004	QC2 / 180418	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 1589954)									
EM1806473-004	QC2 / 180418	EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.00	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		ES1811063-001	Anonymous	EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5			0.02	µg/L	<0.02	<0.02	0.00	No Limit
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4			0.02	µg/L	<0.02	<0.02	0.00	No Limit
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4			0.02	µg/L	<0.02	<0.02	0.00	No Limit
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8			0.02	µg/L	<0.02	<0.02	0.00	No Limit



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 1589954) - continued									
ES1811063-001	Anonymous	EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.00	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 1589954)									
EM1806473-004	QC2 / 180418	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.00	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorotridecanoic acid (PFTTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.00	No Limit
ES1811063-001	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.00	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorotridecanoic acid (PFTTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.00	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 1589954)									
EM1806473-004	QC2 / 180418	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.00	No Limit
ES1811063-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.00	No Limit



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 1589954) - continued									
ES1811063-001	Anonymous	EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.00	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 1589954)									
EM1806473-004	QC2 / 180418	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.00	No Limit
ES1811063-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.00	No Limit
EP231P: PFAS Sums (QC Lot: 1589954)									
EM1806473-004	QC2 / 180418	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.00	No Limit
ES1811063-001	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.00	No Limit



Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result		LCS	Low	High
EA010P: Conductivity by PC Titrator (QCLot: 1581984)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	1412 µS/cm	100	85	119
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QCLot: 1582587)								
EA015H: Total Dissolved Solids @180°C	----	10	mg/L	<10	2000 mg/L	101	90	110
				<10	293 mg/L	93.8	90	110
ED037P: Alkalinity by PC Titrator (QCLot: 1581983)								
ED037-P: Total Alkalinity as CaCO3	----	----	mg/L	----	200 mg/L	92.6	88	109
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 1579759)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	93.2	92	115
				<1	100 mg/L	97.7	92	115
ED045G: Chloride by Discrete Analyser (QCLot: 1579758)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	10 mg/L	97.3	88	118
				<1	1000 mg/L	101	88	118
ED093F: Dissolved Major Cations (QCLot: 1586284)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	5 mg/L	110	93	110
ED093F: Magnesium	7439-95-4	1	mg/L	<1	5 mg/L	102	91	110
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	100	90	109
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	100	89	109
EG020F: Dissolved Metals by ICP-MS (QCLot: 1586286)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	95.3	91	107
EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	91.8	82	113
EG020A-F: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	90.8	84	106
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	92.4	84	104
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	89.2	83	103
EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	92.3	83	106
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	90.9	82	103
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	93.4	83	105
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	92.5	83	105
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	91.4	82	106
EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	92.9	82	109
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	92.0	83	106
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	94.9	85	109
EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	0.5 mg/L	95.2	84	116
EG035F: Dissolved Mercury by FIMS (QCLot: 1586285)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	95.3	81	114



Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EK055G: Ammonia as N by Discrete Analyser (QCLot: 1587115)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	106	80	115
EK057G: Nitrite as N by Discrete Analyser (QCLot: 1579760)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	104	94	107
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 1587117)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	110	89	114
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 1586612)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	5 mg/L	83.9	70	117
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 1586613)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	2.21 mg/L	84.8	70	120
EP005: Total Organic Carbon (TOC) (QCLot: 1586785)								
EP005: Total Organic Carbon	----	1	mg/L	<1	100 mg/L	93.1	81	109
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 1579911)								
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	10 µg/L	84.2	54	132
EP068A: Organochlorine Pesticides (OC) (QCLot: 1579912)								
EP068: alpha-BHC	319-84-6	0.5	µg/L	<0.5	5 µg/L	92.4	51	122
EP068: Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	5 µg/L	89.8	51	118
EP068: beta-BHC	319-85-7	0.5	µg/L	<0.5	5 µg/L	93.4	57	119
EP068: gamma-BHC	58-89-9	0.5	µg/L	<0.5	5 µg/L	90.6	51	121
EP068: delta-BHC	319-86-8	0.5	µg/L	<0.5	5 µg/L	92.6	58	114
EP068: Heptachlor	76-44-8	0.5	µg/L	<0.5	5 µg/L	94.9	47	113
EP068: Aldrin	309-00-2	0.5	µg/L	<0.5	5 µg/L	91.0	53	118
EP068: Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	5 µg/L	95.9	53	117
EP068: trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	5 µg/L	70.8	50	126
EP068: alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	5 µg/L	91.4	55	121
EP068: cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	5 µg/L	93.9	54	120
EP068: Dieldrin	60-57-1	0.5	µg/L	<0.5	5 µg/L	92.4	50	121
EP068: 4,4'-DDE	72-55-9	0.5	µg/L	<0.5	5 µg/L	92.4	54	120
EP068: Endrin	72-20-8	0.5	µg/L	<0.5	5 µg/L	102	45	122
EP068: beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	5 µg/L	94.3	55	120
EP068: 4,4'-DDD	72-54-8	0.5	µg/L	<0.5	5 µg/L	94.0	53	126
EP068: Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	5 µg/L	96.8	52	123
EP068: Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	5 µg/L	95.4	48	121
EP068: 4,4'-DDT	50-29-3	2	µg/L	<2.0	5 µg/L	96.8	46	120
EP068: Endrin ketone	53494-70-5	0.5	µg/L	<0.5	5 µg/L	94.0	56	118
EP068: Methoxychlor	72-43-5	2	µg/L	<2.0	5 µg/L	100	42	123
EP068B: Organophosphorus Pesticides (OP) (QCLot: 1579912)								
EP068: Dichlorvos	62-73-7	0.5	µg/L	<0.5	5 µg/L	93.6	45	123



Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result			Low	High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 1579912) - continued								
EP068: Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	5 µg/L	96.0	42	129
EP068: Monocrotophos	6923-22-4	2	µg/L	<2.0	5 µg/L	16.7	10	43
EP068: Dimethoate	60-51-5	0.5	µg/L	<0.5	5 µg/L	85.2	38	115
EP068: Diazinon	333-41-5	0.5	µg/L	<0.5	5 µg/L	98.6	54	121
EP068: Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	5 µg/L	87.5	56	118
EP068: Parathion-methyl	298-00-0	2	µg/L	<2.0	5 µg/L	107	43	115
EP068: Malathion	121-75-5	0.5	µg/L	<0.5	5 µg/L	97.0	50	120
EP068: Fenthion	55-38-9	0.5	µg/L	<0.5	5 µg/L	93.2	55	119
EP068: Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	5 µg/L	93.5	50	122
EP068: Parathion	56-38-2	2	µg/L	<2.0	5 µg/L	103	44	114
EP068: Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	5 µg/L	92.4	52	117
EP068: Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	5 µg/L	97.5	42	126
EP068: Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	5 µg/L	93.9	50	117
EP068: Fenamiphos	22224-92-6	0.5	µg/L	<0.5	5 µg/L	105	45	127
EP068: Prothiofos	34643-46-4	0.5	µg/L	<0.5	5 µg/L	93.2	52	120
EP068: Ethion	563-12-2	0.5	µg/L	<0.5	5 µg/L	96.7	49	118
EP068: Carbophenothion	786-19-6	0.5	µg/L	<0.5	5 µg/L	96.5	52	119
EP068: Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	5 µg/L	108	21	120
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 1579063)								
EP074: Styrene	100-42-5	5	µg/L	<5	20 µg/L	95.8	79	114
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	20 µg/L	97.7	72	116
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	20 µg/L	85.4	71	115
EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	20 µg/L	87.5	72	114
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	20 µg/L	87.3	72	114
EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	20 µg/L	88.7	74	112
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	20 µg/L	88.8	73	114
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	20 µg/L	91.0	70	115
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	20 µg/L	86.9	62	116
EP074B: Oxygenated Compounds (QCLot: 1579063)								
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	200 µg/L	103	73	126
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	200 µg/L	99.7	68	136
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	200 µg/L	107	76	127
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	200 µg/L	107	71	131
EP074C: Sulfonated Compounds (QCLot: 1579063)								
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	20 µg/L	85.1	55	123
EP074D: Fumigants (QCLot: 1579063)								
EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	20 µg/L	85.6	67	122
EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	20 µg/L	91.3	78	120

Method Blank (MB) Report

Spike

Spike Recovery (%)

Recovery Limits (%)

CAS Number

LOR

Unit

Result

Concentration

LCS

Low

High

EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	20 µg/L	90.0	70	118
EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	20 µg/L	93.0	68	115
EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	20 µg/L	97.5	78	120

EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	200 µg/L	83.6	62	140
EP074: Chloromethane	74-87-3	50	µg/L	<50	200 µg/L	94.0	68	138
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	200 µg/L	89.8	64	139
EP074: Bromomethane	74-83-9	50	µg/L	<50	200 µg/L	80.1	48	130
EP074: Chloroethane	75-00-3	50	µg/L	<50	200 µg/L	92.7	71	130
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	200 µg/L	88.4	71	126
EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	20 µg/L	84.2	65	124
EP074: Iodomethane	74-88-4	5	µg/L	<5	20 µg/L	87.4	27	120
EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	20 µg/L	86.1	73	121
EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	20 µg/L	92.1	77	120
EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	20 µg/L	93.8	78	120
EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	20 µg/L	84.7	68	116
EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	20 µg/L	81.8	66	119
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	20 µg/L	82.8	66	119
EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	20 µg/L	96.7	79	118
EP074: Trichloroethene	79-01-6	5	µg/L	<5	20 µg/L	84.6	70	120
EP074: Dibromomethane	74-95-3	5	µg/L	<5	20 µg/L	99.2	75	115
EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	20 µg/L	101	87	114
EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	20 µg/L	103	84	116
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	20 µg/L	86.2	75	119
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	20 µg/L	93.0	75	112
EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	20 µg/L	93.4	63	119
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	20 µg/L	84.2	54	119
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	20 µg/L	109	81	125
EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	20 µg/L	106	81	125
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	20 µg/L	91.4	62	110
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	20 µg/L	102	63	106

EP074: Chlorobenzene	108-90-7	5	µg/L	<5	20 µg/L	95.9	82	114
EP074: Bromobenzene	108-86-1	5	µg/L	<5	20 µg/L	95.1	74	117
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	20 µg/L	88.9	71	114
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	20 µg/L	90.3	71	112
EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	20 µg/L	98.3	74	118

EP074G: Trihalomethanes (QCLot: 1579063)



Sub-Matrix: **WATER**

Method: Compound				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%)	
							Low	High
CAS Number	LOR	Unit	Result					
EP074G: Trihalomethanes (QCLot: 1579063) - continued								
EP074: Chloroform	67-66-3	5	µg/L	<5	20 µg/L	92.5	79	119
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	20 µg/L	95.7	70	112
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	20 µg/L	100.0	68	107
EP074: Bromoform	75-25-2	5	µg/L	<5	20 µg/L	102	62	108
EP075A: Phenolic Compounds (QCLot: 1579913)								
EP075: Phenol	108-95-2	2	µg/L	<2	10 µg/L	35.1	19	47
EP075: 2-Chlorophenol	95-57-8	2	µg/L	<2	10 µg/L	70.1	44	100
EP075: 2-Methylphenol	95-48-7	2	µg/L	<2	10 µg/L	66.3	38	94
EP075: 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2	10 µg/L	62.0	33	88
EP075: 2-Nitrophenol	88-75-5	2	µg/L	<2	10 µg/L	64.3	40	111
EP075: 2,4-Dimethylphenol	105-67-9	2	µg/L	<2	10 µg/L	75.0	44	110
EP075: 2,4-Dichlorophenol	120-83-2	2	µg/L	<2	10 µg/L	77.2	43	110
EP075: 2,6-Dichlorophenol	87-65-0	2	µg/L	<2	10 µg/L	77.4	49	104
EP075: 4-Chloro-3-methylphenol	59-50-7	2	µg/L	<2	10 µg/L	75.7	50	103
EP075: 2,4,6-Trichlorophenol	88-06-2	2	µg/L	<2	10 µg/L	76.8	48	107
EP075: 2,4,5-Trichlorophenol	95-95-4	2	µg/L	<2	10 µg/L	75.2	48	110
EP075: Pentachlorophenol	87-86-5	4	µg/L	<4	10 µg/L	88.7	25	113
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 1579913)								
EP075: Naphthalene	91-20-3	2	µg/L	<2	10 µg/L	76.6	51	102
EP075: 2-Methylnaphthalene	91-57-6	2	µg/L	<2	10 µg/L	76.6	50	107
EP075: 2-Chloronaphthalene	91-58-7	2	µg/L	<2	10 µg/L	77.8	47	111
EP075: Acenaphthylene	208-96-8	2	µg/L	<2	10 µg/L	76.7	49	110
EP075: Acenaphthene	83-32-9	2	µg/L	<2	10 µg/L	78.6	54	105
EP075: Fluorene	86-73-7	2	µg/L	<2	10 µg/L	78.6	54	108
EP075: Phenanthrene	85-01-8	2	µg/L	<2	10 µg/L	79.4	57	108
EP075: Anthracene	120-12-7	2	µg/L	<2	10 µg/L	80.0	57	108
EP075: Fluoranthene	206-44-0	2	µg/L	<2	10 µg/L	80.6	57	111
EP075: Pyrene	129-00-0	2	µg/L	<2	10 µg/L	80.0	58	110
EP075: N-2-Fluorenyl Acetamide	53-96-3	2	µg/L	<2	10 µg/L	79.7	48	117
EP075: Benz(a)anthracene	56-55-3	2	µg/L	<2	10 µg/L	81.2	55	112
EP075: Chrysene	218-01-9	2	µg/L	<2	10 µg/L	79.8	55	113
EP075: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	4	µg/L	<4	20 µg/L	82.9	56	111
EP075: 7,12-Dimethylbenz(a)anthracene	57-97-6	2	µg/L	<2	10 µg/L	83.6	55	140
EP075: Benzo(a)pyrene	50-32-8	2	µg/L	<2	10 µg/L	82.0	57	129
EP075: 3-Methylcholanthrene	56-49-5	2	µg/L	<2	3.33 µg/L	79.9	47	135
EP075: Indeno(1,2,3-cd)pyrene	193-39-5	2	µg/L	<2	10 µg/L	79.9	59	125
EP075: Dibenz(a,h)anthracene	53-70-3	2	µg/L	<2	10 µg/L	80.1	58	126
EP075: Benzo(g,h,i)perylene	191-24-2	2	µg/L	<2	10 µg/L	79.0	59	127



Sub-Matrix: **WATER**

Method: Compound				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
						LCS	Low	High
CAS Number	LOR	Unit	Result					
EP075C: Phthalate Esters (QCLot: 1579913)								
EP075: Dimethyl phthalate	131-11-3	2	µg/L	<2	10 µg/L	81.1	57	121
EP075: Diethyl phthalate	84-66-2	2	µg/L	<2	10 µg/L	82.2	62	128
EP075: Di-n-butyl phthalate	84-74-2	2	µg/L	<2	10 µg/L	84.8	65	129
EP075: Butyl benzyl phthalate	85-68-7	2	µg/L	<2	10 µg/L	81.8	63	127
EP075: bis(2-ethylhexyl) phthalate	117-81-7	10	µg/L	<10	10 µg/L	72.8	56	131
EP075: Di-n-octylphthalate	117-84-0	2	µg/L	<2	10 µg/L	82.8	57	129
EP075D: Nitrosamines (QCLot: 1579913)								
EP075: N-Nitrosomethylethylamine	10595-95-6	2	µg/L	<2	10 µg/L	62.2	19	102
EP075: N-Nitrosodiethylamine	55-18-5	2	µg/L	<2	10 µg/L	76.4	38	113
EP075: N-Nitrosopyrrolidine	930-55-2	4	µg/L	<4	10 µg/L	59.1	29	88
EP075: N-Nitrosomorpholine	59-89-2	2	µg/L	<2	10 µg/L	56.4	27	90
EP075: N-Nitrosodi-n-propylamine	621-64-7	2	µg/L	<2	10 µg/L	78.3	43	119
EP075: N-Nitrosopiperidine	100-75-4	2	µg/L	<2	10 µg/L	77.6	43	112
EP075: N-Nitrosodibutylamine	924-16-3	2	µg/L	<2	10 µg/L	79.9	49	119
EP075: N-Nitrosodiphenyl & Diphenylamine	86-30-6 122-39-4	4	µg/L	<4	10 µg/L	78.9	59	119
EP075: Methapyrilene	91-80-5	2	µg/L	<2	10 µg/L	# 30.8	55	157
EP075E: Nitroaromatics and Ketones (QCLot: 1579913)								
EP075: 2-Picoline	109-06-8	2	µg/L	<2	10 µg/L	67.0	17	120
EP075: Acetophenone	98-86-2	2	µg/L	<2	10 µg/L	78.3	51	108
EP075: Nitrobenzene	98-95-3	2	µg/L	<2	10 µg/L	75.4	46	109
EP075: Isophorone	78-59-1	2	µg/L	<2	10 µg/L	78.9	49	114
EP075: 2,6-Dinitrotoluene	606-20-2	4	µg/L	<4	10 µg/L	77.6	56	120
EP075: 2,4-Dinitrotoluene	121-14-2	4	µg/L	<4	10 µg/L	77.2	57	121
EP075: 1-Naphthylamine	134-32-7	2	µg/L	<2	10 µg/L	23.1	11	119
EP075: 4-Nitroquinoline-N-oxide	56-57-5	2	µg/L	<2	10 µg/L	78.3	30	160
EP075: 5-Nitro-o-toluidine	99-55-8	2	µg/L	<2	10 µg/L	69.2	50	124
EP075: Azobenzene	103-33-3	2	µg/L	<2	10 µg/L	80.6	56	120
EP075: 1,3,5-Trinitrobenzene	99-35-4	2	µg/L	<2	10 µg/L	71.2	36	132
EP075: Phenacetin	62-44-2	2	µg/L	<2	10 µg/L	69.9	46	110
EP075: 4-Aminobiphenyl	92-67-1	2	µg/L	<2	10 µg/L	46.8	24	149
EP075: Pentachloronitrobenzene	82-68-8	2	µg/L	<2	10 µg/L	80.8	57	127
EP075: Pronamide	23950-58-5	2	µg/L	<2	10 µg/L	80.9	63	125
EP075: Dimethylaminoazobenzene	60-11-7	2	µg/L	<2	10 µg/L	78.6	57	123
EP075: Chlorobenzilate	510-15-6	2	µg/L	<2	10 µg/L	80.8	61	131
EP075F: Haloethers (QCLot: 1579913)								
EP075: Bis(2-chloroethyl) ether	111-44-4	2	µg/L	<2	10 µg/L	79.1	44	109
EP075: Bis(2-chloroethoxy) methane	111-91-1	2	µg/L	<2	10 µg/L	79.4	46	114



Sub-Matrix: **WATER**

Method: Compound				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%)	
							Low	High
CAS Number	LOR	Unit	Result					
EP075F: Haloethers (QCLot: 1579913) - continued								
EP075: 4-Chlorophenyl phenyl ether	7005-72-3	2	µg/L	<2	10 µg/L	79.0	55	119
EP075: 4-Bromophenyl phenyl ether	101-55-3	2	µg/L	<2	10 µg/L	79.0	57	119
EP075G: Chlorinated Hydrocarbons (QCLot: 1579913)								
EP075: 1,4-Dichlorobenzene	106-46-7	2	µg/L	<2	10 µg/L	74.5	46	102
EP075: 1,3-Dichlorobenzene	541-73-1	2	µg/L	<2	10 µg/L	74.8	45	101
EP075: 1,2-Dichlorobenzene	95-50-1	2	µg/L	<2	10 µg/L	74.8	47	101
EP075: Hexachloroethane	67-72-1	2	µg/L	<2	10 µg/L	71.3	44	104
EP075: 1,2,4-Trichlorobenzene	120-82-1	2	µg/L	<2	10 µg/L	75.6	46	107
EP075: Hexachloropropylene	1888-71-7	2	µg/L	<2	10 µg/L	76.4	35	109
EP075: Hexachlorobutadiene	87-68-3	2	µg/L	<2	10 µg/L	74.8	48	103
EP075: Hexachlorocyclopentadiene	77-47-4	10	µg/L	<10	10 µg/L	82.8	34	112
EP075: Pentachlorobenzene	608-93-5	2	µg/L	<2	10 µg/L	80.1	53	117
EP075: Hexachlorobenzene (HCB)	118-74-1	4	µg/L	<4	20 µg/L	78.7	55	121
EP075H: Anilines and Benzidines (QCLot: 1579913)								
EP075: Aniline	62-53-3	2	µg/L	<2	10 µg/L	48.2	14	110
EP075: 4-Chloroaniline	106-47-8	2	µg/L	<2	10 µg/L	33.2	32	114
EP075: 2-Nitroaniline	88-74-4	4	µg/L	<4	10 µg/L	71.1	51	119
EP075: 3-Nitroaniline	99-09-2	4	µg/L	<4	10 µg/L	53.0	50	116
EP075: Dibenzofuran	132-64-9	2	µg/L	<2	10 µg/L	78.8	53	117
EP075: 4-Nitroaniline	100-01-6	2	µg/L	<2	10 µg/L	75.9	48	114
EP075: Carbazole	86-74-8	2	µg/L	<2	10 µg/L	84.5	63	125
EP075: 3,3'-Dichlorobenzidine	91-94-1	2	µg/L	<2	10 µg/L	61.1	59	137
EP075I: Organochlorine Pesticides (QCLot: 1579913)								
EP075: alpha-BHC	319-84-6	2	µg/L	<2	10 µg/L	78.9	58	124
EP075: beta-BHC	319-85-7	2	µg/L	<2	10 µg/L	82.1	57	127
EP075: gamma-BHC	58-89-9	2	µg/L	<2	10 µg/L	79.5	57	125
EP075: delta-BHC	319-86-8	2	µg/L	<2	10 µg/L	79.4	62	128
EP075: Heptachlor	76-44-8	2	µg/L	<2	10 µg/L	76.5	53	112
EP075: Aldrin	309-00-2	2	µg/L	<2	10 µg/L	82.6	57	110
EP075: Heptachlor epoxide	1024-57-3	2	µg/L	<2	10 µg/L	81.9	55	112
EP075: alpha-Endosulfan	959-98-8	2	µg/L	<2	10 µg/L	89.5	50	124
EP075: 4,4'-DDE	72-55-9	2	µg/L	<2	10 µg/L	80.5	55	110
EP075: Dieldrin	60-57-1	2	µg/L	<2	10 µg/L	84.2	61	131
EP075: Endrin	72-20-8	2	µg/L	<2	10 µg/L	81.6	59	133
EP075: beta-Endosulfan	33213-65-9	2	µg/L	<2	10 µg/L	78.3	60	130
EP075: 4,4'-DDD	72-54-8	2	µg/L	<2	10 µg/L	81.0	61	129
EP075: Endosulfan sulfate	1031-07-8	2	µg/L	<2	10 µg/L	78.2	58	136
EP075: 4,4'-DDT	50-29-3	4	µg/L	<4	10 µg/L	78.0	51	137



Sub-Matrix: **WATER**

Method: Compound				Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
						LCS	Low	High
CAS Number	LOR	Unit						
EP075J: Organophosphorus Pesticides (QCLot: 1579913)								
EP075: Dichlorvos	62-73-7	2	µg/L	<2	10 µg/L	77.7	50	116
EP075: Dimethoate	60-51-5	2	µg/L	<2	10 µg/L	72.1	49	111
EP075: Diazinon	333-41-5	2	µg/L	<2	10 µg/L	81.3	62	126
EP075: Chlorpyrifos-methyl	5598-13-0	2	µg/L	<2	10 µg/L	79.1	60	126
EP075: Malathion	121-75-5	2	µg/L	<2	10 µg/L	80.7	61	131
EP075: Fenthion	55-38-9	2	µg/L	<2	10 µg/L	80.6	62	128
EP075: Chlorpyrifos	2921-88-2	2	µg/L	<2	10 µg/L	79.1	61	127
EP075: Pirimphos-ethyl	23505-41-1	2	µg/L	<2	10 µg/L	86.2	61	129
EP075: Chlorfenvinphos	470-90-6	2	µg/L	<2	10 µg/L	81.6	61	131
EP075: Prothiofos	34643-46-4	2	µg/L	<2	10 µg/L	82.6	61	125
EP075: Ethion	563-12-2	2	µg/L	<2	10 µg/L	78.5	62	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1579062)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	360 µg/L	83.4	68	125
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1579914)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	4962 µg/L	89.6	58	134
EP071: C15 - C28 Fraction	----	100	µg/L	<100	18252 µg/L	103	60	133
EP071: C29 - C36 Fraction	----	50	µg/L	<50	9349 µg/L	102	54	137
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1579062)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	80.4	66	123
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1579914)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	7058 µg/L	93.7	58	122
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	23808 µg/L	102	56	132
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	1933 µg/L	97.4	58	137
EP080: BTEXN (QCLot: 1579062)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	81.3	74	123
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	89.9	77	128
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	84.3	73	126
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	40 µg/L	90.8	72	131
	106-42-3							
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	92.8	74	131
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	101	74	124
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 1589954)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.5 µg/L	80.6	70	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.5 µg/L	75.8	70	130
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L	<0.02	0.5 µg/L	72.2	70	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.5 µg/L	82.6	70	130
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.5 µg/L	76.6	70	130
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.5 µg/L	97.0	70	130



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 1589954)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	2.5 µg/L	100	70	130
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.5 µg/L	80.4	70	130
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.5 µg/L	101	70	130
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.5 µg/L	87.0	70	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.5 µg/L	97.0	70	130
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.5 µg/L	96.8	70	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.5 µg/L	109	70	130
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.5 µg/L	109	70	130
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.5 µg/L	98.0	70	130
EP231X: Perfluorotridecanoic acid (PFTTrDA)	72629-94-8	0.02	µg/L	<0.02	0.5 µg/L	85.2	70	130
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	1.25 µg/L	93.4	70	150
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 1589954)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.5 µg/L	75.6	70	130
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	1.25 µg/L	87.3	70	150
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	1.25 µg/L	80.2	70	150
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	1.25 µg/L	113	70	150
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	1.25 µg/L	90.9	70	150
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.5 µg/L	76.6	70	130
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.5 µg/L	110	70	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 1589954)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.5 µg/L	82.8	70	130
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.5 µg/L	94.4	70	130
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.5 µg/L	91.6	70	130
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.5 µg/L	77.8	70	130

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	Spike Recovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 1579759)							
EM1806466-045	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	93.7	70	130



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
ED045G: Chloride by Discrete Analyser (QCLot: 1579758)							
EM1806466-045	Anonymous	ED045G: Chloride	16887-00-6	400 mg/L	99.2	70	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 1586286)							
EM1806473-004	QC2 / 180418	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	98.0	85	131
		EG020A-F: Beryllium	7440-41-7	0.2 mg/L	93.6	73	141
		EG020A-F: Barium	7440-39-3	0.2 mg/L	89.2	75	127
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	91.2	81	133
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	91.0	71	135
		EG020A-F: Cobalt	7440-48-4	0.2 mg/L	92.4	78	132
		EG020A-F: Copper	7440-50-8	0.2 mg/L	91.8	76	130
		EG020A-F: Lead	7439-92-1	0.2 mg/L	92.2	75	133
		EG020A-F: Manganese	7439-96-5	0.2 mg/L	86.6	64	134
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	90.6	73	131
		EG020A-F: Vanadium	7440-62-2	0.2 mg/L	94.0	73	131
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	93.1	75	131
EG035F: Dissolved Mercury by FIMS (QCLot: 1586285)							
EM1806517-001	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	93.1	70	120
EK055G: Ammonia as N by Discrete Analyser (QCLot: 1587115)							
EM1806502-001	Anonymous	EK055G: Ammonia as N	7664-41-7	1 mg/L	85.6	70	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 1579760)							
EM1806473-004	QC2 / 180418	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	89.6	80	114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 1587117)							
EM1806481-004	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	113	70	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 1586612)							
EM1806473-004	QC2 / 180418	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	87.2	70	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 1586613)							
EM1806473-004	QC2 / 180418	EK067G: Total Phosphorus as P	----	1 mg/L	105	70	130
EP005: Total Organic Carbon (TOC) (QCLot: 1586785)							
EM1806435-002	Anonymous	EP005: Total Organic Carbon	----	100 mg/L	89.6	80	114
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1579062)							
EM1806464-002	Anonymous	EP080: C6 - C9 Fraction	----	280 µg/L	68.8	43	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1579062)							
EM1806464-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	330 µg/L	64.7	44	122
EP080: BTEXN (QCLot: 1579062)							
EM1806464-002	Anonymous	EP080: Benzene	71-43-2	20 µg/L	73.6	68	130
		EP080: Toluene	108-88-3	20 µg/L	75.6	72	132



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 1589954)							
EM1806473-004	QC2 / 180418	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.5 µg/L	87.6	50	130
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.5 µg/L	89.0	50	130
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.5 µg/L	82.6	50	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.5 µg/L	102	50	130
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.5 µg/L	95.8	50	130
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.5 µg/L	96.6	50	130
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 1589954)							
EM1806473-004	QC2 / 180418	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	2.5 µg/L	108	50	130
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.5 µg/L	88.2	50	130
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.5 µg/L	115	50	130
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.5 µg/L	98.6	50	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.5 µg/L	118	50	130
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.5 µg/L	96.4	50	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.5 µg/L	103	50	130
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.5 µg/L	101	50	130
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.5 µg/L	78.0	50	130
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.5 µg/L	51.8	50	130
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	1.25 µg/L	93.7	50	150
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 1589954)							
EM1806473-004	QC2 / 180418	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.5 µg/L	65.6	50	130
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	1.25 µg/L	85.4	50	150
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	1.25 µg/L	90.5	50	150
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	1.25 µg/L	113	50	150
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	1.25 µg/L	98.8	50	150
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.5 µg/L	120	50	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.5 µg/L	104	50	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 1589954)							
EM1806473-004	QC2 / 180418	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.5 µg/L	89.8	50	130
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.5 µg/L	103	50	130
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.5 µg/L	115	50	130
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.5 µg/L	85.2	50	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: EM1806473	Page	: 1 of 12
Client	: GHD PTY LTD	Laboratory	: Environmental Division Melbourne
Contact	: MR MATTHEW MOORE	Telephone	: +61-3-8549 9630
Project	: 31350060813	Date Samples Received	: 19-Apr-2018
Site	: Bulleen, VIC 3105	Issue Date	: 27-Apr-2018
Sampler	: L.SPURR, M.MOORE	No. of samples received	: 4
Order number	:	No. of samples analysed	: 4

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Matrix Spike outliers occur.**
- Laboratory Control outliers exist - please see following pages for full details.
- For all regular sample matrices, **NO** surrogate recovery outliers occur.

Outliers : Analysis Holding Time Compliance

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- Quality Control Sample Frequency Outliers exist - please see following pages for full details.



Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Laboratory Control Spike (LCS) Recoveries							
EP075D: Nitrosamines	QC-1579913-001	----	Methapyrilene	91-80-5	30.8 %	55-157%	Recovery less than lower control limit

Outliers : Analysis Holding Time Compliance

Matrix: **WATER**

Method Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA005P: pH by PC Titrator						
Clear Plastic Bottle - Natural QC2 / 180418	----	----	----	20-Apr-2018	18-Apr-2018	2

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
Matrix Spikes (MS)					
Pesticides by GCMS	0	1	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	0	1	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	0	1	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	3	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	0	1	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA005P: pH by PC Titrator							
Clear Plastic Bottle - Natural (EA005-P) QC2 / 180418	18-Apr-2018	----	----	----	20-Apr-2018	18-Apr-2018	✘
EA010P: Conductivity by PC Titrator							
Clear Plastic Bottle - Natural (EA010-P) QC2 / 180418	18-Apr-2018	----	----	----	20-Apr-2018	16-May-2018	✔



Matrix: **WATER**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA015: Total Dissolved Solids dried at 180 ± 5 °C							
Clear Plastic Bottle - Natural (EA015H) QC2 / 180418	18-Apr-2018	----	----	----	23-Apr-2018	25-Apr-2018	✓
ED037P: Alkalinity by PC Titrator							
Clear Plastic Bottle - Natural (ED037-P) QC2 / 180418	18-Apr-2018	----	----	----	20-Apr-2018	02-May-2018	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural (ED041G) QC2 / 180418	18-Apr-2018	----	----	----	20-Apr-2018	16-May-2018	✓
ED045G: Chloride by Discrete Analyser							
Clear Plastic Bottle - Natural (ED045G) QC2 / 180418	18-Apr-2018	----	----	----	20-Apr-2018	16-May-2018	✓
ED093F: Dissolved Major Cations							
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) QC2 / 180418	18-Apr-2018	----	----	----	23-Apr-2018	16-May-2018	✓
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) QC2 / 180418	18-Apr-2018	----	----	----	24-Apr-2018	15-Oct-2018	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) QC2 / 180418	18-Apr-2018	----	----	----	26-Apr-2018	16-May-2018	✓
EK055G: Ammonia as N by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK055G) QC2 / 180418	18-Apr-2018	----	----	----	24-Apr-2018	16-May-2018	✓
EK057G: Nitrite as N by Discrete Analyser							
Clear Plastic Bottle - Natural (EK057G) QC2 / 180418	18-Apr-2018	----	----	----	19-Apr-2018	20-Apr-2018	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK059G) QC2 / 180418	18-Apr-2018	----	----	----	26-Apr-2018	16-May-2018	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK061G) QC2 / 180418	18-Apr-2018	24-Apr-2018	16-May-2018	✓	24-Apr-2018	16-May-2018	✓
EK067G: Total Phosphorus as P by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK067G) QC2 / 180418	18-Apr-2018	24-Apr-2018	16-May-2018	✓	24-Apr-2018	16-May-2018	✓
EP005: Total Organic Carbon (TOC)							
Amber VOC Vial - Sulfuric Acid (EP005) QC2 / 180418	18-Apr-2018	----	----	----	23-Apr-2018	16-May-2018	✓



Matrix: **WATER**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP066: Polychlorinated Biphenyls (PCB)							
Amber Glass Bottle - Unpreserved (EP066) QC2 / 180418	18-Apr-2018	19-Apr-2018	25-Apr-2018	✓	20-Apr-2018	29-May-2018	✓
EP068A: Organochlorine Pesticides (OC)							
Amber Glass Bottle - Unpreserved (EP068) QC2 / 180418	18-Apr-2018	19-Apr-2018	25-Apr-2018	✓	20-Apr-2018	29-May-2018	✓
EP068B: Organophosphorus Pesticides (OP)							
Amber Glass Bottle - Unpreserved (EP068) QC2 / 180418	18-Apr-2018	19-Apr-2018	25-Apr-2018	✓	20-Apr-2018	29-May-2018	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP074) QC2 / 180418	18-Apr-2018	19-Apr-2018	02-May-2018	✓	19-Apr-2018	02-May-2018	✓
EP074B: Oxygenated Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) QC2 / 180418	18-Apr-2018	19-Apr-2018	02-May-2018	✓	19-Apr-2018	02-May-2018	✓
EP074C: Sulfonated Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) QC2 / 180418	18-Apr-2018	19-Apr-2018	02-May-2018	✓	19-Apr-2018	02-May-2018	✓
EP074D: Fumigants							
Amber VOC Vial - Sulfuric Acid (EP074) QC2 / 180418	18-Apr-2018	19-Apr-2018	02-May-2018	✓	19-Apr-2018	02-May-2018	✓
EP074E: Halogenated Aliphatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) QC2 / 180418	18-Apr-2018	19-Apr-2018	02-May-2018	✓	19-Apr-2018	02-May-2018	✓
EP074F: Halogenated Aromatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) QC2 / 180418	18-Apr-2018	19-Apr-2018	02-May-2018	✓	19-Apr-2018	02-May-2018	✓
EP074G: Trihalomethanes							
Amber VOC Vial - Sulfuric Acid (EP074) QC2 / 180418	18-Apr-2018	19-Apr-2018	02-May-2018	✓	19-Apr-2018	02-May-2018	✓
EP075A: Phenolic Compounds							
Amber Glass Bottle - Unpreserved (EP075) QC2 / 180418	18-Apr-2018	19-Apr-2018	25-Apr-2018	✓	20-Apr-2018	29-May-2018	✓
EP075B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075) QC2 / 180418	18-Apr-2018	19-Apr-2018	25-Apr-2018	✓	20-Apr-2018	29-May-2018	✓
EP075C: Phthalate Esters							
Amber Glass Bottle - Unpreserved (EP075) QC2 / 180418	18-Apr-2018	19-Apr-2018	25-Apr-2018	✓	20-Apr-2018	29-May-2018	✓



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075D: Nitrosamines							
Amber Glass Bottle - Unpreserved (EP075) QC2 / 180418	18-Apr-2018	19-Apr-2018	25-Apr-2018	✓	20-Apr-2018	29-May-2018	✓
EP075E: Nitroaromatics and Ketones							
Amber Glass Bottle - Unpreserved (EP075) QC2 / 180418	18-Apr-2018	19-Apr-2018	25-Apr-2018	✓	20-Apr-2018	29-May-2018	✓
EP075F: Haloethers							
Amber Glass Bottle - Unpreserved (EP075) QC2 / 180418	18-Apr-2018	19-Apr-2018	25-Apr-2018	✓	20-Apr-2018	29-May-2018	✓
EP075G: Chlorinated Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075) QC2 / 180418	18-Apr-2018	19-Apr-2018	25-Apr-2018	✓	20-Apr-2018	29-May-2018	✓
EP075H: Anilines and Benzidines							
Amber Glass Bottle - Unpreserved (EP075) QC2 / 180418	18-Apr-2018	19-Apr-2018	25-Apr-2018	✓	20-Apr-2018	29-May-2018	✓
EP075I: Organochlorine Pesticides							
Amber Glass Bottle - Unpreserved (EP075) QC2 / 180418	18-Apr-2018	19-Apr-2018	25-Apr-2018	✓	20-Apr-2018	29-May-2018	✓
EP075J: Organophosphorus Pesticides							
Amber Glass Bottle - Unpreserved (EP075) QC2 / 180418	18-Apr-2018	19-Apr-2018	25-Apr-2018	✓	20-Apr-2018	29-May-2018	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071) QC2 / 180418	18-Apr-2018	19-Apr-2018	25-Apr-2018	✓	20-Apr-2018	29-May-2018	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC2 / 180418	18-Apr-2018	19-Apr-2018	02-May-2018	✓	19-Apr-2018	02-May-2018	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071) QC2 / 180418	18-Apr-2018	19-Apr-2018	25-Apr-2018	✓	20-Apr-2018	29-May-2018	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC2 / 180418	18-Apr-2018	19-Apr-2018	02-May-2018	✓	19-Apr-2018	02-May-2018	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) QC2 / 180418	18-Apr-2018	19-Apr-2018	02-May-2018	✓	19-Apr-2018	02-May-2018	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X) QC2 / 180418	18-Apr-2018	----	----	----	26-Apr-2018	15-Oct-2018	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) QC2 / 180418	18-Apr-2018	----	----	----	26-Apr-2018	15-Oct-2018	✓

Page : 6 of 12
 Work Order : EM1806473
 Client : GHD PTY LTD
 Project : 31350060813



Matrix: **WATER**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) QC2 / 180418	18-Apr-2018	----	----	----	26-Apr-2018	15-Oct-2018	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) QC2 / 180418	18-Apr-2018	----	----	----	26-Apr-2018	15-Oct-2018	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) QC2 / 180418	18-Apr-2018	----	----	----	26-Apr-2018	15-Oct-2018	✓



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Alkalinity by PC Titrator	ED037-P	2	19	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	8	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by PC Titrator	EA010-P	1	2	50.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	16	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	9	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	19	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	1	100.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
pH by PC Titrator	EA005-P	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	1	100.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	1	1	100.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	8	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	19	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	3	33.33	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	4	25.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	1	100.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Alkalinity by PC Titrator	ED037-P	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	8	25.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by PC Titrator	EA010-P	1	2	50.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	9	11.11	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	1	100.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	1	100.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	1	1	100.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard



Matrix: **WATER**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)		Quality Control Specification	
Analytical Methods	Method	QC	Regular	Actual	Expected		Evaluation
Laboratory Control Samples (LCS) - Continued							
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	8	25.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	4	25.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	1	100.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Ammonia as N by Discrete analyser	EK055G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	8	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by PC Titrator	EA010-P	1	2	50.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	9	11.11	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	1	100.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	1	100.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	1	1	100.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	8	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	4	25.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	1	100.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	8	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	9	11.11	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	1	0.00	5.00	✗	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	1	0.00	5.00	✗	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	0	1	0.00	5.00	✗	NEPM 2013 B3 & ALS QC Standard

Page : 9 of 12
 Work Order : EM1806473
 Client : GHD PTY LTD
 Project : 31350060813



Matrix: **WATER**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Matrix Spikes (MS) - Continued							
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	8	12.50	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	19	5.26	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	3	0.00	5.00	✘	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	4	25.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	0	1	0.00	5.00	✘	NEPM 2013 B3 & ALS QC Standard



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH by PC Titrator	EA005-P	WATER	In house: Referenced to APHA 4500 H+ B. This procedure determines pH of water samples by automated ISE. This method is compliant with NEPM (2013) Schedule B(3)
Conductivity by PC Titrator	EA010-P	WATER	In house: Referenced to APHA 2510 B. This procedure determines conductivity by automated ISE. This method is compliant with NEPM (2013) Schedule B(3)
Total Dissolved Solids (High Level)	EA015H	WATER	In house: Referenced to APHA 2540C. A gravimetric procedure that determines the amount of 'filterable' residue in an aqueous sample. A well-mixed sample is filtered through a glass fibre filter (1.2um). The filtrate is evaporated to dryness and dried to constant weight at 180+/-5C. This method is compliant with NEPM (2013) Schedule B(3)
Free and Total CO2	EA165	WATER	In house: Referenced to APHA 4500-CO2 D. This method is compliant with NEPM (2013) Schedule B(3)
Alkalinity by PC Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM (2013) Schedule B(3)
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM (2013) Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G. The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocyanate forms highly-coloured ferric thiocyanate which is measured at 480 nm APHA 21st edition seal method 2 017-1-L april 2003
Major Cations - Dissolved	ED093F	WATER	In house: Referenced to APHA 3120 and 3125; USEPA SW 846 - 6010 and 6020; Cations are determined by either ICP-AES or ICP-MS techniques. This method is compliant with NEPM (2013) Schedule B(3) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM (2013) Schedule B(3) Hardness parameters are calculated based on APHA 2340 B. This method is compliant with NEPM (2013) Schedule B(3)
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.



Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) Samples are 0.45µm filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Ammonia as N by Discrete analyser	EK055G	WATER	In house: Referenced to APHA 4500-NH ₃ G Ammonia is determined by direct colorimetry by Discrete Analyser. This method is compliant with NEPM (2013) Schedule B(3)
Nitrite as N by Discrete Analyser	EK057G	WATER	In house: Referenced to APHA 4500-NO ₂ - B. Nitrite is determined by direct colourimetry by Discrete Analyser. This method is compliant with NEPM (2013) Schedule B(3)
Nitrate as N by Discrete Analyser	EK058G	WATER	In house: Referenced to APHA 4500-NO ₃ - F. Nitrate is reduced to nitrite by way of a chemical reduction followed by quantification by Discrete Analyser. Nitrite is determined separately by direct colourimetry and result for Nitrate calculated as the difference between the two results. This method is compliant with NEPM (2013) Schedule B(3)
Nitrite and Nitrate as N (NO _x) by Discrete Analyser	EK059G	WATER	In house: Referenced to APHA 4500-NO ₃ - F. Combined oxidised Nitrogen (NO ₂ +NO ₃) is determined by Chemical Reduction and direct colourimetry by Discrete Analyser. This method is compliant with NEPM (2013) Schedule B(3)
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	WATER	In house: Referenced to APHA 4500-Norg D (In house). An aliquot of sample is digested using a high temperature Kjeldahl digestion to convert nitrogenous compounds to ammonia. Ammonia is determined colorimetrically by discrete analyser. This method is compliant with NEPM (2013) Schedule B(3)
Total Nitrogen as N (TKN + Nox) By Discrete Analyser	EK062G	WATER	In house: Referenced to APHA 4500-Norg / 4500-NO ₃ -. This method is compliant with NEPM (2013) Schedule B(3)
Total Phosphorus as P By Discrete Analyser	EK067G	WATER	In house: Referenced to APHA 4500-P H, Jirka et al (1976), Zhang et al (2006). This procedure involves sulphuric acid digestion of a sample aliquot to break phosphorus down to orthophosphate. The orthophosphate reacts with ammonium molybdate and antimony potassium tartrate to form a complex which is then reduced and its concentration measured at 880nm using discrete analyser. This method is compliant with NEPM (2013) Schedule B(3)
Ionic Balance by PCT DA and Turbi SO4 DA	EN055 - PG	WATER	In house: Referenced to APHA 1030F. This method is compliant with NEPM (2013) Schedule B(3)
Total Organic Carbon	EP005	WATER	In house: Referenced to APHA 5310 B, The automated TOC analyzer determines Total and Inorganic Carbon by IR cell. TOC is calculated as the difference. This method is compliant with NEPM (2013) Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	WATER	In house: Referenced to USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Pesticides by GCMS	EP068	WATER	In house: Referenced to USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)



Analytical Methods	Method	Matrix	Method Descriptions
Volatile Organic Compounds	EP074	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Semivolatile Organic Compounds	EP075	WATER	In house: Referenced to USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In house: Direct injection analysis of fresh waters after dilution (1:1) with methanol. Analysis by LC-Electrospray-MS-MS, Negative Mode using MRM. Where commercially available, isotopically labelled analogues of the target analytes are used as internal standards for quantification. Where a labelled analogue is not commercially available, the internal standard with similar chemistry and the closest retention time to the target is used for quantification. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. This method complies with the quality control definitions as stated in QSM 5.1. Data is reviewed in line with the DQOs as stated in QSM5.1
Sulphate Reducing Bacteria (BART)	MM669	WATER	Specialist microbiological analysis subcontracted to ALS Scoresby (NATA accreditation does not cover this service).
Preparation Methods	Method	Matrix	Method Descriptions
TKN/TP Digestion	EK061/EK067	WATER	In house: Referenced to APHA 4500 Norg - D; APHA 4500 P - H. This method is compliant with NEPM (2013) Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

CERTIFICATE OF ANALYSIS

Work Order : **EM1807515**
Client : **GHD PTY LTD**
Contact : **KORY AUCH**
Address : **LEVEL 8, 180 LONSDALE ST**
MELBOURNE VIC, AUSTRALIA 3001
Telephone : **----**
Project : **31350060910**
Order number : **----**
C-O-C number : **----**
Sampler : **KORY AUCH**
Site : **North East Link - Contamination**
Quote number : **ME/124/18 - North East Link**
No. of samples received : **7**
No. of samples analysed : **7**

Page : 1 of 30
Laboratory : Environmental Division Melbourne
Contact : Shirley LeCornu
Address : 4 Westall Rd Springvale VIC Australia 3171
Telephone : +61-3-8549 9630
Date Samples Received : 08-May-2018 16:10
Date Analysis Commenced : 09-May-2018
Issue Date : 23-May-2018 10:27



Accreditation No. 825
 Accredited for compliance with
 ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC
Zachary Chataway	Laboratory Manager	WRG Subcontracting, Springvale, VIC



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

Ø = ALS is not NATA accredited for these tests.

~ = Indicates an estimated value.

- ED093F: EM1807515 #1-4, the results for Sodium have been confirmed by re-preparation and re-analysis.
- SRB (MM669) is conducted by ALS Scoresby NATA accreditation no. 992, site no. 989. NATA accreditation does not cover performance of this method.
- EA010: EM1807515 #5 and 6 EC has been confirmed by reanalysis.
- EA010-P: EC has been analysed by manual EC method.
- Ionic balances were calculated using: major anions - chloride, alkalinity and sulfate; and major cations - calcium, magnesium, potassium and sodium.
- ED045G: The presence of thiocyanate can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.
- EP075: 'Sum of PAH' is the sum of the USEPA 16 priority PAHs
- EA016: Calculated TDS is determined from Electrical conductivity using a conversion factor of 0.65.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a,h)anthracene (1.0), Benzo(g,h,i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Client sample ID

				NEL-ENV-BH024_0805 2018	NEL-ENV-BH008_0805 2018	QC5000_08052018	QC6000_08052018	RB400_08052018
Client sampling date / time				08-May-2018 13:30	08-May-2018 09:30	08-May-2018 13:30	08-May-2018 13:30	08-May-2018 10:00
Compound	CAS Number	LOR	Unit	EM1807515-001	EM1807515-002	EM1807515-003	EM1807515-004	EM1807515-005
				Result	Result	Result	Result	Result
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	7.58	7.13	7.62	7.61	6.08
EA006: Sodium Adsorption Ratio (SAR)								
^ Sodium Adsorption Ratio	----	0.01	-	----	----	----	----	<0.01
^ Sodium Adsorption Ratio	----	0.01	-	32.3	24.1	34.0	33.0	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	8780	11200	8530	8660	4
EA016: Calculated TDS (from Electrical Conductivity)								
Total Dissolved Solids (Calc.)	----	1	mg/L	5710	7280	5540	5630	3
EA065: Total Hardness as CaCO3								
Total Hardness as CaCO3	----	1	mg/L	442	1070	439	446	<1
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	1040	855	1020	1040	2
Total Alkalinity as CaCO3	----	1	mg/L	1040	855	1020	1040	2
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	158	184	181	164	<1
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	2480	3680	2530	2560	<1
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	35	89	34	35	<1
Magnesium	7439-95-4	1	mg/L	86	205	86	87	<1
Sodium	7440-23-5	1	mg/L	1630	1980	1820	1790	<1
Potassium	7440-09-7	1	mg/L	26	22	26	26	<1
EG020F: Dissolved Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	0.002	<0.001	0.002	0.002	----
Boron	7440-42-8	0.05	mg/L	1.01	0.24	1.00	1.03	----
Barium	7440-39-3	0.001	mg/L	0.069	0.100	0.072	0.071	----
Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.0002	<0.0001	<0.0001	----
Cobalt	7440-48-4	0.001	mg/L	0.004	0.004	0.004	0.005	----
Chromium	7440-47-3	0.001	mg/L	0.001	<0.001	<0.001	<0.001	----
Copper	7440-50-8	0.001	mg/L	0.006	0.117	0.006	0.006	----



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Client sample ID

				NEL-ENV-BH024_0805 2018	NEL-ENV-BH008_0805 2018	QC5000_08052018	QC6000_08052018	RB400_08052018
Client sampling date / time				08-May-2018 13:30	08-May-2018 09:30	08-May-2018 13:30	08-May-2018 13:30	08-May-2018 10:00
Compound	CAS Number	LOR	Unit	EM1807515-001	EM1807515-002	EM1807515-003	EM1807515-004	EM1807515-005
				Result	Result	Result	Result	Result
EG020F: Dissolved Metals by ICP-MS - Continued								
Manganese	7439-96-5	0.001	mg/L	0.066	0.101	0.064	0.065	----
Nickel	7440-02-0	0.001	mg/L	0.151	0.075	0.149	0.148	----
Lead	7439-92-1	0.001	mg/L	<0.001	0.015	0.001	<0.001	----
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	----
Vanadium	7440-62-2	0.01	mg/L	0.02	<0.01	0.02	0.02	----
Zinc	7440-66-6	0.005	mg/L	0.007	0.212	0.009	0.010	----
EG020T: Total Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	----	----	----	----	<0.001
Boron	7440-42-8	0.05	mg/L	----	----	----	----	<0.05
Barium	7440-39-3	0.001	mg/L	----	----	----	----	<0.001
Beryllium	7440-41-7	0.001	mg/L	----	----	----	----	<0.001
Cadmium	7440-43-9	0.0001	mg/L	----	----	----	----	<0.0001
Cobalt	7440-48-4	0.001	mg/L	----	----	----	----	<0.001
Chromium	7440-47-3	0.001	mg/L	----	----	----	----	<0.001
Copper	7440-50-8	0.001	mg/L	----	----	----	----	<0.001
Manganese	7439-96-5	0.001	mg/L	----	----	----	----	<0.001
Nickel	7440-02-0	0.001	mg/L	----	----	----	----	<0.001
Lead	7439-92-1	0.001	mg/L	----	----	----	----	<0.001
Selenium	7782-49-2	0.01	mg/L	----	----	----	----	<0.01
Vanadium	7440-62-2	0.01	mg/L	----	----	----	----	<0.01
Zinc	7440-66-6	0.005	mg/L	----	----	----	----	<0.005
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	----	----	----	----	<0.0001
EK040P: Fluoride by PC Titrator								
Fluoride	16984-48-8	0.1	mg/L	0.8	0.8	0.8	0.8	<0.1
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	0.05	0.04	<0.01	<0.01	<0.01
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	0.01	<0.01	0.03	0.02	<0.01
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	0.30	0.10	0.27	0.28	<0.01



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Client sample ID

				NEL-ENV-BH024_0805 2018	NEL-ENV-BH008_0805 2018	QC5000_08052018	QC6000_08052018	RB400_08052018
Client sampling date / time				08-May-2018 13:30	08-May-2018 09:30	08-May-2018 13:30	08-May-2018 13:30	08-May-2018 10:00
Compound	CAS Number	LOR	Unit	EM1807515-001	EM1807515-002	EM1807515-003	EM1807515-004	EM1807515-005
				Result	Result	Result	Result	Result
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	0.31	0.10	0.30	0.30	<0.01
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.3	<0.1	<0.1	0.4	<0.1
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	0.6	0.1	0.3	0.7	<0.1
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	0.08	0.09	0.08	0.11	<0.01
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.02	<0.01	<0.01	<0.01
EN055: Ionic Balance								
Total Anions	----	0.01	meq/L	94.0	125	95.5	96.4	0.04
Total Cations	----	0.01	meq/L	80.4	108	88.6	87.4	<0.01
Ionic Balance	----	0.01	%	7.82	7.18	3.75	4.88	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	1	µg/L	<1	<1	<1	<1	<1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
beta-BHC	319-85-7	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
gamma-BHC	58-89-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
delta-BHC	319-86-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Heptachlor	76-44-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Aldrin	309-00-2	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Dieldrin	60-57-1	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
4,4'-DDE	72-55-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Endrin	72-20-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
4,4'-DDD	72-54-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Client sample ID

				NEL-ENV-BH024_0805 2018	NEL-ENV-BH008_0805 2018	QC5000_08052018	QC6000_08052018	RB400_08052018
Client sampling date / time				08-May-2018 13:30	08-May-2018 09:30	08-May-2018 13:30	08-May-2018 13:30	08-May-2018 10:00
Compound	CAS Number	LOR	Unit	EM1807515-001	EM1807515-002	EM1807515-003	EM1807515-004	EM1807515-005
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
4,4'-DDT	50-29-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
Endrin ketone	53494-70-5	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Methoxychlor	72-43-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
^ Total Chlordane (sum)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/5 0-2	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Monocrotophos	6923-22-4	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
Dimethoate	60-51-5	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon	333-41-5	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Parathion-methyl	298-00-0	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
Malathion	121-75-5	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Fenthion	55-38-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Parathion	56-38-2	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Fenamiphos	22224-92-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Prothiofos	34643-46-4	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	563-12-2	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Carbophenothion	786-19-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
Styrene	100-42-5	5	µg/L	<5	<5	<5	<5	<5
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Client sample ID

				NEL-ENV-BH024_0805 2018	NEL-ENV-BH008_0805 2018	QC5000_08052018	QC6000_08052018	RB400_08052018
Client sampling date / time				08-May-2018 13:30	08-May-2018 09:30	08-May-2018 13:30	08-May-2018 13:30	08-May-2018 10:00
Compound	CAS Number	LOR	Unit	EM1807515-001	EM1807515-002	EM1807515-003	EM1807515-004	EM1807515-005
				Result	Result	Result	Result	Result
EP074A: Monocyclic Aromatic Hydrocarbons - Continued								
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	<5	<5	<5
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	<5	<5	<5
1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	<5	<5	<5
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	<5	<5	<5
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	<5	<5	<5
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	<5	<5	<5
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	<5	<5	<5
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	<5	<5	<5
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	<50	<50	<50
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	<50	<50	<50
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	<50	<50	<50
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	<5	<5	<5
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	<5	<5	<5
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	<5	<5	<5
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	<5	<5	<5
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	<5	<5	<5
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	<50	<50	<50
Chloromethane	74-87-3	50	µg/L	<50	<50	<50	<50	<50
Vinyl chloride	75-01-4	50	µg/L	<50	<50	<50	<50	<50
Bromomethane	74-83-9	50	µg/L	<50	<50	<50	<50	<50
Chloroethane	75-00-3	50	µg/L	<50	<50	<50	<50	<50
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	<50	<50	<50
1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	<5	<5	<5
Iodomethane	74-88-4	5	µg/L	<5	<5	<5	<5	<5
trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	<5	<5	<5
1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	<5	<5	<5
cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	<5	<5	<5
1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	<5	<5	<5



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Client sample ID

				NEL-ENV-BH024_0805 2018	NEL-ENV-BH008_0805 2018	QC5000_08052018	QC6000_08052018	RB400_08052018
Client sampling date / time				08-May-2018 13:30	08-May-2018 09:30	08-May-2018 13:30	08-May-2018 13:30	08-May-2018 10:00
Compound	CAS Number	LOR	Unit	EM1807515-001	EM1807515-002	EM1807515-003	EM1807515-004	EM1807515-005
				Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued								
1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	<5	<5	<5
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	<5	<5	<5
1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	<5	<5	<5
Trichloroethene	79-01-6	5	µg/L	<5	<5	<5	<5	<5
Dibromomethane	74-95-3	5	µg/L	<5	<5	<5	<5	<5
1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	<5	<5	<5
1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	<5	<5	<5
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	<5	<5	<5
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	<5	<5	<5
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	<5	<5	<5
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	<5	<5	<5
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	<5	<5	<5
1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	<5	<5	<5
Pentachloroethane	76-01-7	5	µg/L	<5	<5	<5	<5	<5
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	<5	<5	<5
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	<5	<5	<5
Bromobenzene	108-86-1	5	µg/L	<5	<5	<5	<5	<5
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	<5	<5	<5
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	<5	<5	<5
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	<5	<5	<5
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	<5	<5	<5
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	<5	<5	<5
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	<5	<5	<5
Bromoform	75-25-2	5	µg/L	<5	<5	<5	<5	<5
EP075A: Phenolic Compounds								
Phenol	108-95-2	2	µg/L	<2	<2	<2	<2	<2
2-Chlorophenol	95-57-8	2	µg/L	<2	<2	<2	<2	<2
2-Methylphenol	95-48-7	2	µg/L	<2	<2	<2	<2	<2
3- & 4-Methylphenol	1319-77-3	4	µg/L	<4	<4	<4	<4	<4
2-Nitrophenol	88-75-5	2	µg/L	<2	<2	<2	<2	<2
2.4-Dimethylphenol	105-67-9	2	µg/L	<2	<2	<2	<2	<2
2.4-Dichlorophenol	120-83-2	2	µg/L	<2	<2	<2	<2	<2



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Client sample ID

				NEL-ENV-BH024_0805 2018	NEL-ENV-BH008_0805 2018	QC5000_08052018	QC6000_08052018	RB400_08052018
Client sampling date / time				08-May-2018 13:30	08-May-2018 09:30	08-May-2018 13:30	08-May-2018 13:30	08-May-2018 10:00
Compound	CAS Number	LOR	Unit	EM1807515-001	EM1807515-002	EM1807515-003	EM1807515-004	EM1807515-005
				Result	Result	Result	Result	Result
EP075A: Phenolic Compounds - Continued								
2,6-Dichlorophenol	87-65-0	2	µg/L	<2	<2	<2	<2	<2
4-Chloro-3-methylphenol	59-50-7	2	µg/L	<2	<2	<2	<2	<2
2,4,6-Trichlorophenol	88-06-2	2	µg/L	<2	<2	<2	<2	<2
2,4,5-Trichlorophenol	95-95-4	2	µg/L	<2	<2	<2	<2	<2
Pentachlorophenol	87-86-5	4	µg/L	<4	<4	<4	<4	<4
EP075B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	2	µg/L	<2	<2	<2	<2	<2
2-Methylnaphthalene	91-57-6	2	µg/L	<2	<2	<2	<2	<2
2-Chloronaphthalene	91-58-7	2	µg/L	<2	<2	<2	<2	<2
Acenaphthylene	208-96-8	2	µg/L	<2	<2	<2	<2	<2
Acenaphthene	83-32-9	2	µg/L	<2	<2	<2	<2	<2
Fluorene	86-73-7	2	µg/L	<2	<2	<2	<2	<2
Phenanthrene	85-01-8	2	µg/L	<2	<2	<2	<2	<2
Anthracene	120-12-7	2	µg/L	<2	<2	<2	<2	<2
Fluoranthene	206-44-0	2	µg/L	<2	<2	<2	<2	<2
Pyrene	129-00-0	2	µg/L	<2	<2	<2	<2	<2
N-2-Fluorenyl Acetamide	53-96-3	2	µg/L	<2	<2	<2	<2	<2
Benz(a)anthracene	56-55-3	2	µg/L	<2	<2	<2	<2	<2
Chrysene	218-01-9	2	µg/L	<2	<2	<2	<2	<2
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	4	µg/L	<4	<4	<4	<4	<4
7,12-Dimethylbenz(a)anthracene	57-97-6	2	µg/L	<2	<2	<2	<2	<2
Benzo(a)pyrene	50-32-8	2	µg/L	<2	<2	<2	<2	<2
3-Methylcholanthrene	56-49-5	2	µg/L	<2	<2	<2	<2	<2
Indeno(1,2,3-cd)pyrene	193-39-5	2	µg/L	<2	<2	<2	<2	<2
Dibenz(a,h)anthracene	53-70-3	2	µg/L	<2	<2	<2	<2	<2
Benzo(g,h,i)perylene	191-24-2	2	µg/L	<2	<2	<2	<2	<2
^ Sum of PAHs	----	2	µg/L	<2	<2	<2	<2	<2
^ Benzo(a)pyrene TEQ (zero)	----	2	µg/L	<2	<2	<2	<2	<2
EP075C: Phthalate Esters								
Dimethyl phthalate	131-11-3	2	µg/L	<2	<2	<2	<2	<2
Diethyl phthalate	84-66-2	2	µg/L	<2	<2	<2	<2	<2
Di-n-butyl phthalate	84-74-2	2	µg/L	<2	<2	<2	<2	<2
Butyl benzyl phthalate	85-68-7	2	µg/L	<2	<2	<2	<2	<2



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Client sample ID

				NEL-ENV-BH024_0805 2018	NEL-ENV-BH008_0805 2018	QC5000_08052018	QC6000_08052018	RB400_08052018
Client sampling date / time				08-May-2018 13:30	08-May-2018 09:30	08-May-2018 13:30	08-May-2018 13:30	08-May-2018 10:00
Compound	CAS Number	LOR	Unit	EM1807515-001	EM1807515-002	EM1807515-003	EM1807515-004	EM1807515-005
				Result	Result	Result	Result	Result
EP075C: Phthalate Esters - Continued								
bis(2-ethylhexyl) phthalate	117-81-7	10	µg/L	<10	<10	<10	<10	<10
Di-n-octylphthalate	117-84-0	2	µg/L	<2	<2	<2	<2	<2
EP075D: Nitrosamines								
N-Nitrosomethylethylamine	10595-95-6	2	µg/L	<2	<2	<2	<2	<2
N-Nitrosodiethylamine	55-18-5	2	µg/L	<2	<2	<2	<2	<2
N-Nitrosopyrrolidine	930-55-2	4	µg/L	<4	<4	<4	<4	<4
N-Nitrosomorpholine	59-89-2	2	µg/L	<2	<2	<2	<2	<2
N-Nitrosodi-n-propylamine	621-64-7	2	µg/L	<2	<2	<2	<2	<2
N-Nitrosopiperidine	100-75-4	2	µg/L	<2	<2	<2	<2	<2
N-Nitrosodibutylamine	924-16-3	2	µg/L	<2	<2	<2	<2	<2
N-Nitrosodiphenyl & Diphenylamine	86-30-6 122-39-4	4	µg/L	<4	<4	<4	<4	<4
Methapyrilene	91-80-5	2	µg/L	<2	<2	<2	<2	<2
EP075E: Nitroaromatics and Ketones								
2-Picoline	109-06-8	2	µg/L	<2	<2	<2	<2	<2
Acetophenone	98-86-2	2	µg/L	<2	<2	<2	<2	<2
Nitrobenzene	98-95-3	2	µg/L	<2	<2	<2	<2	<2
Isophorone	78-59-1	2	µg/L	<2	<2	<2	<2	<2
2,6-Dinitrotoluene	606-20-2	4	µg/L	<4	<4	<4	<4	<4
2,4-Dinitrotoluene	121-14-2	4	µg/L	<4	<4	<4	<4	<4
1-Naphthylamine	134-32-7	2	µg/L	<2	<2	<2	<2	<2
4-Nitroquinoline-N-oxide	56-57-5	2	µg/L	<2	<2	<2	<2	<2
5-Nitro-o-toluidine	99-55-8	2	µg/L	<2	<2	<2	<2	<2
Azobenzene	103-33-3	2	µg/L	<2	<2	<2	<2	<2
1,3,5-Trinitrobenzene	99-35-4	2	µg/L	<2	<2	<2	<2	<2
Phenacetin	62-44-2	2	µg/L	<2	<2	<2	<2	<2
4-Aminobiphenyl	92-67-1	2	µg/L	<2	<2	<2	<2	<2
Pentachloronitrobenzene	82-68-8	2	µg/L	<2	<2	<2	<2	<2
Pronamide	23950-58-5	2	µg/L	<2	<2	<2	<2	<2
Dimethylaminoazobenzene	60-11-7	2	µg/L	<2	<2	<2	<2	<2
Chlorobenzilate	510-15-6	2	µg/L	<2	<2	<2	<2	<2
EP075F: Haloethers								
Bis(2-chloroethyl) ether	111-44-4	2	µg/L	<2	<2	<2	<2	<2
Bis(2-chloroethoxy) methane	111-91-1	2	µg/L	<2	<2	<2	<2	<2



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Client sample ID

				NEL-ENV-BH024_0805 2018	NEL-ENV-BH008_0805 2018	QC5000_08052018	QC6000_08052018	RB400_08052018
Client sampling date / time				08-May-2018 13:30	08-May-2018 09:30	08-May-2018 13:30	08-May-2018 13:30	08-May-2018 10:00
Compound	CAS Number	LOR	Unit	EM1807515-001	EM1807515-002	EM1807515-003	EM1807515-004	EM1807515-005
				Result	Result	Result	Result	Result
EP075F: Haloethers - Continued								
4-Chlorophenyl phenyl ether	7005-72-3	2	µg/L	<2	<2	<2	<2	<2
4-Bromophenyl phenyl ether	101-55-3	2	µg/L	<2	<2	<2	<2	<2
EP075G: Chlorinated Hydrocarbons								
1,3-Dichlorobenzene	541-73-1	2	µg/L	<2	<2	<2	<2	<2
1,4-Dichlorobenzene	106-46-7	2	µg/L	<2	<2	<2	<2	<2
1,2-Dichlorobenzene	95-50-1	2	µg/L	<2	<2	<2	<2	<2
Hexachloroethane	67-72-1	2	µg/L	<2	<2	<2	<2	<2
1,2,4-Trichlorobenzene	120-82-1	2	µg/L	<2	<2	<2	<2	<2
Hexachloropropylene	1888-71-7	2	µg/L	<2	<2	<2	<2	<2
Hexachlorobutadiene	87-68-3	2	µg/L	<2	<2	<2	<2	<2
Hexachlorocyclopentadiene	77-47-4	10	µg/L	<10	<10	<10	<10	<10
Pentachlorobenzene	608-93-5	2	µg/L	<2	<2	<2	<2	<2
Hexachlorobenzene (HCB)	118-74-1	4	µg/L	<4	<4	<4	<4	<4
EP075H: Anilines and Benzidines								
Aniline	62-53-3	2	µg/L	<2	<2	<2	<2	<2
4-Chloroaniline	106-47-8	2	µg/L	<2	<2	<2	<2	<2
2-Nitroaniline	88-74-4	4	µg/L	<4	<4	<4	<4	<4
3-Nitroaniline	99-09-2	4	µg/L	<4	<4	<4	<4	<4
Dibenzofuran	132-64-9	2	µg/L	<2	<2	<2	<2	<2
4-Nitroaniline	100-01-6	2	µg/L	<2	<2	<2	<2	<2
Carbazole	86-74-8	2	µg/L	<2	<2	<2	<2	<2
3,3'-Dichlorobenzidine	91-94-1	2	µg/L	<2	<2	<2	<2	<2
EP075I: Organochlorine Pesticides								
alpha-BHC	319-84-6	2	µg/L	<2	<2	<2	<2	<2
beta-BHC	319-85-7	2	µg/L	<2	<2	<2	<2	<2
gamma-BHC	58-89-9	2	µg/L	<2	<2	<2	<2	<2
delta-BHC	319-86-8	2	µg/L	<2	<2	<2	<2	<2
Heptachlor	76-44-8	2	µg/L	<2	<2	<2	<2	<2
Aldrin	309-00-2	2	µg/L	<2	<2	<2	<2	<2
Heptachlor epoxide	1024-57-3	2	µg/L	<2	<2	<2	<2	<2
alpha-Endosulfan	959-98-8	2	µg/L	<2	<2	<2	<2	<2
4,4'-DDE	72-55-9	2	µg/L	<2	<2	<2	<2	<2
Dieldrin	60-57-1	2	µg/L	<2	<2	<2	<2	<2
Endrin	72-20-8	2	µg/L	<2	<2	<2	<2	<2



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Client sample ID

				NEL-ENV-BH024_0805 2018	NEL-ENV-BH008_0805 2018	QC5000_08052018	QC6000_08052018	RB400_08052018
Client sampling date / time				08-May-2018 13:30	08-May-2018 09:30	08-May-2018 13:30	08-May-2018 13:30	08-May-2018 10:00
Compound	CAS Number	LOR	Unit	EM1807515-001	EM1807515-002	EM1807515-003	EM1807515-004	EM1807515-005
				Result	Result	Result	Result	Result
EP075I: Organochlorine Pesticides - Continued								
beta-Endosulfan	33213-65-9	2	µg/L	<2	<2	<2	<2	<2
4,4'-DDD	72-54-8	2	µg/L	<2	<2	<2	<2	<2
Endosulfan sulfate	1031-07-8	2	µg/L	<2	<2	<2	<2	<2
4,4'-DDT	50-29-3	4	µg/L	<4	<4	<4	<4	<4
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	4	µg/L	<4	<4	<4	<4	<4
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/5 0-2	4	µg/L	<4	<4	<4	<4	<4
EP075J: Organophosphorus Pesticides								
Dichlorvos	62-73-7	2	µg/L	<2	<2	<2	<2	<2
Dimethoate	60-51-5	2	µg/L	<2	<2	<2	<2	<2
Diazinon	333-41-5	2	µg/L	<2	<2	<2	<2	<2
Chlorpyrifos-methyl	5598-13-0	2	µg/L	<2	<2	<2	<2	<2
Malathion	121-75-5	2	µg/L	<2	<2	<2	<2	<2
Fenthion	55-38-9	2	µg/L	<2	<2	<2	<2	<2
Chlorpyrifos	2921-88-2	2	µg/L	<2	<2	<2	<2	<2
Pirimphos-ethyl	23505-41-1	2	µg/L	<2	<2	<2	<2	<2
Chlorfenvinphos	470-90-6	2	µg/L	<2	<2	<2	<2	<2
Prothiofos	34643-46-4	2	µg/L	<2	<2	<2	<2	<2
Ethion	563-12-2	2	µg/L	<2	<2	<2	<2	<2
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	1000	<50	1170	1180	<50
C15 - C28 Fraction	----	100	µg/L	270	<100	290	300	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	1270	<50	1460	1480	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	----	100	µg/L	1060	<100	1230	1240	<100
>C16 - C34 Fraction	----	100	µg/L	180	<100	200	210	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	1240	<100	1430	1450	<100



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Client sample ID

				NEL-ENV-BH024_0805 2018	NEL-ENV-BH008_0805 2018	QC5000_08052018	QC6000_08052018	RB400_08052018
Client sampling date / time				08-May-2018 13:30	08-May-2018 09:30	08-May-2018 13:30	08-May-2018 13:30	08-May-2018 10:00
Compound	CAS Number	LOR	Unit	EM1807515-001	EM1807515-002	EM1807515-003	EM1807515-004	EM1807515-005
				Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued								
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	1060	<100	1230	1240	<100
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	----	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.002	µg/L	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.002	µg/L	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.002	µg/L	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.002	µg/L	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.002	µg/L	0.002	<0.002	0.002	0.002	<0.002
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.002	µg/L	<0.002	<0.002	<0.002	<0.002	<0.002
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.002	µg/L	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorohexanoic acid (PFHxA)	307-24-4	0.002	µg/L	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.002	µg/L	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorooctanoic acid (PFOA)	335-67-1	0.002	µg/L	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorononanoic acid (PFNA)	375-95-1	0.002	µg/L	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorodecanoic acid (PFDA)	335-76-2	0.002	µg/L	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.002	µg/L	<0.002	<0.002	<0.002	<0.002	<0.002



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Client sample ID

				NEL-ENV-BH024_0805 2018	NEL-ENV-BH008_0805 2018	QC5000_08052018	QC6000_08052018	RB400_08052018
Client sampling date / time				08-May-2018 13:30	08-May-2018 09:30	08-May-2018 13:30	08-May-2018 13:30	08-May-2018 10:00
Compound	CAS Number	LOR	Unit	EM1807515-001	EM1807515-002	EM1807515-003	EM1807515-004	EM1807515-005
				Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued								
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.002	µg/L	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.002	µg/L	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.005	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Perfluorohexadecanoic acid (PFHxDA)	67905-19-5	0.005	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005
EP231C: Perfluoroalkyl Sulfonamides								
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.002	µg/L	<0.002	<0.002	<0.002	<0.002	<0.002
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.005	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.005	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.005	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.005	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.002	µg/L	<0.002	<0.002	<0.002	<0.002	<0.002
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.002	µg/L	<0.002	<0.002	<0.002	<0.002	<0.002
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.005	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.005	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.005	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.005	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005
EP231P: PFAS Sums								
Sum of PFAS	----	0.002	µg/L	0.002	<0.002	0.002	0.002	<0.002

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	NEL-ENV-BH024_0805 2018	NEL-ENV-BH008_0805 2018	QC5000_08052018	QC6000_08052018	RB400_08052018
Client sampling date / time				08-May-2018 13:30	08-May-2018 09:30	08-May-2018 13:30	08-May-2018 13:30	08-May-2018 10:00	
Compound	CAS Number	LOR	Unit	EM1807515-001	EM1807515-002	EM1807515-003	EM1807515-004	EM1807515-005	
				Result	Result	Result	Result	Result	
EP231P: PFAS Sums - Continued									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.002	µg/L	0.002	<0.002	0.002	0.002	<0.002	
Sum of PFAS (WA DER List)	----	0.002	µg/L	0.002	<0.002	0.002	0.002	<0.002	
MM669: Sulphate Reducing Bacteria									
Sulphate Reducing Bacteria Population Estimate	----	20	pac/mL	120000	6000	6000	6000	<20	
Aggressivity	----	1	-	High	High	High	High	Not Aggressive	
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	1	%	82.3	81.9	81.7	80.8	56.7	
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.5	%	96.4	91.5	96.2	96.6	68.1	
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.5	%	110	110	113	114	87.2	
EP074S: VOC Surrogates									
1,2-Dichloroethane-D4	17060-07-0	5	%	101	99.8	102	108	92.2	
Toluene-D8	2037-26-5	5	%	101	95.0	98.2	109	89.0	
4-Bromofluorobenzene	460-00-4	5	%	108	111	108	115	99.9	
EP075S: Acid Extractable Surrogates									
2-Fluorophenol	367-12-4	2	%	77.8	59.8	94.1	89.7	67.2	
Phenol-d6	13127-88-3	2	%	32.9	26.5	31.2	33.5	23.4	
2-Chlorophenol-D4	93951-73-6	2	%	75.6	62.5	78.8	76.8	54.1	
2,4,6-Tribromophenol	118-79-6	2	%	78.6	71.8	86.1	85.6	59.9	
EP075T: Base/Neutral Extractable Surrogates									
Nitrobenzene-D5	4165-60-0	2	%	69.2	74.2	96.0	96.6	55.8	
1,2-Dichlorobenzene-D4	2199-69-1	2	%	77.4	68.9	77.8	86.9	54.9	
2-Fluorobiphenyl	321-60-8	2	%	85.7	78.0	89.0	88.5	65.2	
Anthracene-d10	1719-06-8	2	%	89.2	93.8	90.8	90.3	79.3	
4-Terphenyl-d14	1718-51-0	2	%	91.6	90.1	91.1	89.4	69.7	
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	2	%	107	105	108	113	97.9	
Toluene-D8	2037-26-5	2	%	94.8	88.7	92.2	102	83.2	
4-Bromofluorobenzene	460-00-4	2	%	102	104	102	108	92.9	
EP231S: PFAS Surrogate									



Analytical Results

Sub-Matrix: **WATER**
 (Matrix: **WATER**)

Client sample ID

				NEL-ENV-BH024_0805 2018	NEL-ENV-BH008_0805 2018	QC5000_08052018	QC6000_08052018	RB400_08052018
Client sampling date / time				08-May-2018 13:30	08-May-2018 09:30	08-May-2018 13:30	08-May-2018 13:30	08-May-2018 10:00
Compound	CAS Number	LOR	Unit	EM1807515-001	EM1807515-002	EM1807515-003	EM1807515-004	EM1807515-005
				Result	Result	Result	Result	Result
EP231S: PFAS Surrogate - Continued								
13C4-PFOS	----	0.002	%	74.7	74.3	68.5	67.0	80.0
13C8-PFOA	----	0.002	%	118	94.9	118	114	106



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	FB400_08052018	TB400_08052018	----	----	----
Client sampling date / time					08-May-2018 10:00	08-May-2018 10:00	----	----	----
Compound	CAS Number	LOR	Unit		EM1807515-006	EM1807515-007	-----	-----	-----
				Result	Result		----	----	----
EA005P: pH by PC Titrator									
pH Value	----	0.01	pH Unit		6.40	----	----	----	----
EA006: Sodium Adsorption Ratio (SAR)									
^ Sodium Adsorption Ratio	----	0.01	-		<0.01	----	----	----	----
EA010P: Conductivity by PC Titrator									
Electrical Conductivity @ 25°C	----	1	µS/cm		1	----	----	----	----
EA016: Calculated TDS (from Electrical Conductivity)									
Total Dissolved Solids (Calc.)	----	1	mg/L		<1	----	----	----	----
EA065: Total Hardness as CaCO3									
Total Hardness as CaCO3	----	1	mg/L		<1	----	----	----	----
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	----	----	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	----	----	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		1	----	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L		1	----	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		<1	----	----	----	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		<1	----	----	----	----
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		<1	----	----	----	----
Magnesium	7439-95-4	1	mg/L		<1	----	----	----	----
Sodium	7440-23-5	1	mg/L		<1	----	----	----	----
Potassium	7440-09-7	1	mg/L		<1	----	----	----	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	----	----	----	----
Boron	7440-42-8	0.05	mg/L		<0.05	----	----	----	----
Barium	7440-39-3	0.001	mg/L		<0.001	----	----	----	----
Beryllium	7440-41-7	0.001	mg/L		<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	----	----	----	----
Cobalt	7440-48-4	0.001	mg/L		<0.001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L		<0.001	----	----	----	----
Manganese	7439-96-5	0.001	mg/L		<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		<0.001	----	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	FB400_08052018	TB400_08052018	----	----	----
Client sampling date / time					08-May-2018 10:00	08-May-2018 10:00	----	----	----
Compound	CAS Number	LOR	Unit		EM1807515-006	EM1807515-007	-----	-----	-----
					Result	Result	----	----	----
EG020T: Total Metals by ICP-MS - Continued									
Lead	7439-92-1	0.001	mg/L		<0.001	----	----	----	----
Selenium	7782-49-2	0.01	mg/L		<0.01	----	----	----	----
Vanadium	7440-62-2	0.01	mg/L		<0.01	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		<0.005	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	----	----	----	----
EK040P: Fluoride by PC Titrator									
Fluoride	16984-48-8	0.1	mg/L		<0.1	----	----	----	----
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		<0.01	----	----	----	----
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L		<0.01	----	----	----	----
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L		<0.01	----	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		<0.01	----	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L		<0.1	----	----	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L		<0.1	----	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L		<0.01	----	----	----	----
EK071G: Reactive Phosphorus as P by discrete analyser									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L		<0.01	----	----	----	----
EN055: Ionic Balance									
Total Anions	----	0.01	meq/L		0.02	----	----	----	----
Total Cations	----	0.01	meq/L		<0.01	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	1	µg/L		<1	----	----	----	----
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.5	µg/L		<0.5	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L		<0.5	----	----	----	----
beta-BHC	319-85-7	0.5	µg/L		<0.5	----	----	----	----



Analytical Results

Sub-Matrix: **WATER**
 (Matrix: **WATER**)

Client sample ID

				FB400_08052018	TB400_08052018	----	----	----
Client sampling date / time				08-May-2018 10:00	08-May-2018 10:00	----	----	----
Compound	CAS Number	LOR	Unit	EM1807515-006	EM1807515-007	-----	-----	-----
				Result	Result	----	----	----

EP068A: Organochlorine Pesticides (OC) - Continued

gamma-BHC	58-89-9	0.5	µg/L	<0.5	----	----	----	----
delta-BHC	319-86-8	0.5	µg/L	<0.5	----	----	----	----
Heptachlor	76-44-8	0.5	µg/L	<0.5	----	----	----	----
Aldrin	309-00-2	0.5	µg/L	<0.5	----	----	----	----
Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	----	----	----	----
trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	----	----	----	----
alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	----	----	----	----
cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	----	----	----	----
Dieldrin	60-57-1	0.5	µg/L	<0.5	----	----	----	----
4,4'-DDE	72-55-9	0.5	µg/L	<0.5	----	----	----	----
Endrin	72-20-8	0.5	µg/L	<0.5	----	----	----	----
beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	----	----	----	----
4,4'-DDD	72-54-8	0.5	µg/L	<0.5	----	----	----	----
Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	----	----	----	----
Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	----	----	----	----
4,4'-DDT	50-29-3	2.0	µg/L	<2.0	----	----	----	----
Endrin ketone	53494-70-5	0.5	µg/L	<0.5	----	----	----	----
Methoxychlor	72-43-5	2.0	µg/L	<2.0	----	----	----	----
^ Total Chlordane (sum)	----	0.5	µg/L	<0.5	----	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.5	µg/L	<0.5	----	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.5	µg/L	<0.5	----	----	----	----

EP068B: Organophosphorus Pesticides (OP)

Dichlorvos	62-73-7	0.5	µg/L	<0.5	----	----	----	----
Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	----	----	----	----
Monocrotophos	6923-22-4	2.0	µg/L	<2.0	----	----	----	----
Dimethoate	60-51-5	0.5	µg/L	<0.5	----	----	----	----
Diazinon	333-41-5	0.5	µg/L	<0.5	----	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	----	----	----	----
Parathion-methyl	298-00-0	2.0	µg/L	<2.0	----	----	----	----
Malathion	121-75-5	0.5	µg/L	<0.5	----	----	----	----
Fenthion	55-38-9	0.5	µg/L	<0.5	----	----	----	----
Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	----	----	----	----
Parathion	56-38-2	2.0	µg/L	<2.0	----	----	----	----
Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	----	----	----	----



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Client sample ID

				FB400_08052018	TB400_08052018	----	----	----
Client sampling date / time				08-May-2018 10:00	08-May-2018 10:00	----	----	----
Compound	CAS Number	LOR	Unit	EM1807515-006	EM1807515-007	-----	-----	-----
				Result	Result	----	----	----
EP068B: Organophosphorus Pesticides (OP) - Continued								
Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	----	----	----	----
Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	----	----	----	----
Fenamiphos	22224-92-6	0.5	µg/L	<0.5	----	----	----	----
Prothiofos	34643-46-4	0.5	µg/L	<0.5	----	----	----	----
Ethion	563-12-2	0.5	µg/L	<0.5	----	----	----	----
Carbophenothion	786-19-6	0.5	µg/L	<0.5	----	----	----	----
Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	----	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	71-43-2	1	µg/L	<1	----	----	----	----
Toluene	108-88-3	2	µg/L	<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	----	----	----	----
Styrene	100-42-5	5	µg/L	<5	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	----	----	----	----
Isopropylbenzene	98-82-8	5	µg/L	<5	----	----	----	----
n-Propylbenzene	103-65-1	5	µg/L	<5	----	----	----	----
1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	----	----	----	----
sec-Butylbenzene	135-98-8	5	µg/L	<5	----	----	----	----
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	----	----	----	----
tert-Butylbenzene	98-06-6	5	µg/L	<5	----	----	----	----
p-Isopropyltoluene	99-87-6	5	µg/L	<5	----	----	----	----
n-Butylbenzene	104-51-8	5	µg/L	<5	----	----	----	----
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	----	----	----	----
2-Butanone (MEK)	78-93-3	50	µg/L	<50	----	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	----	----	----	----
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	----	----	----	----
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	----	----	----	----
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	5	µg/L	<5	----	----	----	----
1,2-Dichloropropane	78-87-5	5	µg/L	<5	----	----	----	----
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	----	----	----	----
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	----	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	FB400_08052018	TB400_08052018	----	----	----
Client sampling date / time					08-May-2018 10:00	08-May-2018 10:00	----	----	----
Compound	CAS Number	LOR	Unit		EM1807515-006	EM1807515-007	-----	-----	-----
				Result	Result		----	----	----
EP074D: Fumigants - Continued									
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	----	----	----	----	----
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	----	----	----	----	----
Chloromethane	74-87-3	50	µg/L	<50	----	----	----	----	----
Vinyl chloride	75-01-4	50	µg/L	<50	----	----	----	----	----
Bromomethane	74-83-9	50	µg/L	<50	----	----	----	----	----
Chloroethane	75-00-3	50	µg/L	<50	----	----	----	----	----
Trichlorofluoromethane	75-69-4	50	µg/L	<50	----	----	----	----	----
1,1-Dichloroethene	75-35-4	5	µg/L	<5	----	----	----	----	----
Iodomethane	74-88-4	5	µg/L	<5	----	----	----	----	----
trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	----	----	----	----	----
1,1-Dichloroethane	75-34-3	5	µg/L	<5	----	----	----	----	----
cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	----	----	----	----	----
1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	----	----	----	----	----
1,1-Dichloropropylene	563-58-6	5	µg/L	<5	----	----	----	----	----
Carbon Tetrachloride	56-23-5	5	µg/L	<5	----	----	----	----	----
1,2-Dichloroethane	107-06-2	5	µg/L	<5	----	----	----	----	----
Trichloroethene	79-01-6	5	µg/L	<5	----	----	----	----	----
Dibromomethane	74-95-3	5	µg/L	<5	----	----	----	----	----
1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	----	----	----	----	----
1,3-Dichloropropane	142-28-9	5	µg/L	<5	----	----	----	----	----
Tetrachloroethene	127-18-4	5	µg/L	<5	----	----	----	----	----
1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	----	----	----	----	----
trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	----	----	----	----	----
cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	----	----	----	----	----
1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	----	----	----	----	----
1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	----	----	----	----	----
Pentachloroethane	76-01-7	5	µg/L	<5	----	----	----	----	----
1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	----	----	----	----	----
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	5	µg/L	<5	----	----	----	----	----
Bromobenzene	108-86-1	5	µg/L	<5	----	----	----	----	----
2-Chlorotoluene	95-49-8	5	µg/L	<5	----	----	----	----	----
4-Chlorotoluene	106-43-4	5	µg/L	<5	----	----	----	----	----



Analytical Results

Sub-Matrix: **WATER**
 (Matrix: **WATER**)

Client sample ID

				FB400_08052018	TB400_08052018	----	----	----
Client sampling date / time				08-May-2018 10:00	08-May-2018 10:00	----	----	----
Compound	CAS Number	LOR	Unit	EM1807515-006	EM1807515-007	-----	-----	-----
				Result	Result	----	----	----
EP074F: Halogenated Aromatic Compounds - Continued								
1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	----	----	----	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	----	----	----	----
Bromodichloromethane	75-27-4	5	µg/L	<5	----	----	----	----
Dibromochloromethane	124-48-1	5	µg/L	<5	----	----	----	----
Bromoform	75-25-2	5	µg/L	<5	----	----	----	----
EP075A: Phenolic Compounds								
Phenol	108-95-2	2	µg/L	<2	----	----	----	----
2-Chlorophenol	95-57-8	2	µg/L	<2	----	----	----	----
2-Methylphenol	95-48-7	2	µg/L	<2	----	----	----	----
3- & 4-Methylphenol	1319-77-3	4	µg/L	<4	----	----	----	----
2-Nitrophenol	88-75-5	2	µg/L	<2	----	----	----	----
2,4-Dimethylphenol	105-67-9	2	µg/L	<2	----	----	----	----
2,4-Dichlorophenol	120-83-2	2	µg/L	<2	----	----	----	----
2,6-Dichlorophenol	87-65-0	2	µg/L	<2	----	----	----	----
4-Chloro-3-methylphenol	59-50-7	2	µg/L	<2	----	----	----	----
2,4,6-Trichlorophenol	88-06-2	2	µg/L	<2	----	----	----	----
2,4,5-Trichlorophenol	95-95-4	2	µg/L	<2	----	----	----	----
Pentachlorophenol	87-86-5	4	µg/L	<4	----	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	2	µg/L	<2	----	----	----	----
2-Methylnaphthalene	91-57-6	2	µg/L	<2	----	----	----	----
2-Chloronaphthalene	91-58-7	2	µg/L	<2	----	----	----	----
Acenaphthylene	208-96-8	2	µg/L	<2	----	----	----	----
Acenaphthene	83-32-9	2	µg/L	<2	----	----	----	----
Fluorene	86-73-7	2	µg/L	<2	----	----	----	----
Phenanthrene	85-01-8	2	µg/L	<2	----	----	----	----
Anthracene	120-12-7	2	µg/L	<2	----	----	----	----
Fluoranthene	206-44-0	2	µg/L	<2	----	----	----	----
Pyrene	129-00-0	2	µg/L	<2	----	----	----	----
N-2-Fluorenyl Acetamide	53-96-3	2	µg/L	<2	----	----	----	----
Benz(a)anthracene	56-55-3	2	µg/L	<2	----	----	----	----
Chrysene	218-01-9	2	µg/L	<2	----	----	----	----



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Client sample ID

				FB400_08052018	TB400_08052018	----	----	----
Client sampling date / time				08-May-2018 10:00	08-May-2018 10:00	----	----	----
Compound	CAS Number	LOR	Unit	EM1807515-006	EM1807515-007	-----	-----	-----
				Result	Result	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons - Continued								
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	4	µg/L	<4	----	----	----	----
7.12-Dimethylbenz(a)anthracene	57-97-6	2	µg/L	<2	----	----	----	----
Benzo(a)pyrene	50-32-8	2	µg/L	<2	----	----	----	----
3-Methylcholanthrene	56-49-5	2	µg/L	<2	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	2	µg/L	<2	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	2	µg/L	<2	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	2	µg/L	<2	----	----	----	----
^ Sum of PAHs	----	2	µg/L	<2	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	2	µg/L	<2	----	----	----	----
EP075C: Phthalate Esters								
Dimethyl phthalate	131-11-3	2	µg/L	<2	----	----	----	----
Diethyl phthalate	84-66-2	2	µg/L	<2	----	----	----	----
Di-n-butyl phthalate	84-74-2	2	µg/L	<2	----	----	----	----
Butyl benzyl phthalate	85-68-7	2	µg/L	<2	----	----	----	----
bis(2-ethylhexyl) phthalate	117-81-7	10	µg/L	<10	----	----	----	----
Di-n-octylphthalate	117-84-0	2	µg/L	<2	----	----	----	----
EP075D: Nitrosamines								
N-Nitrosomethylethylamine	10595-95-6	2	µg/L	<2	----	----	----	----
N-Nitrosodiethylamine	55-18-5	2	µg/L	<2	----	----	----	----
N-Nitrosopyrrolidine	930-55-2	4	µg/L	<4	----	----	----	----
N-Nitrosomorpholine	59-89-2	2	µg/L	<2	----	----	----	----
N-Nitrosodi-n-propylamine	621-64-7	2	µg/L	<2	----	----	----	----
N-Nitrosopiperidine	100-75-4	2	µg/L	<2	----	----	----	----
N-Nitrosodibutylamine	924-16-3	2	µg/L	<2	----	----	----	----
N-Nitrosodiphenyl & Diphenylamine	86-30-6 122-39-4	4	µg/L	<4	----	----	----	----
Methapyrilene	91-80-5	2	µg/L	<2	----	----	----	----
EP075E: Nitroaromatics and Ketones								
2-Picoline	109-06-8	2	µg/L	<2	----	----	----	----
Acetophenone	98-86-2	2	µg/L	<2	----	----	----	----
Nitrobenzene	98-95-3	2	µg/L	<2	----	----	----	----
Isophorone	78-59-1	2	µg/L	<2	----	----	----	----
2,6-Dinitrotoluene	606-20-2	4	µg/L	<4	----	----	----	----
2,4-Dinitrotoluene	121-14-2	4	µg/L	<4	----	----	----	----



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Client sample ID

				FB400_08052018	TB400_08052018	----	----	----
Client sampling date / time				08-May-2018 10:00	08-May-2018 10:00	----	----	----
Compound	CAS Number	LOR	Unit	EM1807515-006	EM1807515-007	-----	-----	-----
				Result	Result	----	----	----
EP075E: Nitroaromatics and Ketones - Continued								
1-Naphthylamine	134-32-7	2	µg/L	<2	----	----	----	----
4-Nitroquinoline-N-oxide	56-57-5	2	µg/L	<2	----	----	----	----
5-Nitro-o-toluidine	99-55-8	2	µg/L	<2	----	----	----	----
Azobenzene	103-33-3	2	µg/L	<2	----	----	----	----
1,3,5-Trinitrobenzene	99-35-4	2	µg/L	<2	----	----	----	----
Phenacetin	62-44-2	2	µg/L	<2	----	----	----	----
4-Aminobiphenyl	92-67-1	2	µg/L	<2	----	----	----	----
Pentachloronitrobenzene	82-68-8	2	µg/L	<2	----	----	----	----
Pronamide	23950-58-5	2	µg/L	<2	----	----	----	----
Dimethylaminoazobenzene	60-11-7	2	µg/L	<2	----	----	----	----
Chlorobenzilate	510-15-6	2	µg/L	<2	----	----	----	----
EP075F: Haloethers								
Bis(2-chloroethyl) ether	111-44-4	2	µg/L	<2	----	----	----	----
Bis(2-chloroethoxy) methane	111-91-1	2	µg/L	<2	----	----	----	----
4-Chlorophenyl phenyl ether	7005-72-3	2	µg/L	<2	----	----	----	----
4-Bromophenyl phenyl ether	101-55-3	2	µg/L	<2	----	----	----	----
EP075G: Chlorinated Hydrocarbons								
1,3-Dichlorobenzene	541-73-1	2	µg/L	<2	----	----	----	----
1,4-Dichlorobenzene	106-46-7	2	µg/L	<2	----	----	----	----
1,2-Dichlorobenzene	95-50-1	2	µg/L	<2	----	----	----	----
Hexachloroethane	67-72-1	2	µg/L	<2	----	----	----	----
1,2,4-Trichlorobenzene	120-82-1	2	µg/L	<2	----	----	----	----
Hexachloropropylene	1888-71-7	2	µg/L	<2	----	----	----	----
Hexachlorobutadiene	87-68-3	2	µg/L	<2	----	----	----	----
Hexachlorocyclopentadiene	77-47-4	10	µg/L	<10	----	----	----	----
Pentachlorobenzene	608-93-5	2	µg/L	<2	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	4	µg/L	<4	----	----	----	----
EP075H: Anilines and Benzidines								
Aniline	62-53-3	2	µg/L	<2	----	----	----	----
4-Chloroaniline	106-47-8	2	µg/L	<2	----	----	----	----
2-Nitroaniline	88-74-4	4	µg/L	<4	----	----	----	----
3-Nitroaniline	99-09-2	4	µg/L	<4	----	----	----	----
Dibenzofuran	132-64-9	2	µg/L	<2	----	----	----	----
4-Nitroaniline	100-01-6	2	µg/L	<2	----	----	----	----

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	FB400_08052018	TB400_08052018	----	----	----
Client sampling date / time				08-May-2018 10:00	08-May-2018 10:00	----	----	----	
Compound	CAS Number	LOR	Unit	EM1807515-006	EM1807515-007	-----	-----	-----	
				Result	Result	----	----	----	
EP075H: Anilines and Benzidines - Continued									
Carbazole	86-74-8	2	µg/L	<2	----	----	----	----	
3,3'-Dichlorobenzidine	91-94-1	2	µg/L	<2	----	----	----	----	
EP075I: Organochlorine Pesticides									
alpha-BHC	319-84-6	2	µg/L	<2	----	----	----	----	
beta-BHC	319-85-7	2	µg/L	<2	----	----	----	----	
gamma-BHC	58-89-9	2	µg/L	<2	----	----	----	----	
delta-BHC	319-86-8	2	µg/L	<2	----	----	----	----	
Heptachlor	76-44-8	2	µg/L	<2	----	----	----	----	
Aldrin	309-00-2	2	µg/L	<2	----	----	----	----	
Heptachlor epoxide	1024-57-3	2	µg/L	<2	----	----	----	----	
alpha-Endosulfan	959-98-8	2	µg/L	<2	----	----	----	----	
4,4'-DDE	72-55-9	2	µg/L	<2	----	----	----	----	
Dieldrin	60-57-1	2	µg/L	<2	----	----	----	----	
Endrin	72-20-8	2	µg/L	<2	----	----	----	----	
beta-Endosulfan	33213-65-9	2	µg/L	<2	----	----	----	----	
4,4'-DDD	72-54-8	2	µg/L	<2	----	----	----	----	
Endosulfan sulfate	1031-07-8	2	µg/L	<2	----	----	----	----	
4,4'-DDT	50-29-3	4	µg/L	<4	----	----	----	----	
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	4	µg/L	<4	----	----	----	----	
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	4	µg/L	<4	----	----	----	----	
EP075J: Organophosphorus Pesticides									
Dichlorvos	62-73-7	2	µg/L	<2	----	----	----	----	
Dimethoate	60-51-5	2	µg/L	<2	----	----	----	----	
Diazinon	333-41-5	2	µg/L	<2	----	----	----	----	
Chlorpyrifos-methyl	5598-13-0	2	µg/L	<2	----	----	----	----	
Malathion	121-75-5	2	µg/L	<2	----	----	----	----	
Fenthion	55-38-9	2	µg/L	<2	----	----	----	----	
Chlorpyrifos	2921-88-2	2	µg/L	<2	----	----	----	----	
Pirimphos-ethyl	23505-41-1	2	µg/L	<2	----	----	----	----	
Chlorfenvinphos	470-90-6	2	µg/L	<2	----	----	----	----	
Prothiofos	34643-46-4	2	µg/L	<2	----	----	----	----	
Ethion	563-12-2	2	µg/L	<2	----	----	----	----	
EP080/071: Total Petroleum Hydrocarbons									



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	FB400_08052018	TB400_08052018	----	----	----
Client sampling date / time					08-May-2018 10:00	08-May-2018 10:00	----	----	----
Compound	CAS Number	LOR	Unit		EM1807515-006	EM1807515-007	-----	-----	-----
					Result	Result	----	----	----
EP080/071: Total Petroleum Hydrocarbons - Continued									
C6 - C9 Fraction	----	20	µg/L		<20	<20	----	----	----
C10 - C14 Fraction	----	50	µg/L		<50	----	----	----	----
C15 - C28 Fraction	----	100	µg/L		<100	----	----	----	----
C29 - C36 Fraction	----	50	µg/L		<50	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	<20	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		<20	<20	----	----	----
>C10 - C16 Fraction	----	100	µg/L		<100	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L		<100	----	----	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L		<100	----	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L		<100	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	----	----	----
Toluene	108-88-3	2	µg/L		<2	<2	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	<2	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	<2	----	----	----
^ Total Xylenes	----	2	µg/L		<2	<2	----	----	----
^ Sum of BTEX	----	1	µg/L		<1	<1	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	<5	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.002	µg/L		<0.002	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.002	µg/L		<0.002	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.002	µg/L		<0.002	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.002	µg/L		<0.002	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.002	µg/L		<0.002	----	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	FB400_08052018	TB400_08052018	----	----	----
Client sampling date / time					08-May-2018 10:00	08-May-2018 10:00	----	----	----
Compound	CAS Number	LOR	Unit		EM1807515-006	EM1807515-007	-----	-----	-----
				Result	Result		----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids - Continued									
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.002	µg/L		<0.002	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.01	µg/L		<0.01	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.002	µg/L		<0.002	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.002	µg/L		<0.002	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.002	µg/L		<0.002	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.002	µg/L		<0.002	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.002	µg/L		<0.002	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.002	µg/L		<0.002	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.002	µg/L		<0.002	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.002	µg/L		<0.002	----	----	----	----
Perfluorotridecanoic acid (PFTTrDA)	72629-94-8	0.002	µg/L		<0.002	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.005	µg/L		<0.005	----	----	----	----
Perfluorohexadecanoic acid (PFHxDA)	67905-19-5	0.005	µg/L		<0.005	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.002	µg/L		<0.002	----	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.005	µg/L		<0.005	----	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.005	µg/L		<0.005	----	----	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.005	µg/L		<0.005	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.005	µg/L		<0.005	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.002	µg/L		<0.002	----	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	FB400_08052018	TB400_08052018	----	----	----
Client sampling date / time					08-May-2018 10:00	08-May-2018 10:00	----	----	----
Compound	CAS Number	LOR	Unit		EM1807515-006	EM1807515-007	-----	-----	-----
				Result	Result		----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.002	µg/L		<0.002	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.005	µg/L		<0.005	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.005	µg/L		<0.005	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.005	µg/L		<0.005	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.005	µg/L		<0.005	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.002	µg/L		<0.002	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.002	µg/L		<0.002	----	----	----	----
Sum of PFAS (WA DER List)	----	0.002	µg/L		<0.002	----	----	----	----
MM669: Sulphate Reducing Bacteria									
Sulphate Reducing Bacteria Population Estimate	----	20	pac/mL		<20	----	----	----	----
Aggressivity	----	1	-		Not Aggressive	----	----	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	1	%		79.4	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.5	%		91.8	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.5	%		108	----	----	----	----
EP074S: VOC Surrogates									
1,2-Dichloroethane-D4	17060-07-0	5	%		94.1	----	----	----	----
Toluene-D8	2037-26-5	5	%		93.9	----	----	----	----
4-Bromofluorobenzene	460-00-4	5	%		108	----	----	----	----
EP075S: Acid Extractable Surrogates									
2-Fluorophenol	367-12-4	2	%		86.4	----	----	----	----
Phenol-d6	13127-88-3	2	%		28.8	----	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	FB400_08052018	TB400_08052018	----	----	----
Client sampling date / time					08-May-2018 10:00	08-May-2018 10:00	----	----	----
Compound	CAS Number	LOR	Unit		EM1807515-006	EM1807515-007	-----	-----	-----
					Result	Result	----	----	----
EP075S: Acid Extractable Surrogates - Continued									
2-Chlorophenol-D4	93951-73-6	2	%		76.0	----	----	----	----
2,4,6-Tribromophenol	118-79-6	2	%		75.4	----	----	----	----
EP075T: Base/Neutral Extractable Surrogates									
Nitrobenzene-D5	4165-60-0	2	%		77.6	----	----	----	----
1,2-Dichlorobenzene-D4	2199-69-1	2	%		71.2	----	----	----	----
2-Fluorobiphenyl	321-60-8	2	%		78.2	----	----	----	----
Anthracene-d10	1719-06-8	2	%		95.4	----	----	----	----
4-Terphenyl-d14	1718-51-0	2	%		90.9	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	2	%		99.0	94.5	----	----	----
Toluene-D8	2037-26-5	2	%		87.8	81.2	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		99.6	92.8	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.002	%		65.2	----	----	----	----
13C8-PFOA	----	0.002	%		80.0	----	----	----	----



Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	41	125
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	117
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	51	127
EP074S: VOC Surrogates			
1,2-Dichloroethane-D4	17060-07-0	72	132
Toluene-D8	2037-26-5	77	132
4-Bromofluorobenzene	460-00-4	67	131
EP075S: Acid Extractable Surrogates			
2-Fluorophenol	367-12-4	10	75
Phenol-d6	13127-88-3	10	65
2-Chlorophenol-D4	93951-73-6	21	103
2,4,6-Tribromophenol	118-79-6	22	120
EP075T: Base/Neutral Extractable Surrogates			
Nitrobenzene-D5	4165-60-0	24	116
1,2-Dichlorobenzene-D4	2199-69-1	23	99
2-Fluorobiphenyl	321-60-8	32	114
Anthracene-d10	1719-06-8	47	119
4-Terphenyl-d14	1718-51-0	44	124
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	73	129
Toluene-D8	2037-26-5	70	125
4-Bromofluorobenzene	460-00-4	71	129
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

CHAIN OF CUSTODY RECORD

GHD



GHD Melbourne
180 Lonadale Street, Melbourne 3000
Telephone: 613 8687 8000 Facsimile: 613 8687 8111

Job Number 31/35006/0910		GHD Office Melbourne		Laboratory: ALS Springvale																									
Project North East Link - Contamination		Contact Email kory.auch@ghd.com		Address: 2 - 4 Westall Rd, Springvale																									
GHD Contact Kory Auch		Quote No./GHD Reference ME/124/18		Lab Contact: Shirley LeComu																									
Standard TAT				Analyses Required																									
Sample ID		Date		Time		Container		Type		Volume		HOLD		Extended water suite (NT-14)		Sulfate Reducing Bacteria (MW017)		NEPM Metals Suite (W-3)		TRH(C6-C40)/BTXN/PAH/Phenols (W-24)		OC/OP/PCB (W-13)		VOCs/SVOCs (W-23)		PFAS Full Suite Low Level (28 analytes) - (EP231X-1L)		TRH(C6-C10) and BTXN (W-18)	
NEL-ENV-BH024_08052018		08 / MAY / 2018		13:30		GW		Y		2V, 1G, 5P		2		X		X		X		X		X		X		X			
NEL-ENV-BH025_052018		/ / 2018				GW				2V, 1G, 5P																			
NEL-ENV-BH006_052018		/ / 2018				GW				2V, 1G, 5P																			
NEL-ENV-BH008_08052018		08 / MAY / 2018		09:30		GW		Y		2V, 1G, 5P		0000000000		X		X		X		X		X		X		X			
QC000_08052018		/ / 2018		13:30		W		Y		2V, 1G, 5P		0000000000		X		X		X		X		X		X		X			
QC000_08052018		/ / 2018		13:30		W		Y		2V, 1G, 5P		0000000000		X		X		X		X		X		X		X			
RB000_08052018		/ / 2018		10:00		W		Y		2V, 1G, 5P		0000000000		X		X		X		X		X		X		X			
FB000_08052018		/ / 2018		10:00		W		Y		2V, 1G, 5P		0000000000		X		X		X		X		X		X		X			
TB000_08052018		/ / 2018		10:00		W		Y		2V		2																X	

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : EM1807515

<p>Client : GHD PTY LTD</p> <p>Contact : KORY AUCH</p> <p>Address : LEVEL 8, 180 LONSDALE ST MELBOURNE VIC, AUSTRALIA 3001</p> <p>E-mail : kory.auch@ghd.com</p> <p>Telephone : ----</p> <p>Facsimile : ----</p> <p>Project : 31350060910</p> <p>Order number : ----</p> <p>C-O-C number : ----</p> <p>Site : North East Link - Contamination</p> <p>Sampler : KORY AUCH</p>	<p>Laboratory : Environmental Division Melbourne</p> <p>Contact : Shirley LeCornu</p> <p>Address : 4 Westall Rd Springvale VIC Australia 3171</p> <p>E-mail : shirley.lecornu@Alsglobal.com</p> <p>Telephone : +61-3-8549 9630</p> <p>Facsimile : +61-3-8549 9626</p> <p>Page : 1 of 3</p> <p>Quote number : EM2018GHDSE0003 (ME/124/18 - North East Link)</p> <p>QC Level : NEPM 2013 B3 & ALS QC Standard</p>
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Dates

Date Samples Received : 08-May-2018 16:10	Issue Date : 08-May-2018
Client Requested Due Date : 23-May-2018	Scheduled Reporting Date : 23-May-2018

Delivery Details

Mode of Delivery : Carrier	Security Seal : Intact.
No. of coolers/boxes : 2	Temperature : 11.5°C - Ice present
Receipt Detail : ----	No. of samples received / analysed : 7 / 7

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **Analytical work for this work order will be conducted at ALS Springvale, ALS Scoresby & ALS Sydney.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**



Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- No sample container / preservation non-compliance exists.

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

EM1807515-001 : 08-May-2018 13:30 : NEL-ENV-BH024_08052018

EM1807515-002 : 08-May-2018 09:30 : NEL-ENV-BH008_08052018

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EP231X-LL PFAS - Full Suite Low Level (29 analytes)	WATER - MM669 (Subcontracted) Sulphate Reducing Bacteria (BART)	WATER - NT-14 Extended Water Suite B	WATER - W-03 15 Metals (NEPM Suite)	WATER - W-04 TRH/BTEXN	WATER - W-13 OC/OP/PCB	WATER - W-23 SVOC/VOC
EM1807515-001	08-May-2018 13:30	NEL-ENV-BH024_080520...	✓	✓	✓	✓	✓	✓	✓
EM1807515-002	08-May-2018 09:30	NEL-ENV-BH008_080520...	✓	✓	✓	✓	✓	✓	✓
EM1807515-003	08-May-2018 13:30	QC5000_08052018	✓	✓	✓	✓	✓	✓	✓
EM1807515-004	08-May-2018 13:30	QC6000_08052018	✓	✓	✓	✓	✓	✓	✓
EM1807515-005	08-May-2018 10:00	RB400_08052018	✓	✓	✓	✓	✓	✓	✓
EM1807515-006	08-May-2018 10:00	FB400_08052018	✓	✓	✓	✓	✓	✓	✓

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-03T 15 Metals (Total) (NEPM)	WATER - W-18 TRH(C6 - C9)/BTEXN
EM1807515-005	08-May-2018 10:00	RB400_08052018	✓	
EM1807515-006	08-May-2018 10:00	FB400_08052018	✓	
EM1807515-007	08-May-2018 10:00	TB400_08052018		✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

QUALITY CONTROL REPORT

Work Order : **EM1807515**

Page : 1 of 24

Client : **GHD PTY LTD**

Contact : **KORY AUCH**

Address : **LEVEL 8, 180 LONSDALE ST
MELBOURNE VIC, AUSTRALIA 3001**

Telephone : ----

Project : **31350060910**

Order number :

C-O-C number : ----

Sampler : **KORY AUCH**

Site : **North East Link - Contamination**

Quote number : **ME/124/18 - North East Link**

No. of samples received : **7**

No. of samples analysed : **7**

Laboratory : **Environmental Division Melbourne**

Contact : **Shirley LeCornu**

Address : **4 Westall Rd Springvale VIC Australia 3171**

Telephone : **+61-3-8549 9630**

Date Samples Received : **08-May-2018**

Date Analysis Commenced : **09-May-2018**

Issue Date : **23-May-2018**



Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC
Zachary Chataway	Laboratory Manager	WRG Subcontracting, Springvale, VIC



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key :
 Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
 CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
 LOR = Limit of reporting
 RPD = Relative Percentage Difference
 # = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EA005P: pH by PC Titrator (QC Lot: 1625810)									
EM1807276-010	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	8.32	8.34	0.240	0% - 20%
EM1807276-004	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	8.02	8.03	0.125	0% - 20%
EA005P: pH by PC Titrator (QC Lot: 1625816)									
EM1807520-005	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	7.71	7.72	0.130	0% - 20%
EM1807520-015	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	7.76	7.76	0.00	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 1625812)									
EM1807276-010	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	2430	2440	0.534	0% - 20%
EM1807276-004	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	1190	1150	3.25	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 1625814)									
EM1807515-002	NEL-ENV-BH008_08052018	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.00	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.00	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	855	856	0.141	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	855	856	0.141	0% - 20%
EM1807520-005	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.00	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.00	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	1180	1190	0.743	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	1180	1190	0.743	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 1625994)									
EM1807283-015	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	25	30	16.8	0% - 20%
EM1807276-003	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	35	37	5.59	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 1626000)									
EM1807515-005	RB400_08052018	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	<1	0.00	No Limit
EM1807520-008	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	1280	1280	0.425	0% - 20%



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
ED045G: Chloride by Discrete Analyser (QC Lot: 1625995)									
EM1807276-003	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	502	506	0.948	0% - 20%
EM1807283-014	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	16	16	0.00	0% - 50%
ED045G: Chloride by Discrete Analyser (QC Lot: 1625999)									
EM1807515-004	QC6000_08052018	ED045G: Chloride	16887-00-6	1	mg/L	2560	2570	0.475	0% - 20%
EM1807520-006	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	1310	1330	1.52	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 1626928)									
EM1807347-011	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	12	12	0.00	0% - 50%
		ED093F: Magnesium	7439-95-4	1	mg/L	10	10	0.00	0% - 50%
		ED093F: Sodium	7440-23-5	1	mg/L	78	76	2.43	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	6	6	0.00	No Limit
EM1807367-009	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	110	115	4.21	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	36	38	5.26	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	1290	1360	5.56	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	340	363	6.58	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 1632581)									
EM1806559-003	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	27	26	4.41	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	14	13	0.00	0% - 50%
		ED093F: Sodium	7440-23-5	1	mg/L	92	90	1.73	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	12	12	0.00	0% - 50%
EM1807515-003	QC5000_08052018	ED093F: Calcium	7440-70-2	1	mg/L	34	35	0.00	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	86	86	0.00	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	1820	1860	2.38	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	26	26	0.00	0% - 20%
EG020F: Dissolved Metals by ICP-MS (QC Lot: 1632583)									
EM1806559-002	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.004	0.004	0.00	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	0.002	0.002	0.00	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.002	0.002	0.00	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.229	0.226	1.26	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.002	0.002	0.00	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.157	0.158	0.707	0% - 20%
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.00	No Limit
EM1807515-003	QC5000_08052018	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit

Page : 4 of 24
 Work Order : EM1807515
 Client : GHD PTY LTD
 Project : 31350060910



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG020F: Dissolved Metals by ICP-MS (QC Lot: 1632583) - continued									
EM1807515-003	QC5000_08052018	EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.002	0.002	0.00	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.072	0.072	0.00	0% - 20%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	0.004	0.005	0.00	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.006	0.008	24.1	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	0.001	0.001	0.00	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.064	0.066	3.00	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.149	0.151	1.38	0% - 20%
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.009	0.021	78.7	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	0.02	0.02	0.00	No Limit
		EG020A-F: Boron	7440-42-8	0.05	mg/L	1.00	1.06	6.78	0% - 20%
EG020T: Total Metals by ICP-MS (QC Lot: 1633184)									
EM1807515-005	RB400_08052018	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.002	0.00	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.003	86.5	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.002	72.5	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.00	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.00	No Limit
EM1807592-004	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	0.0003	0.0003	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.011	0.010	9.40	0% - 50%
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	0.002	0.002	0.00	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	0.100	0.086	14.8	0% - 20%
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.002	0.001	0.00	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	0.001	<0.001	0.00	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.019	0.016	16.7	0% - 50%
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.048	0.042	13.5	0% - 20%
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.503	0.508	0.952	0% - 20%
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.013	0.013	0.00	0% - 50%
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.280	0.267	4.81	0% - 20%
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG020T: Total Metals by ICP-MS (QC Lot: 1633184) - continued									
EM1807592-004	Anonymous	EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.00	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 1632582)									
EM1806559-002	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EM1807515-003	QC5000_08052018	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1640238)									
EM1807515-005	RB400_08052018	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EM1807589-033	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EK040P: Fluoride by PC Titrator (QC Lot: 1625815)									
EM1807515-002	NEL-ENV-BH008_08052018	EK040P: Fluoride	16984-48-8	0.1	mg/L	0.8	0.9	0.00	No Limit
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 1633264)									
EM1806774-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	1.39	1.46	4.78	0% - 20%
EM1807515-005	RB400_08052018	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 1625996)									
EM1807508-002	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EM1807283-014	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 1626001)									
EM1807515-006	FB400_08052018	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EM1807520-009	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	0.03	0.03	0.00	No Limit
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 1633265)									
EM1806774-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	3.69	3.57	3.21	0% - 20%
EM1807515-005	RB400_08052018	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 1626851)									
EM1807515-003	QC5000_08052018	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	0.3	102	No Limit
EM1807504-002	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.4	0.4	0.00	No Limit
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 1626849)									
EM1806774-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.10	0.10	0.00	0% - 50%
EM1807504-002	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.07	0.09	24.3	No Limit
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 1625997)									
EM1807486-001	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	2.48	2.35	5.40	0% - 20%
EM1807508-005	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	0.06	0.06	0.00	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 1625596)									
EM1807515-001	NEL-ENV-BH024_08052018	EP074: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP074: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP074: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 1625596) - continued									
EM1807515-001	NEL-ENV-BH024_08052018	EP074: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.00	No Limit
			106-42-3						
		EP074: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.00	No Limit
EP074B: Oxygenated Compounds (QC Lot: 1625596)									
EM1807515-001	NEL-ENV-BH024_08052018	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.00	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.00	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.00	No Limit
EP074C: Sulfonated Compounds (QC Lot: 1625596)									
EM1807515-001	NEL-ENV-BH024_08052018	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.00	No Limit
EP074D: Fumigants (QC Lot: 1625596)									
EM1807515-001	NEL-ENV-BH024_08052018	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.00	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 1625596)									
EM1807515-001	NEL-ENV-BH024_08052018	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.00	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.00	No Limit

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074E: Halogenated Aliphatic Compounds (QC Lot: 1625596) - continued									
EM1807515-001	NEL-ENV-BH024_08052018	EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.00	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.00	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.00	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.00	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.00	No Limit
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.00	No Limit		
EP074F: Halogenated Aromatic Compounds (QC Lot: 1625596)									
EM1807515-001	NEL-ENV-BH024_08052018	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.00	No Limit
EP074G: Trihalomethanes (QC Lot: 1625596)									
EM1807515-001	NEL-ENV-BH024_08052018	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1625595)									
EM1807493-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EM1807515-001	NEL-ENV-BH024_08052018	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1625595)									
EM1807493-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EM1807515-001	NEL-ENV-BH024_08052018	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 1625595)									

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080: BTEXN (QC Lot: 1625595) - continued									
EM1807493-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.00	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
EM1807515-001	NEL-ENV-BH024_08052018	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.00	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 1632847)									
EM1807515-001	NEL-ENV-BH024_08052018	EP231X-LL: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.002	µg/L	<0.002	0.002	0.00	No Limit
		EP231X-LL: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.002	µg/L	0.002	0.003	0.00	No Limit
		EP231X-LL: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.002	µg/L	<0.002	<0.002	0.00	No Limit
EP1805704-005	Anonymous	EP231X-LL: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.002	µg/L	0.018	0.016	11.5	No Limit
		EP231X-LL: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.002	µg/L	0.024	0.022	5.64	0% - 50%
		EP231X-LL: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.002	µg/L	0.142	0.143	0.00	0% - 20%
		EP231X-LL: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.002	µg/L	0.003	0.002	0.00	No Limit
		EP231X-LL: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.002	µg/L	0.083	0.080	3.43	0% - 20%
		EP231X-LL: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.002	µg/L	<0.002	<0.002	0.00	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 1632847)									



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report							
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)		
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 1632847) - continued											
EM1807515-001	NEL-ENV-BH024_08052018	EP231X-LL: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.002	µg/L	<0.002	<0.002	0.00	No Limit		
		EP231X-LL: Perfluorohexanoic acid (PFHxA)	307-24-4	0.002	µg/L	<0.002	<0.002	0.00	No Limit		
		EP231X-LL: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.002	µg/L	<0.002	<0.002	0.00	No Limit		
		EP231X-LL: Perfluorooctanoic acid (PFOA)	335-67-1	0.002	µg/L	<0.002	<0.002	0.00	No Limit		
		EP231X-LL: Perfluorononanoic acid (PFNA)	375-95-1	0.002	µg/L	<0.002	<0.002	0.00	No Limit		
		EP231X-LL: Perfluorodecanoic acid (PFDA)	335-76-2	0.002	µg/L	<0.002	<0.002	0.00	No Limit		
		EP231X-LL: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.002	µg/L	<0.002	<0.002	0.00	No Limit		
		EP231X-LL: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.002	µg/L	<0.002	<0.002	0.00	No Limit		
		EP231X-LL: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.002	µg/L	<0.002	<0.002	0.00	No Limit		
		EP231X-LL: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.005	µg/L	<0.005	<0.005	0.00	No Limit		
EP1805704-005	Anonymous	EP231X-LL: Perfluorobutanoic acid (PFBA)	375-22-4	0.01	µg/L	<0.01	<0.01	0.00	No Limit		
		EP231X-LL: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.002	µg/L	0.040	0.042	3.41	0% - 20%		
		EP231X-LL: Perfluorohexanoic acid (PFHxA)	307-24-4	0.002	µg/L	0.081	0.080	1.62	0% - 20%		
		EP231X-LL: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.002	µg/L	0.032	0.031	3.80	0% - 50%		
		EP231X-LL: Perfluorooctanoic acid (PFOA)	335-67-1	0.002	µg/L	0.058	0.056	2.80	0% - 20%		
		EP231X-LL: Perfluorononanoic acid (PFNA)	375-95-1	0.002	µg/L	<0.002	<0.002	0.00	No Limit		
		EP231X-LL: Perfluorodecanoic acid (PFDA)	335-76-2	0.002	µg/L	<0.002	<0.002	0.00	No Limit		
		EP231X-LL: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.002	µg/L	<0.002	<0.002	0.00	No Limit		
		EP231X-LL: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.002	µg/L	<0.002	<0.002	0.00	No Limit		
		EP231X-LL: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.002	µg/L	<0.002	<0.002	0.00	No Limit		
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 1632847)	NEL-ENV-BH024_08052018	EP231X-LL: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.002	µg/L	<0.002	<0.002	0.00	No Limit		
		EP231X-LL: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.002	µg/L	<0.002	<0.002	0.00	No Limit		
		EP231X-LL: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.002	µg/L	<0.002	<0.002	0.00	No Limit		
		EP231X-LL: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.005	µg/L	<0.005	<0.005	0.00	No Limit		
		EP231X-LL: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.005	µg/L	<0.005	<0.005	0.00	No Limit		
		EP231X-LL: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.005	µg/L	<0.005	<0.005	0.00	No Limit		
		EP231X-LL: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.005	µg/L	<0.005	<0.005	0.00	No Limit		
		EP1805704-005	Anonymous	EP231X-LL: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.002	µg/L	<0.002	<0.002	0.00	No Limit



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 1632847) - continued									
EP1805704-005	Anonymous	EP231X-LL: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.005	µg/L	<0.005	<0.005	0.00	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 1632847)									
EM1807515-001	NEL-ENV-BH024_08052018	EP231X-LL: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.005	µg/L	<0.005	<0.005	0.00	No Limit
EP1805704-005	Anonymous	EP231X-LL: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.005	µg/L	<0.005	<0.005	0.00	No Limit



Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EA010P: Conductivity by PC Titrator (QCLot: 1625812)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	1412 µS/cm	103	85	119
ED037P: Alkalinity by PC Titrator (QCLot: 1625814)								
ED037-P: Total Alkalinity as CaCO3	----	----	mg/L	----	200 mg/L	97.4	88	109
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 1625994)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	102	92	115
				<1	100 mg/L	99.1	92	115
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 1626000)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	103	92	115
				<1	100 mg/L	102	92	115
ED045G: Chloride by Discrete Analyser (QCLot: 1625995)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	10 mg/L	106	88	118
				<1	1000 mg/L	107	88	118
ED045G: Chloride by Discrete Analyser (QCLot: 1625999)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	10 mg/L	104	88	118
				<1	1000 mg/L	107	88	118
ED093F: Dissolved Major Cations (QCLot: 1626928)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	5 mg/L	94.2	93	110
ED093F: Magnesium	7439-95-4	1	mg/L	<1	5 mg/L	98.9	91	110
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	99.0	90	109
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	99.8	89	109
ED093F: Dissolved Major Cations (QCLot: 1632581)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	5 mg/L	99.2	93	110
ED093F: Magnesium	7439-95-4	1	mg/L	<1	5 mg/L	98.5	91	110
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	98.5	90	109
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	98.9	89	109
EG020F: Dissolved Metals by ICP-MS (QCLot: 1632583)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	100	91	107
EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	99.4	82	113
EG020A-F: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	97.8	84	106
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	95.9	84	104
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	97.8	83	103
EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	95.7	83	106
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	91.9	82	103

Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result		LCS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 1632583) - continued								
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	95.0	83	105
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	92.1	83	105
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	94.4	82	106
EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	94.7	82	109
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	92.1	83	106
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	101	85	109
EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	0.5 mg/L	99.3	84	116
EG020T: Total Metals by ICP-MS (QCLot: 1633184)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	99.9	90	110
EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	108	88	113
EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	103	88	112
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	98.0	86	111
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	95.7	87	109
EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	98.4	88	113
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	95.4	87	108
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	99.2	88	109
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	97.3	88	111
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	98.0	87	111
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	92.9	85	113
EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	97.3	88	112
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	98.2	87	113
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	0.5 mg/L	109	88	118
EG035F: Dissolved Mercury by FIMS (QCLot: 1632582)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	92.7	81	114
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1640238)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	94.0	81	114
EK040P: Fluoride by PC Titrator (QCLot: 1625815)								
EK040P: Fluoride	16984-48-8	0.1	mg/L	<0.1	5 mg/L	101	85	112
EK055G: Ammonia as N by Discrete Analyser (QCLot: 1633264)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	104	80	115
EK057G: Nitrite as N by Discrete Analyser (QCLot: 1625996)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	103	94	107
EK057G: Nitrite as N by Discrete Analyser (QCLot: 1626001)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	102	94	107
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 1633265)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	111	89	114
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 1626851)								



Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result			Low	High
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 1626851) - continued								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	5 mg/L	88.0	70	117
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 1626849)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	2.21 mg/L	97.6	70	120
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 1625997)								
EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.5 mg/L	102	90	110
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 1625834)								
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	10 µg/L	70.6	54	132
EP068A: Organochlorine Pesticides (OC) (QCLot: 1625835)								
EP068: alpha-BHC	319-84-6	0.5	µg/L	<0.5	5 µg/L	83.1	51	122
EP068: Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	5 µg/L	77.5	51	118
EP068: beta-BHC	319-85-7	0.5	µg/L	<0.5	5 µg/L	83.7	57	119
EP068: gamma-BHC	58-89-9	0.5	µg/L	<0.5	5 µg/L	101	51	121
EP068: delta-BHC	319-86-8	0.5	µg/L	<0.5	5 µg/L	87.2	58	114
EP068: Heptachlor	76-44-8	0.5	µg/L	<0.5	5 µg/L	84.8	47	113
EP068: Aldrin	309-00-2	0.5	µg/L	<0.5	5 µg/L	81.1	53	118
EP068: Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	5 µg/L	84.7	53	117
EP068: trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	5 µg/L	81.7	50	126
EP068: alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	5 µg/L	83.9	55	121
EP068: cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	5 µg/L	84.1	54	120
EP068: Dieldrin	60-57-1	0.5	µg/L	<0.5	5 µg/L	102	50	121
EP068: 4,4'-DDE	72-55-9	0.5	µg/L	<0.5	5 µg/L	83.5	54	120
EP068: Endrin	72-20-8	0.5	µg/L	<0.5	5 µg/L	80.1	45	122
EP068: beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	5 µg/L	83.2	55	120
EP068: 4,4'-DDD	72-54-8	0.5	µg/L	<0.5	5 µg/L	85.4	53	126
EP068: Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	5 µg/L	106	52	123
EP068: Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	5 µg/L	93.0	48	121
EP068: 4,4'-DDT	50-29-3	2	µg/L	<2.0	5 µg/L	100	46	120
EP068: Endrin ketone	53494-70-5	0.5	µg/L	<0.5	5 µg/L	80.7	56	118
EP068: Methoxychlor	72-43-5	2	µg/L	<2.0	5 µg/L	92.5	42	123
EP068B: Organophosphorus Pesticides (OP) (QCLot: 1625835)								
EP068: Dichlorvos	62-73-7	0.5	µg/L	<0.5	5 µg/L	84.5	45	123
EP068: Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	5 µg/L	80.8	42	129
EP068: Monocrotophos	6923-22-4	2	µg/L	<2.0	5 µg/L	10.7	10	43
EP068: Dimethoate	60-51-5	0.5	µg/L	<0.5	5 µg/L	75.0	38	115
EP068: Diazinon	333-41-5	0.5	µg/L	<0.5	5 µg/L	85.6	54	121
EP068: Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	5 µg/L	80.9	56	118
EP068: Parathion-methyl	298-00-0	2	µg/L	<2.0	5 µg/L	102	43	115
EP068: Malathion	121-75-5	0.5	µg/L	<0.5	5 µg/L	90.6	50	120



Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result			Low	High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 1625835) - continued								
EP068: Fenthion	55-38-9	0.5	µg/L	<0.5	5 µg/L	84.1	55	119
EP068: Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	5 µg/L	82.1	50	122
EP068: Parathion	56-38-2	2	µg/L	<2.0	5 µg/L	108	44	114
EP068: Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	5 µg/L	79.9	52	117
EP068: Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	5 µg/L	88.2	42	126
EP068: Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	5 µg/L	82.7	50	117
EP068: Fenamiphos	22224-92-6	0.5	µg/L	<0.5	5 µg/L	98.8	45	127
EP068: Prothiofos	34643-46-4	0.5	µg/L	<0.5	5 µg/L	83.3	52	120
EP068: Ethion	563-12-2	0.5	µg/L	<0.5	5 µg/L	87.3	49	118
EP068: Carbophenothion	786-19-6	0.5	µg/L	<0.5	5 µg/L	89.5	52	119
EP068: Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	5 µg/L	103	21	120
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 1625596)								
EP074: Benzene	71-43-2	1	µg/L	<1	20 µg/L	97.1	76	122
EP074: Toluene	108-88-3	2	µg/L	<2	20 µg/L	98.9	81	115
EP074: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	99.5	78	116
EP074: meta- & para-Xylene	108-38-3	2	µg/L	<2	40 µg/L	100	79	116
	106-42-3							
EP074: Styrene	100-42-5	5	µg/L	<5	20 µg/L	99.3	79	114
EP074: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	104	83	116
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	20 µg/L	95.6	72	116
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	20 µg/L	89.6	71	115
EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	20 µg/L	92.7	72	114
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	20 µg/L	93.4	72	114
EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	20 µg/L	94.8	74	112
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	20 µg/L	93.6	73	114
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	20 µg/L	96.8	70	115
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	20 µg/L	93.6	62	116
EP074B: Oxygenated Compounds (QCLot: 1625596)								
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	200 µg/L	104	73	126
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	200 µg/L	97.2	68	136
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	200 µg/L	101	76	127
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	200 µg/L	101	71	131
EP074C: Sulfonated Compounds (QCLot: 1625596)								
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	20 µg/L	92.4	55	123
EP074D: Fumigants (QCLot: 1625596)								
EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	20 µg/L	91.9	67	122
EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	20 µg/L	97.6	78	120
EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	20 µg/L	97.1	70	118



Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result			Low	High
EP074D: Fumigants (QCLot: 1625596) - continued								
EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	20 µg/L	98.5	68	115
EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	20 µg/L	101	78	120
EP074E: Halogenated Aliphatic Compounds (QCLot: 1625596)								
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	200 µg/L	87.4	62	140
EP074: Chloromethane	74-87-3	50	µg/L	<50	200 µg/L	98.7	68	138
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	200 µg/L	93.5	64	139
EP074: Bromomethane	74-83-9	50	µg/L	<50	200 µg/L	93.3	48	130
EP074: Chloroethane	75-00-3	50	µg/L	<50	200 µg/L	100	71	130
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	200 µg/L	92.0	71	126
EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	20 µg/L	91.8	65	124
EP074: Iodomethane	74-88-4	5	µg/L	<5	20 µg/L	80.2	27	120
EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	20 µg/L	92.8	73	121
EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	20 µg/L	95.4	77	120
EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	20 µg/L	97.7	78	120
EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	20 µg/L	92.8	68	116
EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	20 µg/L	90.2	66	119
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	20 µg/L	90.4	66	119
EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	20 µg/L	98.0	79	118
EP074: Trichloroethene	79-01-6	5	µg/L	<5	20 µg/L	93.2	70	120
EP074: Dibromomethane	74-95-3	5	µg/L	<5	20 µg/L	98.1	75	115
EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	20 µg/L	104	87	114
EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	20 µg/L	105	84	116
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	20 µg/L	93.4	75	119
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	20 µg/L	98.3	75	112
EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	20 µg/L	100	63	119
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	20 µg/L	97.2	54	119
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	20 µg/L	109	81	125
EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	20 µg/L	105	81	125
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	20 µg/L	94.2	62	110
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	20 µg/L	97.5	63	106
EP074F: Halogenated Aromatic Compounds (QCLot: 1625596)								
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	20 µg/L	99.0	82	114
EP074: Bromobenzene	108-86-1	5	µg/L	<5	20 µg/L	98.7	74	117
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	20 µg/L	94.6	71	114
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	20 µg/L	94.0	71	112
EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	20 µg/L	102	74	118
EP074G: Trihalomethanes (QCLot: 1625596)								
EP074: Chloroform	67-66-3	5	µg/L	<5	20 µg/L	99.6	79	119



Sub-Matrix: **WATER**

Method: Compound				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%)	
							Low	High
CAS Number	LOR	Unit	Result					
EP074G: Trihalomethanes (QCLot: 1625596) - continued								
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	20 µg/L	100	70	112
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	20 µg/L	102	68	107
EP074: Bromoform	75-25-2	5	µg/L	<5	20 µg/L	102	62	108
EP075A: Phenolic Compounds (QCLot: 1625836)								
EP075: Phenol	108-95-2	2	µg/L	<2	10 µg/L	31.1	19	47
EP075: 2-Chlorophenol	95-57-8	2	µg/L	<2	10 µg/L	65.1	44	100
EP075: 2-Methylphenol	95-48-7	2	µg/L	<2	10 µg/L	60.3	38	94
EP075: 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2	10 µg/L	55.6	33	88
EP075: 2-Nitrophenol	88-75-5	2	µg/L	<2	10 µg/L	70.2	40	111
EP075: 2,4-Dimethylphenol	105-67-9	2	µg/L	<2	10 µg/L	66.1	44	110
EP075: 2,4-Dichlorophenol	120-83-2	2	µg/L	<2	10 µg/L	67.5	43	110
EP075: 2,6-Dichlorophenol	87-65-0	2	µg/L	<2	10 µg/L	72.8	49	104
EP075: 4-Chloro-3-methylphenol	59-50-7	2	µg/L	<2	10 µg/L	70.2	50	103
EP075: 2,4,6-Trichlorophenol	88-06-2	2	µg/L	<2	10 µg/L	72.2	48	107
EP075: 2,4,5-Trichlorophenol	95-95-4	2	µg/L	<2	10 µg/L	69.6	48	110
EP075: Pentachlorophenol	87-86-5	4	µg/L	<4	10 µg/L	63.2	25	113
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 1625836)								
EP075: Naphthalene	91-20-3	2	µg/L	<2	10 µg/L	71.2	51	102
EP075: 2-Methylnaphthalene	91-57-6	2	µg/L	<2	10 µg/L	71.8	50	107
EP075: 2-Chloronaphthalene	91-58-7	2	µg/L	<2	10 µg/L	70.4	47	111
EP075: Acenaphthylene	208-96-8	2	µg/L	<2	10 µg/L	73.0	49	110
EP075: Acenaphthene	83-32-9	2	µg/L	<2	10 µg/L	72.0	54	105
EP075: Fluorene	86-73-7	2	µg/L	<2	10 µg/L	73.4	54	108
EP075: Phenanthrene	85-01-8	2	µg/L	<2	10 µg/L	73.8	57	108
EP075: Anthracene	120-12-7	2	µg/L	<2	10 µg/L	73.3	57	108
EP075: Fluoranthene	206-44-0	2	µg/L	<2	10 µg/L	73.3	57	111
EP075: Pyrene	129-00-0	2	µg/L	<2	10 µg/L	73.3	58	110
EP075: N-2-Fluorenyl Acetamide	53-96-3	2	µg/L	<2	10 µg/L	74.4	48	117
EP075: Benz(a)anthracene	56-55-3	2	µg/L	<2	10 µg/L	73.8	55	112
EP075: Chrysene	218-01-9	2	µg/L	<2	10 µg/L	73.3	55	113
EP075: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	4	µg/L	<4	20 µg/L	73.3	56	111
EP075: 7,12-Dimethylbenz(a)anthracene	57-97-6	2	µg/L	<2	10 µg/L	74.2	55	140
EP075: Benzo(a)pyrene	50-32-8	2	µg/L	<2	10 µg/L	72.8	57	129
EP075: 3-Methylcholanthrene	56-49-5	2	µg/L	<2	10 µg/L	73.9	47	135
EP075: Indeno(1,2,3-cd)pyrene	193-39-5	2	µg/L	<2	10 µg/L	72.4	59	125
EP075: Dibenzo(a,h)anthracene	53-70-3	2	µg/L	<2	10 µg/L	72.6	58	126
EP075: Benzo(g,h,i)perylene	191-24-2	2	µg/L	<2	10 µg/L	72.0	59	127



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EP075C: Phthalate Esters (QCLot: 1625836)								
EP075: Dimethyl phthalate	131-11-3	2	µg/L	<2	10 µg/L	72.8	57	121
EP075: Diethyl phthalate	84-66-2	2	µg/L	<2	10 µg/L	73.0	62	128
EP075: Di-n-butyl phthalate	84-74-2	2	µg/L	<2	10 µg/L	76.2	65	129
EP075: Butyl benzyl phthalate	85-68-7	2	µg/L	<2	10 µg/L	74.3	63	127
EP075: bis(2-ethylhexyl) phthalate	117-81-7	10	µg/L	<10	10 µg/L	73.8	56	131
EP075: Di-n-octylphthalate	117-84-0	2	µg/L	<2	10 µg/L	73.5	57	129
EP075D: Nitrosamines (QCLot: 1625836)								
EP075: N-Nitrosomethylethylamine	10595-95-6	2	µg/L	<2	10 µg/L	52.1	19	102
EP075: N-Nitrosodiethylamine	55-18-5	2	µg/L	<2	10 µg/L	66.2	38	113
EP075: N-Nitrosopyrrolidine	930-55-2	4	µg/L	<4	10 µg/L	56.7	29	88
EP075: N-Nitrosomorpholine	59-89-2	2	µg/L	<2	10 µg/L	50.7	27	90
EP075: N-Nitrosodi-n-propylamine	621-64-7	2	µg/L	<2	10 µg/L	74.0	43	119
EP075: N-Nitrosopiperidine	100-75-4	2	µg/L	<2	10 µg/L	66.7	43	112
EP075: N-Nitrosodibutylamine	924-16-3	2	µg/L	<2	10 µg/L	76.7	49	119
EP075: N-Nitrosodiphenyl & Diphenylamine	86-30-6 122-39-4	4	µg/L	<4	10 µg/L	71.8	59	119
EP075: Methapyrilene	91-80-5	2	µg/L	<2	10 µg/L	89.0	55	157
EP075E: Nitroaromatics and Ketones (QCLot: 1625836)								
EP075: 2-Picoline	109-06-8	2	µg/L	<2	10 µg/L	53.9	17	120
EP075: Acetophenone	98-86-2	2	µg/L	<2	10 µg/L	69.4	51	108
EP075: Nitrobenzene	98-95-3	2	µg/L	<2	10 µg/L	69.1	46	109
EP075: Isophorone	78-59-1	2	µg/L	<2	10 µg/L	69.6	49	114
EP075: 2,6-Dinitrotoluene	606-20-2	4	µg/L	<4	10 µg/L	72.9	56	120
EP075: 2,4-Dinitrotoluene	121-14-2	4	µg/L	<4	10 µg/L	72.1	57	121
EP075: 1-Naphthylamine	134-32-7	2	µg/L	<2	10 µg/L	75.6	11	119
EP075: 4-Nitroquinoline-N-oxide	56-57-5	2	µg/L	<2	10 µg/L	67.2	30	160
EP075: 5-Nitro-o-toluidine	99-55-8	2	µg/L	<2	10 µg/L	76.8	50	124
EP075: Azobenzene	103-33-3	2	µg/L	<2	10 µg/L	71.9	56	120
EP075: 1,3,5-Trinitrobenzene	99-35-4	2	µg/L	<2	10 µg/L	71.6	36	132
EP075: Phenacetin	62-44-2	2	µg/L	<2	10 µg/L	64.0	46	110
EP075: 4-Aminobiphenyl	92-67-1	2	µg/L	<2	10 µg/L	78.3	24	149
EP075: Pentachloronitrobenzene	82-68-8	2	µg/L	<2	10 µg/L	71.3	57	127
EP075: Pronamide	23950-58-5	2	µg/L	<2	10 µg/L	73.4	63	125
EP075: Dimethylaminoazobenzene	60-11-7	2	µg/L	<2	10 µg/L	70.1	57	123
EP075: Chlorobenzilate	510-15-6	2	µg/L	<2	10 µg/L	73.4	61	131
EP075F: Haloethers (QCLot: 1625836)								
EP075: Bis(2-chloroethyl) ether	111-44-4	2	µg/L	<2	10 µg/L	66.9	44	109
EP075: Bis(2-chloroethoxy) methane	111-91-1	2	µg/L	<2	10 µg/L	69.6	46	114



Sub-Matrix: **WATER**

Method: Compound				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%)	
							Low	High
CAS Number	LOR	Unit	Result					
EP075F: Haloethers (QCLot: 1625836) - continued								
EP075: 4-Chlorophenyl phenyl ether	7005-72-3	2	µg/L	<2	10 µg/L	73.6	55	119
EP075: 4-Bromophenyl phenyl ether	101-55-3	2	µg/L	<2	10 µg/L	72.2	57	119
EP075G: Chlorinated Hydrocarbons (QCLot: 1625836)								
EP075: 1,4-Dichlorobenzene	106-46-7	2	µg/L	<2	10 µg/L	68.4	46	102
EP075: 1,3-Dichlorobenzene	541-73-1	2	µg/L	<2	10 µg/L	67.0	45	101
EP075: 1,2-Dichlorobenzene	95-50-1	2	µg/L	<2	10 µg/L	67.3	47	101
EP075: Hexachloroethane	67-72-1	2	µg/L	<2	10 µg/L	65.3	44	104
EP075: 1,2,4-Trichlorobenzene	120-82-1	2	µg/L	<2	10 µg/L	67.2	46	107
EP075: Hexachloropropylene	1888-71-7	2	µg/L	<2	10 µg/L	72.9	35	109
EP075: Hexachlorobutadiene	87-68-3	2	µg/L	<2	10 µg/L	69.8	48	103
EP075: Hexachlorocyclopentadiene	77-47-4	10	µg/L	<10	10 µg/L	76.8	34	112
EP075: Pentachlorobenzene	608-93-5	2	µg/L	<2	10 µg/L	71.7	53	117
EP075: Hexachlorobenzene (HCB)	118-74-1	4	µg/L	<4	20 µg/L	72.2	55	121
EP075H: Anilines and Benzidines (QCLot: 1625836)								
EP075: Aniline	62-53-3	2	µg/L	<2	10 µg/L	61.0	14	110
EP075: 4-Chloroaniline	106-47-8	2	µg/L	<2	10 µg/L	70.2	32	114
EP075: 2-Nitroaniline	88-74-4	4	µg/L	<4	10 µg/L	70.4	51	119
EP075: 3-Nitroaniline	99-09-2	4	µg/L	<4	10 µg/L	73.9	50	116
EP075: Dibenzofuran	132-64-9	2	µg/L	<2	10 µg/L	73.6	53	117
EP075: 4-Nitroaniline	100-01-6	2	µg/L	<2	10 µg/L	71.9	48	114
EP075: Carbazole	86-74-8	2	µg/L	<2	10 µg/L	75.1	63	125
EP075: 3,3'-Dichlorobenzidine	91-94-1	2	µg/L	<2	10 µg/L	80.5	59	137
EP075I: Organochlorine Pesticides (QCLot: 1625836)								
EP075: alpha-BHC	319-84-6	2	µg/L	<2	10 µg/L	72.7	58	124
EP075: beta-BHC	319-85-7	2	µg/L	<2	10 µg/L	72.0	57	127
EP075: gamma-BHC	58-89-9	2	µg/L	<2	10 µg/L	74.5	57	125
EP075: delta-BHC	319-86-8	2	µg/L	<2	10 µg/L	72.7	62	128
EP075: Heptachlor	76-44-8	2	µg/L	<2	10 µg/L	73.5	53	112
EP075: Aldrin	309-00-2	2	µg/L	<2	10 µg/L	73.4	57	110
EP075: Heptachlor epoxide	1024-57-3	2	µg/L	<2	10 µg/L	73.6	55	112
EP075: alpha-Endosulfan	959-98-8	2	µg/L	<2	10 µg/L	77.1	50	124
EP075: 4,4'-DDE	72-55-9	2	µg/L	<2	10 µg/L	75.2	55	110
EP075: Dieldrin	60-57-1	2	µg/L	<2	10 µg/L	72.8	61	131
EP075: Endrin	72-20-8	2	µg/L	<2	10 µg/L	75.7	59	133
EP075: beta-Endosulfan	33213-65-9	2	µg/L	<2	10 µg/L	73.8	60	130
EP075: 4,4'-DDD	72-54-8	2	µg/L	<2	10 µg/L	72.7	61	129
EP075: Endosulfan sulfate	1031-07-8	2	µg/L	<2	10 µg/L	75.5	58	136
EP075: 4,4'-DDT	50-29-3	4	µg/L	<4	10 µg/L	75.9	51	137



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EP075J: Organophosphorus Pesticides (QCLot: 1625836)								
EP075: Dichlorvos	62-73-7	2	µg/L	<2	10 µg/L	73.4	50	116
EP075: Dimethoate	60-51-5	2	µg/L	<2	10 µg/L	64.9	49	111
EP075: Diazinon	333-41-5	2	µg/L	<2	10 µg/L	73.5	62	126
EP075: Chlorpyrifos-methyl	5598-13-0	2	µg/L	<2	10 µg/L	73.6	60	126
EP075: Malathion	121-75-5	2	µg/L	<2	10 µg/L	78.2	61	131
EP075: Fenthion	55-38-9	2	µg/L	<2	10 µg/L	73.6	62	128
EP075: Chlorpyrifos	2921-88-2	2	µg/L	<2	10 µg/L	73.6	61	127
EP075: Pirimphos-ethyl	23505-41-1	2	µg/L	<2	10 µg/L	73.4	61	129
EP075: Chlorfenvinphos	470-90-6	2	µg/L	<2	10 µg/L	74.2	61	131
EP075: Prothiofos	34643-46-4	2	µg/L	<2	10 µg/L	72.7	61	125
EP075: Ethion	563-12-2	2	µg/L	<2	10 µg/L	74.4	62	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1625595)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	360 µg/L	111	68	125
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1625837)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	4331 µg/L	65.5	58	134
EP071: C15 - C28 Fraction	----	100	µg/L	<100	16952 µg/L	67.9	60	133
EP071: C29 - C36 Fraction	----	50	µg/L	<50	8695 µg/L	67.4	54	137
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1625595)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	109	66	123
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1625837)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	6292 µg/L	66.2	58	122
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	22143 µg/L	67.4	56	132
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	1677 µg/L	70.4	58	137
EP080: BTEXN (QCLot: 1625595)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	104	74	123
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	108	77	128
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	103	73	126
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	110	72	131
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	110	74	131
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	100	74	124
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 1632847)								
EP231X-LL: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.002	µg/L	<0.002	0.05 µg/L	106	50	130
EP231X-LL: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.002	µg/L	<0.002	0.05 µg/L	114	50	130
EP231X-LL: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.002	µg/L	<0.002	0.05 µg/L	110	50	130
EP231X-LL: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.002	µg/L	<0.002	0.05 µg/L	92.8	50	130
EP231X-LL: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.002	µg/L	<0.002	0.05 µg/L	87.2	50	130
EP231X-LL: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.002	µg/L	<0.002	0.05 µg/L	55.6	40	130

Method Blank (MB) Report

Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
	LCS	Low	High

Matrix Spike (MS) Report

Sub-Matrix: **WATER**

<i>Spike</i>	<i>SpikeRecovery</i> (%)	<i>Recovery Limits (%)</i>	
<i>Concentration</i>	<i>MS</i>	<i>Low</i>	<i>High</i>

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 1625994)							



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 1625994) - continued							
EM1807276-004	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	76.3	70	130
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 1626000)							
EM1807515-006	FB400_08052018	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	89.3	70	130
ED045G: Chloride by Discrete Analyser (QCLot: 1625995)							
EM1807276-004	Anonymous	ED045G: Chloride	16887-00-6	400 mg/L	92.4	70	130
ED045G: Chloride by Discrete Analyser (QCLot: 1625999)							
EM1807515-005	RB400_08052018	ED045G: Chloride	16887-00-6	400 mg/L	96.0	70	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 1632583)							
EM1806559-002	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	103	85	131
		EG020A-F: Beryllium	7440-41-7	0.2 mg/L	89.7	73	141
		EG020A-F: Barium	7440-39-3	0.2 mg/L	96.9	75	127
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	92.9	81	133
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	94.8	71	135
		EG020A-F: Cobalt	7440-48-4	0.2 mg/L	95.1	78	132
		EG020A-F: Copper	7440-50-8	0.2 mg/L	94.0	76	130
		EG020A-F: Lead	7439-92-1	0.2 mg/L	92.9	75	133
		EG020A-F: Manganese	7439-96-5	0.2 mg/L	109	64	134
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	93.8	73	131
		EG020A-F: Vanadium	7440-62-2	0.2 mg/L	92.5	73	131
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	103	75	131
EG020T: Total Metals by ICP-MS (QCLot: 1633184)							
EM1807515-005	RB400_08052018	EG020A-T: Arsenic	7440-38-2	1 mg/L	96.0	82	118
		EG020A-T: Beryllium	7440-41-7	1 mg/L	112	79	121
		EG020A-T: Barium	7440-39-3	1 mg/L	100	80	114
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	97.1	75	129
		EG020A-T: Chromium	7440-47-3	1 mg/L	89.5	80	118
		EG020A-T: Cobalt	7440-48-4	1 mg/L	87.9	82	120
		EG020A-T: Copper	7440-50-8	1 mg/L	86.5	81	115
		EG020A-T: Lead	7439-92-1	1 mg/L	92.0	83	121
		EG020A-T: Manganese	7439-96-5	1 mg/L	96.9	73	123
		EG020A-T: Nickel	7440-02-0	1 mg/L	92.3	80	118
		EG020A-T: Vanadium	7440-62-2	1 mg/L	99.1	81	119
		EG020A-T: Zinc	7440-66-6	1 mg/L	96.0	74	116
EG035F: Dissolved Mercury by FIMS (QCLot: 1632582)							
EM1806559-003	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	97.4	70	120
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1640238)							
EM1807515-006	FB400_08052018	EG035T: Mercury	7439-97-6	0.01 mg/L	95.2	70	130

Matrix Spike (MS) Report

Lab Matrix: WATER

				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EK040P: Fluoride by PC Titrator (QCLot: 1625815)							
EM1807515-003	QC5000_08052018	EK040P: Fluoride	16984-48-8	5 mg/L	98.4	70	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 1633264)							
EM1806774-002	Anonymous	EK055G: Ammonia as N	7664-41-7	1 mg/L	111	70	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 1625996)							
EM1807283-015	Anonymous	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	96.6	80	114
EK057G: Nitrite as N by Discrete Analyser (QCLot: 1626001)							
EM1807520-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	# Not Determined	80	114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 1633265)							
EM1806774-002	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	# Not Determined	70	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 1626851)							
EM1807504-003	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	80.5	70	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 1626849)							
EM1806774-002	Anonymous	EK067G: Total Phosphorus as P	----	1 mg/L	70.2	70	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 1625997)							
EM1807486-002	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.5 mg/L	# Not Determined	79	123
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 1625596)							
EM1807515-002	NEL-ENV-BH008_08052018	EP074: Benzene	71-43-2	20 µg/L	82.2	60	128
		EP074: Toluene	108-88-3	20 µg/L	86.7	64	132
EP074E: Halogenated Aliphatic Compounds (QCLot: 1625596)							
EM1807515-002	NEL-ENV-BH008_08052018	EP074: 1,1-Dichloroethene	75-35-4	20 µg/L	82.4	40	124
		EP074: Trichloroethene	79-01-6	20 µg/L	73.5	54	126
EP074F: Halogenated Aromatic Compounds (QCLot: 1625596)							
EM1807515-002	NEL-ENV-BH008_08052018	EP074: Chlorobenzene	108-90-7	20 µg/L	84.2	68	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1625595)							
EM1807515-002	NEL-ENV-BH008_08052018	EP080: C6 - C9 Fraction	----	280 µg/L	65.5	43	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1625595)							
EM1807515-002	NEL-ENV-BH008_08052018	EP080: C6 - C10 Fraction	C6_C10	330 µg/L	64.3	44	122
EP080: BTEXN (QCLot: 1625595)							
EM1807515-002	NEL-ENV-BH008_08052018	EP080: Benzene	71-43-2	20 µg/L	78.1	68	130
		EP080: Toluene	108-88-3	20 µg/L	82.7	72	132
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 1632847)							



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 1632847) - continued							
EM1807515-001	NEL-ENV-BH024_08052018	EP231X-LL: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.05 µg/L	80.4	50	130
		EP231X-LL: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.05 µg/L	112	50	130
		EP231X-LL: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.05 µg/L	82.6	50	130
		EP231X-LL: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.05 µg/L	92.2	50	130
		EP231X-LL: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.05 µg/L	84.4	50	130
		EP231X-LL: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.05 µg/L	52.2	30	130
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 1632847)							
EM1807515-001	NEL-ENV-BH024_08052018	EP231X-LL: Perfluorobutanoic acid (PFBA)	375-22-4	0.25 µg/L	44.4	30	130
		EP231X-LL: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.05 µg/L	97.0	50	130
		EP231X-LL: Perfluorohexanoic acid (PFHxA)	307-24-4	0.05 µg/L	105	50	130
		EP231X-LL: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.05 µg/L	94.8	50	130
		EP231X-LL: Perfluorooctanoic acid (PFOA)	335-67-1	0.05 µg/L	113	50	130
		EP231X-LL: Perfluorononanoic acid (PFNA)	375-95-1	0.05 µg/L	88.6	50	130
		EP231X-LL: Perfluorodecanoic acid (PFDA)	335-76-2	0.05 µg/L	73.4	50	130
		EP231X-LL: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.05 µg/L	46.6	30	130
		EP231X-LL: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.05 µg/L	38.2	30	130
		EP231X-LL: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.05 µg/L	55.0	30	130
		EP231X-LL: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.125 µg/L	53.2	30	130
		EP231X-LL: Perfluorohexadecanoic acid (PFHxDA)	67905-19-5	0.05 µg/L	78.8	30	130
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 1632847)							
EM1807515-001	NEL-ENV-BH024_08052018	EP231X-LL: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.05 µg/L	73.2	30	130
		EP231X-LL: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.125 µg/L	44.6	30	130
		EP231X-LL: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.125 µg/L	41.0	30	130
		EP231X-LL: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.125 µg/L	58.7	30	130
		EP231X-LL: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.125 µg/L	60.9	30	130
		EP231X-LL: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.05 µg/L	53.8	30	130
		EP231X-LL: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.05 µg/L	39.6	30	130
		EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 1632847)					
EM1807515-001	NEL-ENV-BH024_08052018	EP231X-LL: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05 µg/L	99.2	50	130
		EP231X-LL: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05 µg/L	114	50	130
		EP231X-LL: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05 µg/L	100	50	130
		EP231X-LL: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05 µg/L	57.2	50	130

Page : 24 of 24
Work Order : EM1807515
Client : GHD PTY LTD
Project : 31350060910



QA/QC Compliance Assessment to assist with Quality Review

Work Order	: EM1807515	Page	: 1 of 15
Client	: GHD PTY LTD	Laboratory	: Environmental Division Melbourne
Contact	: KORY AUCH	Telephone	: +61-3-8549 9630
Project	: 31350060910	Date Samples Received	: 08-May-2018
Site	: North East Link - Contamination	Issue Date	: 23-May-2018
Sampler	: KORY AUCH	No. of samples received	: 7
Order number	:	No. of samples analysed	: 7

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- Matrix Spike outliers exist - please see following pages for full details.
- Surrogate recovery outliers exist for all regular sample matrices - please see following pages for full details.

Outliers : Analysis Holding Time Compliance

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- Quality Control Sample Frequency Outliers exist - please see following pages for full details.



Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EK057G: Nitrite as N by Discrete Analyser	EM1807520--001	Anonymous	Nitrite as N	14797-65-0	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser	EM1806774--002	Anonymous	Nitrite + Nitrate as N	----	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EK071G: Reactive Phosphorus as P by discrete analyser	EM1807486--002	Anonymous	Reactive Phosphorus as P	14265-44-2	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.

Regular Sample Surrogates

Sub-Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Samples Submitted							
EP075S: Acid Extractable Surrogates	EM1807515-001	NEL-ENV-BH024_08052018	2-Fluorophenol	367-12-4	77.8 %	10-75 %	Recovery greater than upper data quality objective
EP075S: Acid Extractable Surrogates	EM1807515-003	QC5000_08052018	2-Fluorophenol	367-12-4	94.1 %	10-75 %	Recovery greater than upper data quality objective
EP075S: Acid Extractable Surrogates	EM1807515-004	QC6000_08052018	2-Fluorophenol	367-12-4	89.7 %	10-75 %	Recovery greater than upper data quality objective
EP075S: Acid Extractable Surrogates	EM1807515-006	FB400_08052018	2-Fluorophenol	367-12-4	86.4 %	10-75 %	Recovery greater than upper data quality objective

Outliers : Analysis Holding Time Compliance

Matrix: **WATER**

Method	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA005P: pH by PC Titrator						
Clear Plastic Bottle - Natural NEL-ENV-BH024_08052018, QC5000_08052018, RB400_08052018,	NEL-ENV-BH008_08052018, QC6000_08052018, FB400_08052018	----	----	----	09-May-2018	08-May-2018
						1

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
Pesticides by GCMS	0	6	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	0	6	0.00	10.00	NEPM 2013 B3 & ALS QC Standard



Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP) - Continued					
Semivolatile Organic Compounds	0	6	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	6	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Pesticides by GCMS	0	6	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	0	6	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	0	6	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	6	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for **VOC in soils** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis			
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EA005P: pH by PC Titrator								
Clear Plastic Bottle - Natural (EA005-P) NEL-ENV-BH024_08052018, QC5000_08052018, RB400_08052018,	NEL-ENV-BH008_08052018, QC6000_08052018, FB400_08052018	08-May-2018	----	----	----	09-May-2018	08-May-2018	✖
EA006: Sodium Adsorption Ratio (SAR)								
Clear Plastic Bottle - Natural (ED093F) RB400_08052018,	FB400_08052018	08-May-2018	----	----	----	10-May-2018	15-May-2018	✔
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) NEL-ENV-BH024_08052018, QC5000_08052018,	NEL-ENV-BH008_08052018, QC6000_08052018	08-May-2018	----	----	----	11-May-2018	05-Jun-2018	✔
EA010P: Conductivity by PC Titrator								
Clear Plastic Bottle - Natural (EA010-P) NEL-ENV-BH024_08052018, QC5000_08052018, RB400_08052018,	NEL-ENV-BH008_08052018, QC6000_08052018, FB400_08052018	08-May-2018	----	----	----	09-May-2018	05-Jun-2018	✔
EA065: Total Hardness as CaCO3								
Clear Plastic Bottle - Natural (ED093F) RB400_08052018,	FB400_08052018	08-May-2018	----	----	----	10-May-2018	15-May-2018	✔
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) NEL-ENV-BH024_08052018, QC5000_08052018,	NEL-ENV-BH008_08052018, QC6000_08052018	08-May-2018	----	----	----	11-May-2018	05-Jun-2018	✔



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
ED037P: Alkalinity by PC Titrator								
Clear Plastic Bottle - Natural (ED037-P) NEL-ENV-BH024_08052018, QC5000_08052018, RB400_08052018,	NEL-ENV-BH008_08052018, QC6000_08052018, FB400_08052018	08-May-2018	----	----	----	09-May-2018	22-May-2018	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Clear Plastic Bottle - Natural (ED041G) NEL-ENV-BH024_08052018, QC5000_08052018, RB400_08052018,	NEL-ENV-BH008_08052018, QC6000_08052018, FB400_08052018	08-May-2018	----	----	----	09-May-2018	05-Jun-2018	✓
ED045G: Chloride by Discrete Analyser								
Clear Plastic Bottle - Natural (ED045G) NEL-ENV-BH024_08052018, QC5000_08052018, RB400_08052018,	NEL-ENV-BH008_08052018, QC6000_08052018, FB400_08052018	08-May-2018	----	----	----	09-May-2018	05-Jun-2018	✓
ED093F: Dissolved Major Cations								
Clear Plastic Bottle - Natural (ED093F) RB400_08052018,	FB400_08052018	08-May-2018	----	----	----	10-May-2018	15-May-2018	✓
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) NEL-ENV-BH024_08052018, QC5000_08052018,	NEL-ENV-BH008_08052018, QC6000_08052018	08-May-2018	----	----	----	11-May-2018	05-Jun-2018	✓
EG020F: Dissolved Metals by ICP-MS								
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) NEL-ENV-BH024_08052018, QC5000_08052018,	NEL-ENV-BH008_08052018, QC6000_08052018	08-May-2018	----	----	----	11-May-2018	04-Nov-2018	✓
EG020T: Total Metals by ICP-MS								
Clear Plastic Bottle - Nitric Acid; Unspecified (EG020A-T) RB400_08052018,	FB400_08052018	08-May-2018	11-May-2018	04-Nov-2018	✓	14-May-2018	04-Nov-2018	✓
EG035F: Dissolved Mercury by FIMS								
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) NEL-ENV-BH024_08052018, QC5000_08052018,	NEL-ENV-BH008_08052018, QC6000_08052018	08-May-2018	----	----	----	14-May-2018	05-Jun-2018	✓
EG035T: Total Recoverable Mercury by FIMS								
Clear Plastic Bottle - Nitric Acid; Unspecified (EG035T) RB400_08052018,	FB400_08052018	08-May-2018	----	----	----	16-May-2018	05-Jun-2018	✓
EK040P: Fluoride by PC Titrator								
Clear Plastic Bottle - Natural (EK040P) NEL-ENV-BH024_08052018, QC5000_08052018, RB400_08052018,	NEL-ENV-BH008_08052018, QC6000_08052018, FB400_08052018	08-May-2018	----	----	----	09-May-2018	05-Jun-2018	✓



Matrix: **WATER**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis			
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EK055G: Ammonia as N by Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK055G) NEL-ENV-BH024_08052018, QC5000_08052018, RB400_08052018,	NEL-ENV-BH008_08052018, QC6000_08052018, FB400_08052018	08-May-2018	----	----	----	15-May-2018	05-Jun-2018	✔
EK057G: Nitrite as N by Discrete Analyser								
Clear Plastic Bottle - Natural (EK057G) NEL-ENV-BH024_08052018, QC5000_08052018, RB400_08052018,	NEL-ENV-BH008_08052018, QC6000_08052018, FB400_08052018	08-May-2018	----	----	----	09-May-2018	10-May-2018	✔
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK059G) NEL-ENV-BH024_08052018, QC5000_08052018, RB400_08052018,	NEL-ENV-BH008_08052018, QC6000_08052018, FB400_08052018	08-May-2018	----	----	----	12-May-2018	05-Jun-2018	✔
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK061G) NEL-ENV-BH024_08052018, QC5000_08052018, RB400_08052018,	NEL-ENV-BH008_08052018, QC6000_08052018, FB400_08052018	08-May-2018	10-May-2018	05-Jun-2018	✔	10-May-2018	05-Jun-2018	✔
EK067G: Total Phosphorus as P by Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK067G) NEL-ENV-BH024_08052018, QC5000_08052018, RB400_08052018,	NEL-ENV-BH008_08052018, QC6000_08052018, FB400_08052018	08-May-2018	10-May-2018	05-Jun-2018	✔	10-May-2018	05-Jun-2018	✔
EK071G: Reactive Phosphorus as P by discrete analyser								
Clear Plastic Bottle - Natural (EK071G) NEL-ENV-BH024_08052018, QC5000_08052018, RB400_08052018,	NEL-ENV-BH008_08052018, QC6000_08052018, FB400_08052018	08-May-2018	----	----	----	09-May-2018	10-May-2018	✔
EP066: Polychlorinated Biphenyls (PCB)								
Amber Glass Bottle - Unpreserved (EP066) NEL-ENV-BH024_08052018, QC5000_08052018, RB400_08052018,	NEL-ENV-BH008_08052018, QC6000_08052018, FB400_08052018	08-May-2018	09-May-2018	15-May-2018	✔	10-May-2018	18-Jun-2018	✔
EP068A: Organochlorine Pesticides (OC)								
Amber Glass Bottle - Unpreserved (EP068) NEL-ENV-BH024_08052018, QC5000_08052018, RB400_08052018,	NEL-ENV-BH008_08052018, QC6000_08052018, FB400_08052018	08-May-2018	09-May-2018	15-May-2018	✔	10-May-2018	18-Jun-2018	✔



Matrix: **WATER**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method		Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP068B: Organophosphorus Pesticides (OP)								
Amber Glass Bottle - Unpreserved (EP068) NEL-ENV-BH024_08052018, QC5000_08052018, RB400_08052018,	NEL-ENV-BH008_08052018, QC6000_08052018, FB400_08052018	08-May-2018	09-May-2018	15-May-2018	✔	10-May-2018	18-Jun-2018	✔
EP074A: Monocyclic Aromatic Hydrocarbons								
Amber VOC Vial - Sulfuric Acid (EP074) NEL-ENV-BH024_08052018, QC5000_08052018, RB400_08052018,	NEL-ENV-BH008_08052018, QC6000_08052018, FB400_08052018	08-May-2018	09-May-2018	22-May-2018	✔	09-May-2018	22-May-2018	✔
EP074B: Oxygenated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) NEL-ENV-BH024_08052018, QC5000_08052018, RB400_08052018,	NEL-ENV-BH008_08052018, QC6000_08052018, FB400_08052018	08-May-2018	09-May-2018	22-May-2018	✔	09-May-2018	22-May-2018	✔
EP074C: Sulfonated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) NEL-ENV-BH024_08052018, QC5000_08052018, RB400_08052018,	NEL-ENV-BH008_08052018, QC6000_08052018, FB400_08052018	08-May-2018	09-May-2018	22-May-2018	✔	09-May-2018	22-May-2018	✔
EP074D: Fumigants								
Amber VOC Vial - Sulfuric Acid (EP074) NEL-ENV-BH024_08052018, QC5000_08052018, RB400_08052018,	NEL-ENV-BH008_08052018, QC6000_08052018, FB400_08052018	08-May-2018	09-May-2018	22-May-2018	✔	09-May-2018	22-May-2018	✔
EP074E: Halogenated Aliphatic Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) NEL-ENV-BH024_08052018, QC5000_08052018, RB400_08052018,	NEL-ENV-BH008_08052018, QC6000_08052018, FB400_08052018	08-May-2018	09-May-2018	22-May-2018	✔	09-May-2018	22-May-2018	✔
EP074F: Halogenated Aromatic Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) NEL-ENV-BH024_08052018, QC5000_08052018, RB400_08052018,	NEL-ENV-BH008_08052018, QC6000_08052018, FB400_08052018	08-May-2018	09-May-2018	22-May-2018	✔	09-May-2018	22-May-2018	✔
EP074G: Trihalomethanes								
Amber VOC Vial - Sulfuric Acid (EP074) NEL-ENV-BH024_08052018, QC5000_08052018, RB400_08052018,	NEL-ENV-BH008_08052018, QC6000_08052018, FB400_08052018	08-May-2018	09-May-2018	22-May-2018	✔	09-May-2018	22-May-2018	✔



Matrix: **WATER**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis			
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP075A: Phenolic Compounds								
Amber Glass Bottle - Unpreserved (EP075) NEL-ENV-BH024_08052018, QC5000_08052018, RB400_08052018,	NEL-ENV-BH008_08052018, QC6000_08052018, FB400_08052018	08-May-2018	09-May-2018	15-May-2018	✔	10-May-2018	18-Jun-2018	✔
EP075B: Polynuclear Aromatic Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP075) NEL-ENV-BH024_08052018, QC5000_08052018, RB400_08052018,	NEL-ENV-BH008_08052018, QC6000_08052018, FB400_08052018	08-May-2018	09-May-2018	15-May-2018	✔	10-May-2018	18-Jun-2018	✔
EP075C: Phthalate Esters								
Amber Glass Bottle - Unpreserved (EP075) NEL-ENV-BH024_08052018, QC5000_08052018, RB400_08052018,	NEL-ENV-BH008_08052018, QC6000_08052018, FB400_08052018	08-May-2018	09-May-2018	15-May-2018	✔	10-May-2018	18-Jun-2018	✔
EP075D: Nitrosamines								
Amber Glass Bottle - Unpreserved (EP075) NEL-ENV-BH024_08052018, QC5000_08052018, RB400_08052018,	NEL-ENV-BH008_08052018, QC6000_08052018, FB400_08052018	08-May-2018	09-May-2018	15-May-2018	✔	10-May-2018	18-Jun-2018	✔
EP075E: Nitroaromatics and Ketones								
Amber Glass Bottle - Unpreserved (EP075) NEL-ENV-BH024_08052018, QC5000_08052018, RB400_08052018,	NEL-ENV-BH008_08052018, QC6000_08052018, FB400_08052018	08-May-2018	09-May-2018	15-May-2018	✔	10-May-2018	18-Jun-2018	✔
EP075F: Haloethers								
Amber Glass Bottle - Unpreserved (EP075) NEL-ENV-BH024_08052018, QC5000_08052018, RB400_08052018,	NEL-ENV-BH008_08052018, QC6000_08052018, FB400_08052018	08-May-2018	09-May-2018	15-May-2018	✔	10-May-2018	18-Jun-2018	✔
EP075G: Chlorinated Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP075) NEL-ENV-BH024_08052018, QC5000_08052018, RB400_08052018,	NEL-ENV-BH008_08052018, QC6000_08052018, FB400_08052018	08-May-2018	09-May-2018	15-May-2018	✔	10-May-2018	18-Jun-2018	✔
EP075H: Anilines and Benzidines								
Amber Glass Bottle - Unpreserved (EP075) NEL-ENV-BH024_08052018, QC5000_08052018, RB400_08052018,	NEL-ENV-BH008_08052018, QC6000_08052018, FB400_08052018	08-May-2018	09-May-2018	15-May-2018	✔	10-May-2018	18-Jun-2018	✔



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method		Sample Date	Extraction / Preparation			Analysis			
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP075I: Organochlorine Pesticides									
Amber Glass Bottle - Unpreserved (EP075)	NEL-ENV-BH024_08052018, QC5000_08052018, RB400_08052018,	NEL-ENV-BH008_08052018, QC6000_08052018, FB400_08052018	08-May-2018	09-May-2018	15-May-2018	✓	10-May-2018	18-Jun-2018	✓
EP075J: Organophosphorus Pesticides									
Amber Glass Bottle - Unpreserved (EP075)	NEL-ENV-BH024_08052018, QC5000_08052018, RB400_08052018,	NEL-ENV-BH008_08052018, QC6000_08052018, FB400_08052018	08-May-2018	09-May-2018	15-May-2018	✓	10-May-2018	18-Jun-2018	✓
EP080/071: Total Petroleum Hydrocarbons									
Amber Glass Bottle - Unpreserved (EP071)	NEL-ENV-BH024_08052018, QC5000_08052018, RB400_08052018,	NEL-ENV-BH008_08052018, QC6000_08052018, FB400_08052018	08-May-2018	09-May-2018	15-May-2018	✓	10-May-2018	18-Jun-2018	✓
Amber VOC Vial - Sulfuric Acid (EP080)	NEL-ENV-BH024_08052018, QC5000_08052018, RB400_08052018, TB400_08052018	NEL-ENV-BH008_08052018, QC6000_08052018, FB400_08052018,	08-May-2018	09-May-2018	22-May-2018	✓	09-May-2018	22-May-2018	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
Amber Glass Bottle - Unpreserved (EP071)	NEL-ENV-BH024_08052018, QC5000_08052018, RB400_08052018,	NEL-ENV-BH008_08052018, QC6000_08052018, FB400_08052018	08-May-2018	09-May-2018	15-May-2018	✓	10-May-2018	18-Jun-2018	✓
Amber VOC Vial - Sulfuric Acid (EP080)	NEL-ENV-BH024_08052018, QC5000_08052018, RB400_08052018, TB400_08052018	NEL-ENV-BH008_08052018, QC6000_08052018, FB400_08052018,	08-May-2018	09-May-2018	22-May-2018	✓	09-May-2018	22-May-2018	✓
EP080: BTEXN									
Amber VOC Vial - Sulfuric Acid (EP080)	NEL-ENV-BH024_08052018, QC5000_08052018, RB400_08052018, TB400_08052018	NEL-ENV-BH008_08052018, QC6000_08052018, FB400_08052018,	08-May-2018	09-May-2018	22-May-2018	✓	09-May-2018	22-May-2018	✓
EP231A: Perfluoroalkyl Sulfonic Acids									
HDPE (no PTFE) (EP231X-LL)	NEL-ENV-BH024_08052018, QC5000_08052018, RB400_08052018,	NEL-ENV-BH008_08052018, QC6000_08052018, FB400_08052018	08-May-2018	11-May-2018	04-Nov-2018	✓	14-May-2018	04-Nov-2018	✓



Matrix: **WATER**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis			
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE (no PTFE) (EP231X-LL) NEL-ENV-BH024_08052018, QC5000_08052018, RB400_08052018,	NEL-ENV-BH008_08052018, QC6000_08052018, FB400_08052018	08-May-2018	11-May-2018	04-Nov-2018	✔	14-May-2018	04-Nov-2018	✔
EP231C: Perfluoroalkyl Sulfonamides								
HDPE (no PTFE) (EP231X-LL) NEL-ENV-BH024_08052018, QC5000_08052018, RB400_08052018,	NEL-ENV-BH008_08052018, QC6000_08052018, FB400_08052018	08-May-2018	11-May-2018	04-Nov-2018	✔	14-May-2018	04-Nov-2018	✔
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE (no PTFE) (EP231X-LL) NEL-ENV-BH024_08052018, QC5000_08052018, RB400_08052018,	NEL-ENV-BH008_08052018, QC6000_08052018, FB400_08052018	08-May-2018	11-May-2018	04-Nov-2018	✔	14-May-2018	04-Nov-2018	✔
EP231P: PFAS Sums								
HDPE (no PTFE) (EP231X-LL) NEL-ENV-BH024_08052018, QC5000_08052018, RB400_08052018,	NEL-ENV-BH008_08052018, QC6000_08052018, FB400_08052018	08-May-2018	11-May-2018	04-Nov-2018	✔	14-May-2018	04-Nov-2018	✔



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Alkalinity by PC Titrator	ED037-P	2	20	10.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	2	14	14.29	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	4	39	10.26	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Conductivity by PC Titrator	EA010-P	2	20	10.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	2	20	10.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	20	10.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Fluoride by PC Titrator	EK040P	1	6	16.67	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	4	40	10.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	20	10.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	4	30	13.33	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS by LCMSMS	EP231X-LL	2	19	10.53	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	6	0.00	10.00	✖	NEPM 2013 B3 & ALS QC Standard
pH by PC Titrator	EA005-P	4	39	10.26	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	6	0.00	10.00	✖	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	15	13.33	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	0	6	0.00	10.00	✖	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	4	39	10.26	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	20	10.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	10.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	20	10.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	20	10.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	6	0.00	10.00	✖	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	10.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	8	12.50	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Alkalinity by PC Titrator	ED037-P	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	1	14	7.14	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	4	39	10.26	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Conductivity by PC Titrator	EA010-P	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Fluoride by PC Titrator	EK040P	1	6	16.67	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	40	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	2	30	6.67	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS by LCMSMS	EP231X-LL	1	19	5.26	5.00	✔	NEPM 2013 B3 & ALS QC Standard



Matrix: **WATER**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)		Quality Control Specification	
Analytical Methods	Method	QC	Regular	Actual	Expected		Evaluation
Laboratory Control Samples (LCS) - Continued							
Pesticides by GCMS	EP068	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	15	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	4	39	10.26	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	8	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Ammonia as N by Discrete analyser	EK055G	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	39	5.13	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by PC Titrator	EA010-P	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Fluoride by PC Titrator	EK040P	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	2	30	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS by LCMSMS	EP231X-LL	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	15	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	39	5.13	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	8	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	39	5.13	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard



Matrix: **WATER**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Matrix Spikes (MS) - Continued							
Fluoride by PC Titrator	EK040P	1	6	16.67	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	2	30	6.67	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS by LCMSMS	EP231X-LL	1	19	5.26	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	6	0.00	5.00	✖	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	6	0.00	5.00	✖	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	15	6.67	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	0	6	0.00	5.00	✖	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	39	5.13	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	6	0.00	5.00	✖	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	8	12.50	5.00	✔	NEPM 2013 B3 & ALS QC Standard



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH by PC Titrator	EA005-P	WATER	In house: Referenced to APHA 4500 H+ B. This procedure determines pH of water samples by automated ISE. This method is compliant with NEPM (2013) Schedule B(3)
Conductivity by PC Titrator	EA010-P	WATER	In house: Referenced to APHA 2510 B. This procedure determines conductivity by automated ISE. This method is compliant with NEPM (2013) Schedule B(3)
Calculated TDS (from Electrical Conductivity)	EA016	WATER	In house: Calculation from Electrical Conductivity (APHA 2510 B) using a conversion factor specified in the analytical report. This method is compliant with NEPM (2013) Schedule B(3)
Alkalinity by PC Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM (2013) Schedule B(3)
Sulfate (Turbidimetric) as SO ₄ ²⁻ by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO ₄ . Dissolved sulfate is determined in a 0.45µm filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO ₄ suspension is measured by a photometer and the SO ₄ ²⁻ concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM (2013) Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G. The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocyanate forms highly-coloured ferric thiocyanate which is measured at 480 nm APHA 21st edition seal method 2 017-1-L april 2003
Major Cations - Dissolved	ED093F	WATER	In house: Referenced to APHA 3120 and 3125; USEPA SW 846 - 6010 and 6020; Cations are determined by either ICP-AES or ICP-MS techniques. This method is compliant with NEPM (2013) Schedule B(3) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM (2013) Schedule B(3) Hardness parameters are calculated based on APHA 2340 B. This method is compliant with NEPM (2013) Schedule B(3)
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.



Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) Samples are 0.45µm filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Fluoride by PC Titrator	EK040P	WATER	In house: Referenced to APHA 4500-F C: CDTA is added to the sample to provide a uniform ionic strength background, adjust pH, and break up complexes. Fluoride concentration is determined by either manual or automatic ISE measurement. This method is compliant with NEPM (2013) Schedule B(3)
Ammonia as N by Discrete analyser	EK055G	WATER	In house: Referenced to APHA 4500-NH ₃ G Ammonia is determined by direct colorimetry by Discrete Analyser. This method is compliant with NEPM (2013) Schedule B(3)
Nitrite as N by Discrete Analyser	EK057G	WATER	In house: Referenced to APHA 4500-NO ₂ - B. Nitrite is determined by direct colourimetry by Discrete Analyser. This method is compliant with NEPM (2013) Schedule B(3)
Nitrate as N by Discrete Analyser	EK058G	WATER	In house: Referenced to APHA 4500-NO ₃ - F. Nitrate is reduced to nitrite by way of a chemical reduction followed by quantification by Discrete Analyser. Nitrite is determined separately by direct colourimetry and result for Nitrate calculated as the difference between the two results. This method is compliant with NEPM (2013) Schedule B(3)
Nitrite and Nitrate as N (NO _x) by Discrete Analyser	EK059G	WATER	In house: Referenced to APHA 4500-NO ₃ - F. Combined oxidised Nitrogen (NO ₂ +NO ₃) is determined by Chemical Reduction and direct colourimetry by Discrete Analyser. This method is compliant with NEPM (2013) Schedule B(3)
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	WATER	In house: Referenced to APHA 4500-Norg D (In house). An aliquot of sample is digested using a high temperature Kjeldahl digestion to convert nitrogenous compounds to ammonia. Ammonia is determined colorimetrically by discrete analyser. This method is compliant with NEPM (2013) Schedule B(3)
Total Nitrogen as N (TKN + Nox) By Discrete Analyser	EK062G	WATER	In house: Referenced to APHA 4500-Norg / 4500-NO ₃ -. This method is compliant with NEPM (2013) Schedule B(3)
Total Phosphorus as P By Discrete Analyser	EK067G	WATER	In house: Referenced to APHA 4500-P H, Jirka et al (1976), Zhang et al (2006). This procedure involves sulphuric acid digestion of a sample aliquot to break phosphorus down to orthophosphate. The orthophosphate reacts with ammonium molybdate and antimony potassium tartrate to form a complex which is then reduced and its concentration measured at 880nm using discrete analyser. This method is compliant with NEPM (2013) Schedule B(3)
Reactive Phosphorus as P-By Discrete Analyser	EK071G	WATER	In house: Referenced to APHA 4500-P F Ammonium molybdate and potassium antimonyl tartrate reacts in acid medium with orthophosphate to form a heteropoly acid -phosphomolybdic acid - which is reduced to intensely coloured molybdenum blue by ascorbic acid. Quantification is by Discrete Analyser. This method is compliant with NEPM (2013) Schedule B(3)
Ionic Balance by PCT DA and Turbi SO4 DA	EN055 - PG	WATER	In house: Referenced to APHA 1030F. This method is compliant with NEPM (2013) Schedule B(3)



Analytical Methods	Method	Matrix	Method Descriptions
Polychlorinated Biphenyls (PCB)	EP066	WATER	In house: Referenced to USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Pesticides by GCMS	EP068	WATER	In house: Referenced to USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)
Volatile Organic Compounds	EP074	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Semivolatile Organic Compounds	EP075	WATER	In house: Referenced to USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)
Per- and Polyfluoroalkyl Substances (PFAS by LCMSMS)	EP231X-LL	WATER	In-house: Analysis of fresh and saline waters by solid phase extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM. Where commercially available, isotopically labelled analogues of the target analytes are used as internal standards for quantification. Where a labelled analogue is not commercially available, the internal standard with similar chemistry and the closest retention time to the target is used for quantification. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. This method complies with the quality control definitions as stated in QSM 5.1. Data is reviewed in line with the DQOs as stated in QSM5.1
Sulphate Reducing Bacteria (BART)	MM669	WATER	Specialist microbiological analysis subcontracted to ALS Scoresby (NATA accreditation does not cover this service).
Preparation Methods	Method	Matrix	Method Descriptions
TKN/TP Digestion	EK061/EK067	WATER	In house: Referenced to APHA 4500 Norg - D; APHA 4500 P - H. This method is compliant with NEPM (2013) Schedule B(3)
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
SPE preparation for LL and saline PFCs	EP231-SPE	WATER	In house
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

CERTIFICATE OF ANALYSIS

Work Order : **EM1807669**
Client : **GHD PTY LTD**
Contact : **KORY AUCH**
Address : **LEVEL 8, 180 LONSDALE ST**
MELBOURNE VIC, AUSTRALIA 3001
Telephone : **----**
Project : **31350060910**
Order number : **----**
C-O-C number : **----**
Sampler : **KORY AUCH**
Site : **----**
Quote number : **ME/124/18 - North East Link**
No. of samples received : **4**
No. of samples analysed : **4**

Page : 1 of 16
Laboratory : Environmental Division Melbourne
Contact : Shirley LeCornu
Address : 4 Westall Rd Springvale VIC Australia 3171
Telephone : +61-3-8549 9630
Date Samples Received : 10-May-2018 11:45
Date Analysis Commenced : 10-May-2018
Issue Date : 22-May-2018 15:37



Accreditation No. 825
 Accredited for compliance with
 ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC
Zachary Chataway	Laboratory Manager	WRG Subcontracting, Springvale, VIC



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

ø = ALS is not NATA accredited for these tests.

~ = Indicates an estimated value.

- EA010-P: EM1807669 #2,3. Conductivity has been confirmed via re-analysis
- EK071G EM1807669 #3 reactive phosphorus result has been confirmed by re-preparation and re-analysis.
- EA010-P: Electrical Conductivity @ 25°C was analysed by manual method (EA010).
- EA010-P: Electrical Conductivity @ 25°C was analysed by manual method (EA010).
- SRB (MM669) is conducted by ALS Scoresby NATA accreditation no. 992, site no. 989. NATA accreditation does not cover performance of this method.
- ED045G: Results for EM1807669-003 have been confirmed by re-preparation and re-analysis.
- EK057G: Results for EM1807669-002 and 003 have been confirmed by re-preparation and re-analysis.
- Ionic balances were calculated using: major anions - chloride, alkalinity and sulfate; and major cations - calcium, magnesium, potassium and sodium.
- ED045G: The presence of thiocyanate can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.
- EK055G: EM1807670 #3 Poor duplicate precision for ammonia due to sample heterogeneity. This has been confirmed by re-preparation and re-analysis.
- EP075: 'Sum of PAH' is the sum of the USEPA 16 priority PAHs
- EA016: Calculated TDS is determined from Electrical conductivity using a conversion factor of 0.65.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a,h)anthracene (1.0), Benzo(g,h,i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Client sample ID

				NEL-ENV-BH025_0905 2018	RB401_09052018	FB401_09052018	TB401_09052018	----
Client sampling date / time				09-May-2018 14:40	09-May-2018 14:00	09-May-2018 14:00	09-May-2018 14:00	----
Compound	CAS Number	LOR	Unit	EM1807669-001	EM1807669-002	EM1807669-003	EM1807669-004	-----
				Result	Result	Result	Result	----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	7.18	5.84	4.53	----	----
EA006: Sodium Adsorption Ratio (SAR)								
^ Sodium Adsorption Ratio	----	0.01	-	----	<0.01	<0.01	----	----
^ Sodium Adsorption Ratio	----	0.01	-	39.5	----	----	----	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	11200	2	<1	----	----
EA016: Calculated TDS (from Electrical Conductivity)								
Total Dissolved Solids (Calc.)	----	1	mg/L	7280	1	<1	----	----
EA065: Total Hardness as CaCO3								
Total Hardness as CaCO3	----	1	mg/L	583	<1	<1	----	----
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	<1	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	1150	2	<1	----	----
Total Alkalinity as CaCO3	----	1	mg/L	1150	2	<1	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	120	<1	<1	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	3350	<1	2	----	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	24	<1	<1	----	----
Magnesium	7439-95-4	1	mg/L	127	<1	<1	----	----
Sodium	7440-23-5	1	mg/L	2190	<1	<1	----	----
Potassium	7440-09-7	1	mg/L	53	<1	<1	----	----
EG020F: Dissolved Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	0.002	----	----	----	----
Boron	7440-42-8	0.05	mg/L	0.24	----	----	----	----
Barium	7440-39-3	0.001	mg/L	0.090	----	----	----	----
Beryllium	7440-41-7	0.001	mg/L	<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	----	----	----	----
Cobalt	7440-48-4	0.001	mg/L	0.005	----	----	----	----
Chromium	7440-47-3	0.001	mg/L	0.004	----	----	----	----
Copper	7440-50-8	0.001	mg/L	0.013	----	----	----	----



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Client sample ID

				NEL-ENV-BH025_0905 2018	RB401_09052018	FB401_09052018	TB401_09052018	----
Client sampling date / time				09-May-2018 14:40	09-May-2018 14:00	09-May-2018 14:00	09-May-2018 14:00	----
Compound	CAS Number	LOR	Unit	EM1807669-001	EM1807669-002	EM1807669-003	EM1807669-004	-----
				Result	Result	Result	Result	----
EG020F: Dissolved Metals by ICP-MS - Continued								
Manganese	7439-96-5	0.001	mg/L	0.067	----	----	----	----
Nickel	7440-02-0	0.001	mg/L	0.051	----	----	----	----
Lead	7439-92-1	0.001	mg/L	0.001	----	----	----	----
Selenium	7782-49-2	0.01	mg/L	0.01	----	----	----	----
Vanadium	7440-62-2	0.01	mg/L	0.02	----	----	----	----
Zinc	7440-66-6	0.005	mg/L	0.034	----	----	----	----
EG020T: Total Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	----	<0.001	<0.001	----	----
Boron	7440-42-8	0.05	mg/L	----	<0.05	<0.05	----	----
Barium	7440-39-3	0.001	mg/L	----	<0.001	<0.001	----	----
Beryllium	7440-41-7	0.001	mg/L	----	<0.001	<0.001	----	----
Cadmium	7440-43-9	0.0001	mg/L	----	<0.0001	<0.0001	----	----
Cobalt	7440-48-4	0.001	mg/L	----	<0.001	<0.001	----	----
Chromium	7440-47-3	0.001	mg/L	----	<0.001	<0.001	----	----
Copper	7440-50-8	0.001	mg/L	----	<0.001	<0.001	----	----
Manganese	7439-96-5	0.001	mg/L	----	<0.001	<0.001	----	----
Nickel	7440-02-0	0.001	mg/L	----	<0.001	<0.001	----	----
Lead	7439-92-1	0.001	mg/L	----	<0.001	<0.001	----	----
Selenium	7782-49-2	0.01	mg/L	----	<0.01	<0.01	----	----
Vanadium	7440-62-2	0.01	mg/L	----	<0.01	<0.01	----	----
Zinc	7440-66-6	0.005	mg/L	----	<0.005	<0.005	----	----
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	----	<0.0001	<0.0001	----	----
EK040P: Fluoride by PC Titrator								
Fluoride	16984-48-8	0.1	mg/L	0.4	<0.1	<0.1	----	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	0.11	<0.01	<0.01	----	----
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	0.01	<0.01	<0.01	----	----
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	0.78	<0.01	<0.01	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	NEL-ENV-BH025_0905 2018	RB401_09052018	FB401_09052018	TB401_09052018	----
Client sampling date / time					09-May-2018 14:40	09-May-2018 14:00	09-May-2018 14:00	09-May-2018 14:00	----
Compound	CAS Number	LOR	Unit		EM1807669-001	EM1807669-002	EM1807669-003	EM1807669-004	-----
				Result	Result	Result	Result	Result	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		0.79	<0.01	<0.01	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L		0.6	<0.1	<0.1	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L		1.4	<0.1	<0.1	----	----
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L		0.18	<0.01	<0.01	----	----
EK071G: Reactive Phosphorus as P by discrete analyser									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L		0.02	<0.01	0.02	----	----
EN055: Ionic Balance									
Total Anions	----	0.01	meq/L		120	0.04	0.06	----	----
Total Cations	----	0.01	meq/L		108	<0.01	<0.01	----	----
Ionic Balance	----	0.01	%		5.13	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	1	µg/L		<1	<1	<1	----	----
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.5	µg/L		<0.5	<0.5	<0.5	----	----
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L		<0.5	<0.5	<0.5	----	----
beta-BHC	319-85-7	0.5	µg/L		<0.5	<0.5	<0.5	----	----
gamma-BHC	58-89-9	0.5	µg/L		<0.5	<0.5	<0.5	----	----
delta-BHC	319-86-8	0.5	µg/L		<0.5	<0.5	<0.5	----	----
Heptachlor	76-44-8	0.5	µg/L		<0.5	<0.5	<0.5	----	----
Aldrin	309-00-2	0.5	µg/L		<0.5	<0.5	<0.5	----	----
Heptachlor epoxide	1024-57-3	0.5	µg/L		<0.5	<0.5	<0.5	----	----
trans-Chlordane	5103-74-2	0.5	µg/L		<0.5	<0.5	<0.5	----	----
alpha-Endosulfan	959-98-8	0.5	µg/L		<0.5	<0.5	<0.5	----	----
cis-Chlordane	5103-71-9	0.5	µg/L		<0.5	<0.5	<0.5	----	----
Dieldrin	60-57-1	0.5	µg/L		<0.5	<0.5	<0.5	----	----
4,4'-DDE	72-55-9	0.5	µg/L		<0.5	<0.5	<0.5	----	----
Endrin	72-20-8	0.5	µg/L		<0.5	<0.5	<0.5	----	----
beta-Endosulfan	33213-65-9	0.5	µg/L		<0.5	<0.5	<0.5	----	----
4,4'-DDD	72-54-8	0.5	µg/L		<0.5	<0.5	<0.5	----	----
Endrin aldehyde	7421-93-4	0.5	µg/L		<0.5	<0.5	<0.5	----	----
Endosulfan sulfate	1031-07-8	0.5	µg/L		<0.5	<0.5	<0.5	----	----



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Client sample ID

				NEL-ENV-BH025_0905 2018	RB401_09052018	FB401_09052018	TB401_09052018	----
Client sampling date / time				09-May-2018 14:40	09-May-2018 14:00	09-May-2018 14:00	09-May-2018 14:00	----
Compound	CAS Number	LOR	Unit	EM1807669-001	EM1807669-002	EM1807669-003	EM1807669-004	-----
				Result	Result	Result	Result	----
EP068A: Organochlorine Pesticides (OC) - Continued								
4,4'-DDT	50-29-3	2.0	µg/L	<2.0	<2.0	<2.0	----	----
Endrin ketone	53494-70-5	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Methoxychlor	72-43-5	2.0	µg/L	<2.0	<2.0	<2.0	----	----
^ Total Chlordane (sum)	----	0.5	µg/L	<0.5	<0.5	<0.5	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/5 0-2	0.5	µg/L	<0.5	<0.5	<0.5	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.5	µg/L	<0.5	<0.5	<0.5	----	----
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Monocrotophos	6923-22-4	2.0	µg/L	<2.0	<2.0	<2.0	----	----
Dimethoate	60-51-5	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Diazinon	333-41-5	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Parathion-methyl	298-00-0	2.0	µg/L	<2.0	<2.0	<2.0	----	----
Malathion	121-75-5	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Fenthion	55-38-9	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Parathion	56-38-2	2.0	µg/L	<2.0	<2.0	<2.0	----	----
Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Fenamiphos	22224-92-6	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Prothiofos	34643-46-4	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Ethion	563-12-2	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Carbophenothion	786-19-6	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	<0.5	<0.5	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	5	µg/L	<5	<5	<5	----	----
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	<5	----	----
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	<5	----	----
1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	<5	----	----
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	<5	----	----
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	<5	----	----



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Client sample ID

				NEL-ENV-BH025_0905 2018	RB401_09052018	FB401_09052018	TB401_09052018	----
Client sampling date / time				09-May-2018 14:40	09-May-2018 14:00	09-May-2018 14:00	09-May-2018 14:00	----
Compound	CAS Number	LOR	Unit	EM1807669-001	EM1807669-002	EM1807669-003	EM1807669-004	-----
				Result	Result	Result	Result	----
EP074A: Monocyclic Aromatic Hydrocarbons - Continued								
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	<5	----	----
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	<5	----	----
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	<5	----	----
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	<50	----	----
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	<50	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	<50	----	----
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	<50	----	----
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	<5	----	----
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	<5	----	----
1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	<5	----	----
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	<5	----	----
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	<5	----	----
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	<5	----	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	<50	----	----
Chloromethane	74-87-3	50	µg/L	<50	<50	<50	----	----
Vinyl chloride	75-01-4	50	µg/L	<50	<50	<50	----	----
Bromomethane	74-83-9	50	µg/L	<50	<50	<50	----	----
Chloroethane	75-00-3	50	µg/L	<50	<50	<50	----	----
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	<50	----	----
1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	<5	----	----
Iodomethane	74-88-4	5	µg/L	<5	<5	<5	----	----
trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	<5	----	----
1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	<5	----	----
cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	<5	----	----
1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	<5	----	----
1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	<5	----	----
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	<5	----	----
1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	<5	----	----
Trichloroethene	79-01-6	5	µg/L	<5	<5	<5	----	----
Dibromomethane	74-95-3	5	µg/L	<5	<5	<5	----	----



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Client sample ID

				NEL-ENV-BH025_0905 2018	RB401_09052018	FB401_09052018	TB401_09052018	----
Client sampling date / time				09-May-2018 14:40	09-May-2018 14:00	09-May-2018 14:00	09-May-2018 14:00	----
Compound	CAS Number	LOR	Unit	EM1807669-001	EM1807669-002	EM1807669-003	EM1807669-004	-----
				Result	Result	Result	Result	----
EP074E: Halogenated Aliphatic Compounds - Continued								
1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	<5	----	----
1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	<5	----	----
Tetrachloroethene	127-18-4	5	µg/L	382	<5	<5	----	----
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	<5	----	----
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	<5	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	<5	----	----
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	<5	----	----
1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	<5	----	----
Pentachloroethane	76-01-7	5	µg/L	<5	<5	<5	----	----
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	<5	----	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	<5	----	----
Bromobenzene	108-86-1	5	µg/L	<5	<5	<5	----	----
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	<5	----	----
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	<5	----	----
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	<5	----	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	<5	----	----
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	<5	----	----
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	<5	----	----
Bromoform	75-25-2	5	µg/L	<5	<5	<5	----	----
EP075A: Phenolic Compounds								
Phenol	108-95-2	2	µg/L	<2	<2	<2	----	----
2-Chlorophenol	95-57-8	2	µg/L	<2	<2	<2	----	----
2-Methylphenol	95-48-7	2	µg/L	<2	<2	<2	----	----
3- & 4-Methylphenol	1319-77-3	4	µg/L	<4	<4	<4	----	----
2-Nitrophenol	88-75-5	2	µg/L	<2	<2	<2	----	----
2.4-Dimethylphenol	105-67-9	2	µg/L	<2	<2	<2	----	----
2.4-Dichlorophenol	120-83-2	2	µg/L	<2	<2	<2	----	----
2.6-Dichlorophenol	87-65-0	2	µg/L	<2	<2	<2	----	----
4-Chloro-3-methylphenol	59-50-7	2	µg/L	<2	<2	<2	----	----
2.4.6-Trichlorophenol	88-06-2	2	µg/L	<2	<2	<2	----	----
2.4.5-Trichlorophenol	95-95-4	2	µg/L	<2	<2	<2	----	----
Pentachlorophenol	87-86-5	4	µg/L	<4	<4	<4	----	----



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Client sample ID

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Client sampling date / time				09-May-2018 14:40	09-May-2018 14:00	09-May-2018 14:00	09-May-2018 14:00	----
Compound	CAS Number	LOR	Unit	EM1807669-001	EM1807669-002	EM1807669-003	EM1807669-004	-----
				Result	Result	Result	Result	----
EP075B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	2	µg/L	<2	<2	<2	----	----
2-Methylnaphthalene	91-57-6	2	µg/L	<2	<2	<2	----	----
2-Chloronaphthalene	91-58-7	2	µg/L	<2	<2	<2	----	----
Acenaphthylene	208-96-8	2	µg/L	<2	<2	<2	----	----
Acenaphthene	83-32-9	2	µg/L	<2	<2	<2	----	----
Fluorene	86-73-7	2	µg/L	<2	<2	<2	----	----
Phenanthrene	85-01-8	2	µg/L	<2	<2	<2	----	----
Anthracene	120-12-7	2	µg/L	<2	<2	<2	----	----
Fluoranthene	206-44-0	2	µg/L	<2	<2	<2	----	----
Pyrene	129-00-0	2	µg/L	<2	<2	<2	----	----
N-2-Fluorenyl Acetamide	53-96-3	2	µg/L	<2	<2	<2	----	----
Benz(a)anthracene	56-55-3	2	µg/L	<2	<2	<2	----	----
Chrysene	218-01-9	2	µg/L	<2	<2	<2	----	----
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	4	µg/L	<4	<4	<4	----	----
7.12-Dimethylbenz(a)anthracene	57-97-6	2	µg/L	<2	<2	<2	----	----
Benzo(a)pyrene	50-32-8	2	µg/L	<2	<2	<2	----	----
3-Methylcholanthrene	56-49-5	2	µg/L	<2	<2	<2	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	2	µg/L	<2	<2	<2	----	----
Dibenz(a,h)anthracene	53-70-3	2	µg/L	<2	<2	<2	----	----
Benzo(g,h,i)perylene	191-24-2	2	µg/L	<2	<2	<2	----	----
^ Sum of PAHs	----	2	µg/L	<2	<2	<2	----	----
^ Benzo(a)pyrene TEQ (zero)	----	2	µg/L	<2	<2	<2	----	----
EP075C: Phthalate Esters								
Dimethyl phthalate	131-11-3	2	µg/L	<2	<2	<2	----	----
Diethyl phthalate	84-66-2	2	µg/L	<2	<2	<2	----	----
Di-n-butyl phthalate	84-74-2	2	µg/L	<2	<2	<2	----	----
Butyl benzyl phthalate	85-68-7	2	µg/L	<2	<2	<2	----	----
bis(2-ethylhexyl) phthalate	117-81-7	10	µg/L	<10	<10	<10	----	----
Di-n-octylphthalate	117-84-0	2	µg/L	<2	<2	<2	----	----
EP075D: Nitrosamines								
N-Nitrosomethylethylamine	10595-95-6	2	µg/L	<2	<2	<2	----	----
N-Nitrosodiethylamine	55-18-5	2	µg/L	<2	<2	<2	----	----
N-Nitrosopyrrolidine	930-55-2	4	µg/L	<4	<4	<4	----	----



Analytical Results

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 (Matrix: WATER)

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Client sampling date / time				09-May-2018 14:40	09-May-2018 14:00	09-May-2018 14:00	09-May-2018 14:00	----
Compound	CAS Number	LOR	Unit	EM1807669-001	EM1807669-002	EM1807669-003	EM1807669-004	-----
				Result	Result	Result	Result	----
EP075D: Nitrosamines - Continued								
N-Nitrosomorpholine	59-89-2	2	µg/L	<2	<2	<2	----	----
N-Nitrosodi-n-propylamine	621-64-7	2	µg/L	<2	<2	<2	----	----
N-Nitrosopiperidine	100-75-4	2	µg/L	<2	<2	<2	----	----
N-Nitrosodibutylamine	924-16-3	2	µg/L	<2	<2	<2	----	----
N-Nitrosodiphenyl & Diphenylamine	86-30-6 122-39-4	4	µg/L	<4	<4	<4	----	----
Methapyrilene	91-80-5	2	µg/L	<2	<2	<2	----	----
EP075E: Nitroaromatics and Ketones								
2-Picoline	109-06-8	2	µg/L	<2	<2	<2	----	----
Acetophenone	98-86-2	2	µg/L	<2	<2	<2	----	----
Nitrobenzene	98-95-3	2	µg/L	<2	<2	<2	----	----
Isophorone	78-59-1	2	µg/L	<2	<2	<2	----	----
2,6-Dinitrotoluene	606-20-2	4	µg/L	<4	<4	<4	----	----
2,4-Dinitrotoluene	121-14-2	4	µg/L	<4	<4	<4	----	----
1-Naphthylamine	134-32-7	2	µg/L	<2	<2	<2	----	----
4-Nitroquinoline-N-oxide	56-57-5	2	µg/L	<2	<2	<2	----	----
5-Nitro-o-toluidine	99-55-8	2	µg/L	<2	<2	<2	----	----
Azobenzene	103-33-3	2	µg/L	<2	<2	<2	----	----
1,3,5-Trinitrobenzene	99-35-4	2	µg/L	<2	<2	<2	----	----
Phenacetin	62-44-2	2	µg/L	<2	<2	<2	----	----
4-Aminobiphenyl	92-67-1	2	µg/L	<2	<2	<2	----	----
Pentachloronitrobenzene	82-68-8	2	µg/L	<2	<2	<2	----	----
Pronamide	23950-58-5	2	µg/L	<2	<2	<2	----	----
Dimethylaminoazobenzene	60-11-7	2	µg/L	<2	<2	<2	----	----
Chlorobenzilate	510-15-6	2	µg/L	<2	<2	<2	----	----
EP075F: Haloethers								
Bis(2-chloroethyl) ether	111-44-4	2	µg/L	<2	<2	<2	----	----
Bis(2-chloroethoxy) methane	111-91-1	2	µg/L	<2	<2	<2	----	----
4-Chlorophenyl phenyl ether	7005-72-3	2	µg/L	<2	<2	<2	----	----
4-Bromophenyl phenyl ether	101-55-3	2	µg/L	<2	<2	<2	----	----
EP075G: Chlorinated Hydrocarbons								
1,3-Dichlorobenzene	541-73-1	2	µg/L	<2	<2	<2	----	----
1,4-Dichlorobenzene	106-46-7	2	µg/L	<2	<2	<2	----	----
1,2-Dichlorobenzene	95-50-1	2	µg/L	<2	<2	<2	----	----



Analytical Results

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 (Matrix: WATER)

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Client sampling date / time				09-May-2018 14:40	09-May-2018 14:00	09-May-2018 14:00	09-May-2018 14:00	----
Compound	CAS Number	LOR	Unit	EM1807669-001	EM1807669-002	EM1807669-003	EM1807669-004	-----
				Result	Result	Result	Result	----
EP075G: Chlorinated Hydrocarbons - Continued								
Hexachloroethane	67-72-1	2	µg/L	<2	<2	<2	----	----
1,2,4-Trichlorobenzene	120-82-1	2	µg/L	<2	<2	<2	----	----
Hexachloropropylene	1888-71-7	2	µg/L	<2	<2	<2	----	----
Hexachlorobutadiene	87-68-3	2	µg/L	<2	<2	<2	----	----
Hexachlorocyclopentadiene	77-47-4	10	µg/L	<10	<10	<10	----	----
Pentachlorobenzene	608-93-5	2	µg/L	<2	<2	<2	----	----
Hexachlorobenzene (HCB)	118-74-1	4	µg/L	<4	<4	<4	----	----
EP075H: Anilines and Benzidines								
Aniline	62-53-3	2	µg/L	<2	<2	<2	----	----
4-Chloroaniline	106-47-8	2	µg/L	<2	<2	<2	----	----
2-Nitroaniline	88-74-4	4	µg/L	<4	<4	<4	----	----
3-Nitroaniline	99-09-2	4	µg/L	<4	<4	<4	----	----
Dibenzofuran	132-64-9	2	µg/L	<2	<2	<2	----	----
4-Nitroaniline	100-01-6	2	µg/L	<2	<2	<2	----	----
Carbazole	86-74-8	2	µg/L	<2	<2	<2	----	----
3,3'-Dichlorobenzidine	91-94-1	2	µg/L	<2	<2	<2	----	----
EP075I: Organochlorine Pesticides								
alpha-BHC	319-84-6	2	µg/L	<2	<2	<2	----	----
beta-BHC	319-85-7	2	µg/L	<2	<2	<2	----	----
gamma-BHC	58-89-9	2	µg/L	<2	<2	<2	----	----
delta-BHC	319-86-8	2	µg/L	<2	<2	<2	----	----
Heptachlor	76-44-8	2	µg/L	<2	<2	<2	----	----
Aldrin	309-00-2	2	µg/L	<2	<2	<2	----	----
Heptachlor epoxide	1024-57-3	2	µg/L	<2	<2	<2	----	----
alpha-Endosulfan	959-98-8	2	µg/L	<2	<2	<2	----	----
4,4'-DDE	72-55-9	2	µg/L	<2	<2	<2	----	----
Dieldrin	60-57-1	2	µg/L	<2	<2	<2	----	----
Endrin	72-20-8	2	µg/L	<2	<2	<2	----	----
beta-Endosulfan	33213-65-9	2	µg/L	<2	<2	<2	----	----
4,4'-DDD	72-54-8	2	µg/L	<2	<2	<2	----	----
Endosulfan sulfate	1031-07-8	2	µg/L	<2	<2	<2	----	----
4,4'-DDT	50-29-3	4	µg/L	<4	<4	<4	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	4	µg/L	<4	<4	<4	----	----



Analytical Results

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 (Matrix: WATER)

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Client sampling date / time				09-May-2018 14:40	09-May-2018 14:00	09-May-2018 14:00	09-May-2018 14:00	----
Compound	CAS Number	LOR	Unit	EM1807669-001	EM1807669-002	EM1807669-003	EM1807669-004	-----
				Result	Result	Result	Result	----
EP075I: Organochlorine Pesticides - Continued								
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/5 0-2	4	µg/L	<4	<4	<4	----	----
EP075J: Organophosphorus Pesticides								
Dichlorvos	62-73-7	2	µg/L	<2	<2	<2	----	----
Dimethoate	60-51-5	2	µg/L	<2	<2	<2	----	----
Diazinon	333-41-5	2	µg/L	<2	<2	<2	----	----
Chlorpyrifos-methyl	5598-13-0	2	µg/L	<2	<2	<2	----	----
Malathion	121-75-5	2	µg/L	<2	<2	<2	----	----
Fenthion	55-38-9	2	µg/L	<2	<2	<2	----	----
Chlorpyrifos	2921-88-2	2	µg/L	<2	<2	<2	----	----
Pirimphos-ethyl	23505-41-1	2	µg/L	<2	<2	<2	----	----
Chlorfenvinphos	470-90-6	2	µg/L	<2	<2	<2	----	----
Prothiofos	34643-46-4	2	µg/L	<2	<2	<2	----	----
Ethion	563-12-2	2	µg/L	<2	<2	<2	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	380	<20	<20	<20	----
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	----	----
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	----	----
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	360	<20	<20	<20	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	360	<20	<20	<20	----
>C10 - C16 Fraction	----	100	µg/L	<100	<100	<100	----	----
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	----	----
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	----	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	----
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	----
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	----



Analytical Results

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Client sampling date / time				09-May-2018 14:40	09-May-2018 14:00	09-May-2018 14:00	09-May-2018 14:00	----
Compound	CAS Number	LOR	Unit	EM1807669-001	EM1807669-002	EM1807669-003	EM1807669-004	-----
				Result	Result	Result	Result	----
EP080: BTEXN - Continued								
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	----
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	----
^ Total Xylenes	----	2	µg/L	<2	<2	<2	<2	----
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	----
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	----
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.002	µg/L	<0.002	<0.002	<0.002	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.002	µg/L	<0.002	<0.002	<0.002	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.002	µg/L	<0.002	<0.002	<0.002	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.002	µg/L	<0.002	<0.002	<0.002	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.002	µg/L	<0.002	<0.002	<0.002	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.002	µg/L	<0.002	<0.002	<0.002	----	----
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.01	µg/L	<0.01	<0.01	<0.01	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.002	µg/L	<0.002	<0.002	<0.002	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.002	µg/L	<0.002	<0.002	<0.002	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.002	µg/L	<0.002	<0.002	<0.002	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.002	µg/L	<0.002	<0.002	<0.002	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.002	µg/L	<0.002	<0.002	<0.002	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.002	µg/L	<0.002	<0.002	<0.002	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.002	µg/L	<0.002	<0.002	<0.002	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.002	µg/L	<0.002	<0.002	<0.002	----	----
Perfluorotridecanoic acid (PFTTrDA)	72629-94-8	0.002	µg/L	<0.002	<0.002	<0.002	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.005	µg/L	<0.005	<0.005	<0.005	----	----

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	NEL-ENV-BH025_0905 2018	RB401_09052018	FB401_09052018	TB401_09052018	----
Client sampling date / time					09-May-2018 14:40	09-May-2018 14:00	09-May-2018 14:00	09-May-2018 14:00	----
Compound	CAS Number	LOR	Unit	EM1807669-001	EM1807669-002	EM1807669-003	EM1807669-004	-----	
				Result	Result	Result	Result	----	
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluorohexadecanoic acid (PFHxDA)	67905-19-5	0.005	µg/L	<0.005	<0.005	<0.005	----	----	
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.002	µg/L	<0.002	<0.002	<0.002	----	----	
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.005	µg/L	<0.005	<0.005	<0.005	----	----	
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.005	µg/L	<0.005	<0.005	<0.005	----	----	
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.005	µg/L	<0.005	<0.005	<0.005	----	----	
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.005	µg/L	<0.005	<0.005	<0.005	----	----	
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.002	µg/L	<0.002	<0.002	<0.002	----	----	
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.002	µg/L	<0.002	<0.002	<0.002	----	----	
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.005	µg/L	<0.005	<0.005	<0.005	----	----	
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.005	µg/L	<0.005	<0.005	<0.005	----	----	
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.005	µg/L	<0.005	<0.005	<0.005	----	----	
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.005	µg/L	<0.005	<0.005	<0.005	----	----	
EP231P: PFAS Sums									
Sum of PFAS	----	0.002	µg/L	<0.002	<0.002	<0.002	----	----	
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.002	µg/L	<0.002	<0.002	<0.002	----	----	
Sum of PFAS (WA DER List)	----	0.002	µg/L	<0.002	<0.002	<0.002	----	----	
MM669: Sulphate Reducing Bacteria									



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Client sample ID

				NEL-ENV-BH025_0905 2018	RB401_09052018	FB401_09052018	TB401_09052018	----
Client sampling date / time				09-May-2018 14:40	09-May-2018 14:00	09-May-2018 14:00	09-May-2018 14:00	----
Compound	CAS Number	LOR	Unit	EM1807669-001	EM1807669-002	EM1807669-003	EM1807669-004	-----
				Result	Result	Result	Result	----
MM669: Sulphate Reducing Bacteria - Continued								
Sulphate Reducing Bacteria Population Estimate	----	20	pac/mL	500000	<20	<20	----	----
Aggressivity	----	1	-	High	Not Aggressive	Not Aggressive	----	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	1	%	100	97.4	96.9	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.5	%	92.5	91.7	88.8	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.5	%	111	96.4	101	----	----
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	5	%	107	85.0	98.7	----	----
Toluene-D8	2037-26-5	5	%	117	87.7	102	----	----
4-Bromofluorobenzene	460-00-4	5	%	124	81.7	97.8	----	----
EP075S: Acid Extractable Surrogates								
2-Fluorophenol	367-12-4	2	%	89.8	85.9	79.9	----	----
Phenol-d6	13127-88-3	2	%	34.2	31.2	29.6	----	----
2-Chlorophenol-D4	93951-73-6	2	%	74.2	71.9	67.9	----	----
2,4,6-Tribromophenol	118-79-6	2	%	74.5	62.1	59.5	----	----
EP075T: Base/Neutral Extractable Surrogates								
Nitrobenzene-D5	4165-60-0	2	%	95.8	88.4	84.4	----	----
1,2-Dichlorobenzene-D4	2199-69-1	2	%	86.1	80.3	77.2	----	----
2-Fluorobiphenyl	321-60-8	2	%	89.6	84.5	81.6	----	----
Anthracene-d10	1719-06-8	2	%	93.1	87.6	86.7	----	----
4-Terphenyl-d14	1718-51-0	2	%	91.4	88.7	88.5	----	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	2	%	114	87.0	101	98.2	----
Toluene-D8	2037-26-5	2	%	115	87.7	95.5	90.4	----
4-Bromofluorobenzene	460-00-4	2	%	111	78.7	95.4	90.5	----
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.002	%	80.8	61.2	61.9	----	----
13C8-PFOA	----	0.002	%	73.3	62.1	63.4	----	----



Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	41	125
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	117
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	51	127
EP074S: VOC Surrogates			
1,2-Dichloroethane-D4	17060-07-0	72	132
Toluene-D8	2037-26-5	77	132
4-Bromofluorobenzene	460-00-4	67	131
EP075S: Acid Extractable Surrogates			
2-Fluorophenol	367-12-4	10	75
Phenol-d6	13127-88-3	10	65
2-Chlorophenol-D4	93951-73-6	21	103
2,4,6-Tribromophenol	118-79-6	22	120
EP075T: Base/Neutral Extractable Surrogates			
Nitrobenzene-D5	4165-60-0	24	116
1,2-Dichlorobenzene-D4	2199-69-1	23	99
2-Fluorobiphenyl	321-60-8	32	114
Anthracene-d10	1719-06-8	47	119
4-Terphenyl-d14	1718-51-0	44	124
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	73	129
Toluene-D8	2037-26-5	70	125
4-Bromofluorobenzene	460-00-4	71	129
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

CHAIN OF CUSTODY RECORD

GHD



GHD Melbourne
180 Lensdale Street, Melbourne 3000
Telephone: 613 8887 8000 Facsimile: 613 8887 8111

Environmental Division
Melbourne
Work Order Reference
EM1807669



Telephone : + 61-3-8549 9600

NOTE:
White copy on receipt and release of samples.
Samples are to be delivered to the Laboratory Address.
Split of samples, the laboratory contact to sign and fax/email to GHD Contact.

Job Number 31/35006/0910	GHD Office Melbourne	Laboratory: ALS Springvale
Project North East Link - Contamination		Address: 2 - 4 Westall Rd, Springvale
GHD Contact Kory Auch	Contact Email kory.auch@ghd.com	Lab Contact: Shirley LeComu
Standard TAT	Quote No./GHD Reference ME/124/18	

GHD Contact			Contact Email		Container										Anal																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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Sample ID			Date		Time		Composite Sample	Sample Name	Priority	Type	Volume (ml)	HOLD	Extended water suite (NT-14)	Sulfate Reducing Bacteria (MW017)	NEPM Metals Suite (W-3)	TRI(C6-C40)/BTEXN/PAH/Phenols (W-24)	OC/OP/PCB (W-13)	VOCs/SVOCs (W-23)	PFAS Full Suite Low Level (28 analytes)- (EP231X-LL)	TRI(C6-C10) and BTEXN (W-18)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											

- For QC4001, please send to Eurofins for equivalent primary analysis, including:
- pH;
- TDS
- EC
- F
- B19: Nutrients Suite: Total N, Total P, K;
- B15: OCP/ OPP/ PCB;
- B11A: Anion & Cation Screen #2: Na, K, Ca, Mg, Cl, SO4, CO3, HCO3, NH3, NO3, Total Alkalinity;
- B4A: RH/ BTEXN/ PAH/ Phenols;
- M13: NEPM2013 Metals (As, Be, B, Cd, Co, Cu, Hg, Pb, Ni, Mn, Se, Zn), Cr6+
- Sulfite Reducing Clostridia
- VOC/sVOC
- 20 PFCs including PFOA, PFOS and 6:2 FTS

Sampled by: Kory Auch / TS	Date/Time: 09/05/2018 @ 16:00	Relinquished by:	Date/Time:
Received by: Mark Davidson	Date/Time: 10/05/2018 11:45	Relinquished by:	Date/Time:
Received by Courier:	Date/Time:	Relinquished by:	Date/Time:
Received by Lab:	Date/Time:		
Remarks: Please CC reports and correspondence to Mark Davidson (mark.s.davidson@aecom.com) & Nazuha Rosli (nazuha.rosli@aecom.com)			

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : EM1807669

<p>Client : GHD PTY LTD</p> <p>Contact : KORY AUCH</p> <p>Address : LEVEL 8, 180 LONSDALE ST MELBOURNE VIC, AUSTRALIA 3001</p> <p>E-mail : kory.auch@ghd.com</p> <p>Telephone : ----</p> <p>Facsimile : ----</p> <p>Project : 31350060910</p> <p>Order number : ----</p> <p>C-O-C number : ----</p> <p>Site : ----</p> <p>Sampler : KORY AUCH</p>	<p>Laboratory : Environmental Division Melbourne</p> <p>Contact : Shirley LeCornu</p> <p>Address : 4 Westall Rd Springvale VIC Australia 3171</p> <p>E-mail : shirley.lecornu@Alsglobal.com</p> <p>Telephone : +61-3-8549 9630</p> <p>Facsimile : +61-3-8549 9626</p> <p>Page : 1 of 3</p> <p>Quote number : EM2018GHDSE0003 (ME/124/18 - North East Link)</p> <p>QC Level : NEPM 2013 B3 & ALS QC Standard</p>
--	--

Dates

Date Samples Received : 10-May-2018 11:45	Issue Date : 11-May-2018
Client Requested Due Date : 24-May-2018	Scheduled Reporting Date : 24-May-2018

Delivery Details

Mode of Delivery : Carrier	Security Seal : Intact.
No. of coolers/boxes : 1	Temperature : 3.2°C - Ice present
Receipt Detail :	No. of samples received / analysed : 4 / 4

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- **The scheduled reporting date has been extended due to the time required to analyse for Sulphate Reducing Bacteria.**
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **Analytical work for this work order will be conducted at ALS Springvale, ALS Scoresby and ALS Sydney.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**



Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

EM1807669-001 : 09-May-2018 14:40 : NEL-ENV-BH025_09052018

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EP231X-LL PFAS - Full Suite Low Level (29 analytes)	WATER - MM669 (Subcontracted) Sulphate Reducing Bacteria (BART)	WATER - NT-14 Extended Water Suite B	WATER - W-03 15 Metals (NEPM Suite)	WATER - W-04 TRH/BTEXN	WATER - W-13 OC/OP/PCB	WATER - W-23 SVOC/VOC
EM1807669-001	09-May-2018 14:40	NEL-ENV-BH025_090520...	✓	✓	✓	✓	✓	✓	✓
EM1807669-002	09-May-2018 14:00	RB401_09052018	✓	✓	✓		✓	✓	✓
EM1807669-003	09-May-2018 14:00	FB401_09052018	✓	✓	✓		✓	✓	✓

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-03T 15 Metals (Total) (NEPM)	WATER - W-18 TRH(C6 - C9)/BTEXN
EM1807669-002	09-May-2018 14:00	RB401_09052018	✓	
EM1807669-003	09-May-2018 14:00	FB401_09052018	✓	
EM1807669-004	09-May-2018 14:00	TB401_09052018		✓

Proactive Holding Time Report

The following table summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory.

Matrix: **WATER**

Evaluation: ✗ = Holding time breach ; ✓ = Within holding time.

Method	Container	Due for extraction	Due for analysis	Samples Received		Instructions Received	
				Date	Evaluation	Date	Evaluation
EA005-P: pH by PC Titrator							
FB401_09052018	Clear Plastic Bottle - Natural	----	09-May-2018	10-May-2018	✗	----	----
NEL-ENV-BH025_09	Clear Plastic Bottle - Natural	----	09-May-2018	10-May-2018	✗	----	----
RB401_09052018	Clear Plastic Bottle - Natural	----	09-May-2018	10-May-2018	✗	----	----

[illegible]

QUALITY CONTROL REPORT

Work Order : **EM1807669**

Page : 1 of 23

Client : **GHD PTY LTD**

Contact : **KORY AUCH**

Address : **LEVEL 8, 180 LONSDALE ST
MELBOURNE VIC, AUSTRALIA 3001**

Telephone : ----

Project : **31350060910**

Order number : ----

C-O-C number : ----

Sampler : **KORY AUCH**

Site : ----

Quote number : **ME/124/18 - North East Link**

No. of samples received : **4**

No. of samples analysed : **4**

Laboratory : **Environmental Division Melbourne**

Contact : **Shirley LeCornu**

Address : **4 Westall Rd Springvale VIC Australia 3171**

Telephone : **+61-3-8549 9630**

Date Samples Received : **10-May-2018**

Date Analysis Commenced : **10-May-2018**

Issue Date : **22-May-2018**



Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC
Zachary Chataway	Laboratory Manager	WRG Subcontracting, Springvale, VIC



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
 CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
 LOR = Limit of reporting
 RPD = Relative Percentage Difference
 # = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EA005P: pH by PC Titrator (QC Lot: 1636255)									
EM1807670-006	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	7.36	7.33	0.408	0% - 20%
EM1807672-002	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	8.07	8.04	0.372	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 1636254)									
EM1807643-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	415	415	0.00	0% - 20%
EM1807670-006	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	2960	2930	0.747	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 1636252)									
EM1807640-008	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.00	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.00	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	410	416	1.46	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	410	416	1.46	0% - 20%
EM1807647-008	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.00	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.00	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	404	407	0.922	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	404	407	0.922	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 1633475)									
EM1807549-007	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	65	66	2.54	0% - 20%
EM1807669-001	NEL-ENV-BH025_09052018	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	120	120	0.00	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 1633478)									
EM1807669-001	NEL-ENV-BH025_09052018	ED045G: Chloride	16887-00-6	1	mg/L	3350	3350	0.0573	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 1641037)									
EM1807667-001	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	18	19	0.00	0% - 50%
		ED093F: Magnesium	7439-95-4	1	mg/L	40	40	0.00	0% - 20%



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
ED093F: Dissolved Major Cations (QC Lot: 1641037) - continued									
EM1807667-001	Anonymous	ED093F: Sodium	7440-23-5	1	mg/L	317	319	0.609	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	16	15	0.00	0% - 50%
EM1807778-001	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	233	238	2.08	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	596	615	3.16	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	4480	4570	2.07	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	148	149	0.00	0% - 20%
EG020F: Dissolved Metals by ICP-MS (QC Lot: 1641039)									
EM1807790-004	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.004	0.004	0.00	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.024	0.023	6.95	0% - 20%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	0.001	<0.001	0.00	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.001	<0.001	0.00	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.001	0.001	0.00	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.002	0.002	0.00	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.00	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-F: Boron	7440-42-8	0.05	mg/L	4.61	4.14	10.7	0% - 20%
EM1807669-001	NEL-ENV-BH025_09052018	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.002	0.002	0.00	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.090	0.091	0.00	0% - 20%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	0.004	0.004	0.00	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	0.005	0.005	0.00	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.013	0.013	0.00	0% - 50%
		EG020A-F: Lead	7439-92-1	0.001	mg/L	0.001	0.001	0.00	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.067	0.066	1.86	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.051	0.050	0.00	0% - 20%
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.034	0.029	15.0	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	0.01	0.01	0.00	No Limit
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	0.02	0.02	0.00	No Limit
		EG020A-F: Boron	7440-42-8	0.05	mg/L	0.24	0.21	12.1	No Limit
EG020T: Total Metals by ICP-MS (QC Lot: 1636600)									
EM1806774-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.002	0.002	0.00	No Limit
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG020T: Total Metals by ICP-MS (QC Lot: 1636600) - continued									
EM1806774-001	Anonymous	EG020A-T: Barium	7440-39-3	0.001	mg/L	0.212	0.212	0.00	0% - 20%
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.001	0.001	0.00	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	0.009	0.009	0.00	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.007	0.007	0.00	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.113	0.114	0.00	0% - 20%
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.011	0.008	24.2	0% - 50%
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.012	0.013	0.00	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-T: Boron	7440-42-8	0.05	mg/L	0.16	0.16	0.00	No Limit
EM1807669-002	RB401_09052018	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.001	0.00	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.002	67.2	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.00	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.00	No Limit
		EG035F: Dissolved Mercury by FIMS (QC Lot: 1641038)							
EM1807669-001	NEL-ENV-BH025_09052018	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1637669)									
EM1807197-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EM1807452-002	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	0.0003	0.0003	0.00	No Limit
EK040P: Fluoride by PC Titrator (QC Lot: 1636256)									
EM1807670-006	Anonymous	EK040P: Fluoride	16984-48-8	0.1	mg/L	0.6	0.6	0.00	No Limit
EM1807672-002	Anonymous	EK040P: Fluoride	16984-48-8	0.1	mg/L	<0.1	<0.1	0.00	No Limit
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 1640062)									
EM1807573-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.05	0.05	0.00	No Limit
EM1807613-004	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	922	907	1.59	0% - 20%
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 1640065)									
EM1807670-003	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	59.4	# 45.0	27.6	0% - 20%

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 1640065) - continued									
EM1807670-014	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	232	227	1.97	0% - 20%
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 1633477)									
EM1807653-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	0.01	0.01	0.00	No Limit
EM1807669-001	NEL-ENV-BH025_09052018	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	0.01	0.02	0.00	No Limit
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 1640063)									
EM1807653-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.04	0.04	0.00	No Limit
EM1807670-003	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.01	<0.01	0.00	No Limit
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 1637016)									
EM1807640-007	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	1.1	1.4	21.6	0% - 50%
EM1807665-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	240	206	15.5	0% - 20%
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 1637017)									
EM1807665-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	1.01	7.83	154	No Limit
EM1807670-011	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	4.86	5.10	4.73	0% - 20%
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 1633474)									
EM1807549-001	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	33.8	35.4	4.46	0% - 20%
EM1807650-001	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	8390	9100	8.11	0% - 20%
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 1636132)									
EM1807669-001	NEL-ENV-BH025_09052018	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.00	No Limit
EM1807813-005	Anonymous	EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.00	No Limit
EP074B: Oxygenated Compounds (QC Lot: 1636132)									



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074B: Oxygenated Compounds (QC Lot: 1636132) - continued									
EM1807669-001	NEL-ENV-BH025_09052018	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.00	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.00	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.00	No Limit
EM1807813-005	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.00	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.00	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.00	No Limit
EP074C: Sulfonated Compounds (QC Lot: 1636132)									
EM1807669-001	NEL-ENV-BH025_09052018	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.00	No Limit
EM1807813-005	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.00	No Limit
EP074D: Fumigants (QC Lot: 1636132)									
EM1807669-001	NEL-ENV-BH025_09052018	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.00	No Limit
EM1807813-005	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.00	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 1636132)									
EM1807669-001	NEL-ENV-BH025_09052018	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.00	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.00	No Limit



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074E: Halogenated Aliphatic Compounds (QC Lot: 1636132) - continued									
EM1807669-001	NEL-ENV-BH025_09052018	EP074: Tetrachloroethene	127-18-4	5	µg/L	382	336	12.9	0% - 20%
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.00	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.00	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.00	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.00	No Limit
EM1807813-005	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.00	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.00	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.00	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.00	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.00	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074E: Halogenated Aliphatic Compounds (QC Lot: 1636132) - continued									
EM1807813-005	Anonymous	EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.00	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 1636132)									
EM1807669-001	NEL-ENV-BH025_09052018	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.00	No Limit
EM1807813-005	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.00	No Limit
EP074G: Trihalomethanes (QC Lot: 1636132)									
EM1807669-001	NEL-ENV-BH025_09052018	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.00	No Limit
EM1807813-005	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1636131)									
EM1807669-001	NEL-ENV-BH025_09052018	EP080: C6 - C9 Fraction	----	20	µg/L	380	370	3.54	0% - 50%
EM1807813-005	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1636131)									
EM1807669-001	NEL-ENV-BH025_09052018	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	360	360	0.00	0% - 50%
EM1807813-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 1636131)									
EM1807669-001	NEL-ENV-BH025_09052018	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080: BTEXN (QC Lot: 1636131) - continued									
EM1807669-001	NEL-ENV-BH025_09052018	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
EM1807813-005	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.00	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 1633601)									
ES1813511-001	Anonymous	EP231X-LL: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.002	µg/L	0.015	0.016	6.41	No Limit
		EP231X-LL: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.002	µg/L	<0.002	<0.002	0.00	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 1633601)									
ES1813511-001	Anonymous	EP231X-LL: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorohexanoic acid (PFHxA)	307-24-4	0.002	µg/L	0.003	0.003	0.00	No Limit
		EP231X-LL: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorooctanoic acid (PFOA)	335-67-1	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorononanoic acid (PFNA)	375-95-1	0.002	µg/L	0.003	0.003	0.00	No Limit
		EP231X-LL: Perfluorodecanoic acid (PFDA)	335-76-2	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: Perfluorobutanoic acid (PFBA)	375-22-4	0.01	µg/L	<0.01	<0.01	0.00	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 1633601)									
ES1813511-001	Anonymous	EP231X-LL: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.002	µg/L	<0.002	<0.002	0.00	No Limit

Page : 10 of 23
 Work Order : EM1807669
 Client : GHD PTY LTD
 Project : 31350060910



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 1633601) - continued									
ES1813511-001	Anonymous	EP231X-LL: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.005	µg/L	<0.005	<0.005	0.00	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 1633601)									
ES1813511-001	Anonymous	EP231X-LL: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.005	µg/L	<0.005	<0.005	0.00	No Limit



Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EA010P: Conductivity by PC Titrator (QCLot: 1636254)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	1412 µS/cm	104	85	119
ED037P: Alkalinity by PC Titrator (QCLot: 1636252)								
ED037-P: Total Alkalinity as CaCO3	----	----	mg/L	----	200 mg/L	98.6	88	109
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 1633475)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1 <1	25 mg/L 100 mg/L	93.2 98.2	92 92	115 115
ED045G: Chloride by Discrete Analyser (QCLot: 1633478)								
ED045G: Chloride	16887-00-6	1	mg/L	<1 <1	10 mg/L 1000 mg/L	100 104	88 88	118 118
ED093F: Dissolved Major Cations (QCLot: 1641037)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	5 mg/L	98.2	93	110
ED093F: Magnesium	7439-95-4	1	mg/L	<1	5 mg/L	99.1	91	110
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	96.6	90	109
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	93.4	89	109
EG020F: Dissolved Metals by ICP-MS (QCLot: 1641039)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	105	91	107
EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	98.6	82	113
EG020A-F: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	96.1	84	106
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	93.6	84	104
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	90.3	83	103
EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	99.0	83	106
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	98.8	82	103
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	95.0	83	105
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	94.6	83	105
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	96.9	82	106
EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	99.2	82	109
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	94.4	83	106
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	103	85	109
EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	0.5 mg/L	101	84	116
EG020T: Total Metals by ICP-MS (QCLot: 1636600)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	100	90	110
EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	103	88	113
EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	98.0	88	112
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	92.5	86	111



Sub-Matrix: **WATER**

Method Blank (MB) Report				Laboratory Control Spike (LCS) Report				
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
					LCS	Low	High	
Method: Compound	CAS Number	LOR	Unit	Result				
EG020T: Total Metals by ICP-MS (QCLot: 1636600) - continued								
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	94.2	87	109
EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	95.8	88	113
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	95.2	87	108
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	94.3	88	109
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	94.8	88	111
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	95.4	87	111
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	92.1	85	113
EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	94.4	88	112
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	100.0	87	113
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	0.5 mg/L	103	88	118
EG035F: Dissolved Mercury by FIMS (QCLot: 1641038)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	85.6	81	114
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1637669)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	87.2	81	114
EK040P: Fluoride by PC Titrator (QCLot: 1636256)								
EK040P: Fluoride	16984-48-8	0.1	mg/L	<0.1	5 mg/L	92.8	85	112
EK055G: Ammonia as N by Discrete Analyser (QCLot: 1640062)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	102	80	115
EK055G: Ammonia as N by Discrete Analyser (QCLot: 1640065)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	110	80	115
EK057G: Nitrite as N by Discrete Analyser (QCLot: 1633477)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	103	94	107
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 1640063)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	98.5	89	114
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 1637016)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	5 mg/L	92.9	70	117
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 1637017)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	2.21 mg/L	114	70	120
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 1633474)								
EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.5 mg/L	104	90	110
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 1633109)								
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1.0	10 µg/L	127	54	132
EP068A: Organochlorine Pesticides (OC) (QCLot: 1633110)								
EP068: alpha-BHC	319-84-6	0.5	µg/L	<0.5	5 µg/L	86.8	51	122
EP068: Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	5 µg/L	79.1	51	118
EP068: beta-BHC	319-85-7	0.5	µg/L	<0.5	5 µg/L	86.5	57	119
EP068: gamma-BHC	58-89-9	0.5	µg/L	<0.5	5 µg/L	87.1	51	121



Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EP068A: Organochlorine Pesticides (OC) (QCLot: 1633110) - continued								
EP068: delta-BHC	319-86-8	0.5	µg/L	<0.5	5 µg/L	89.1	58	114
EP068: Heptachlor	76-44-8	0.5	µg/L	<0.5	5 µg/L	90.8	47	113
EP068: Aldrin	309-00-2	0.5	µg/L	<0.5	5 µg/L	86.9	53	118
EP068: Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	5 µg/L	90.3	53	117
EP068: trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	5 µg/L	116	50	126
EP068: alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	5 µg/L	85.7	55	121
EP068: cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	5 µg/L	86.3	54	120
EP068: Dieldrin	60-57-1	0.5	µg/L	<0.5	5 µg/L	85.8	50	121
EP068: 4,4'-DDE	72-55-9	0.5	µg/L	<0.5	5 µg/L	85.2	54	120
EP068: Endrin	72-20-8	0.5	µg/L	<0.5	5 µg/L	110	45	122
EP068: beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	5 µg/L	85.2	55	120
EP068: 4,4'-DDD	72-54-8	0.5	µg/L	<0.5	5 µg/L	93.1	53	126
EP068: Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	5 µg/L	85.8	52	123
EP068: Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	5 µg/L	83.5	48	121
EP068: 4,4'-DDT	50-29-3	2	µg/L	<2.0	5 µg/L	89.2	46	120
EP068: Endrin ketone	53494-70-5	0.5	µg/L	<0.5	5 µg/L	81.7	56	118
EP068: Methoxychlor	72-43-5	2	µg/L	<2.0	5 µg/L	95.9	42	123
EP068B: Organophosphorus Pesticides (OP) (QCLot: 1633110)								
EP068: Dichlorvos	62-73-7	0.5	µg/L	<0.5	5 µg/L	101	45	123
EP068: Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	5 µg/L	90.1	42	129
EP068: Monocrotophos	6923-22-4	2	µg/L	<2.0	5 µg/L	26.0	10	43
EP068: Dimethoate	60-51-5	0.5	µg/L	<0.5	5 µg/L	71.2	38	115
EP068: Diazinon	333-41-5	0.5	µg/L	<0.5	5 µg/L	86.3	54	121
EP068: Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	5 µg/L	90.0	56	118
EP068: Parathion-methyl	298-00-0	2	µg/L	<2.0	5 µg/L	99.4	43	115
EP068: Malathion	121-75-5	0.5	µg/L	<0.5	5 µg/L	105	50	120
EP068: Fenthion	55-38-9	0.5	µg/L	<0.5	5 µg/L	86.5	55	119
EP068: Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	5 µg/L	108	50	122
EP068: Parathion	56-38-2	2	µg/L	<2.0	5 µg/L	# 129	44	114
EP068: Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	5 µg/L	86.5	52	117
EP068: Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	5 µg/L	91.6	42	126
EP068: Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	5 µg/L	84.6	50	117
EP068: Fenamiphos	22224-92-6	0.5	µg/L	<0.5	5 µg/L	109	45	127
EP068: Prothiofos	34643-46-4	0.5	µg/L	<0.5	5 µg/L	87.9	52	120
EP068: Ethion	563-12-2	0.5	µg/L	<0.5	5 µg/L	95.8	49	118
EP068: Carbophenothion	786-19-6	0.5	µg/L	<0.5	5 µg/L	87.5	52	119
EP068: Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	5 µg/L	# 124	21	120
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 1636132)								
EP074: Styrene	100-42-5	5	µg/L	<5	20 µg/L	96.5	79	114



Sub-Matrix: **WATER**

Method: Compound				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
							Low	High
CAS Number	LOR	Unit	Result			LCS		
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 1636132) - continued								
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	20 µg/L	94.9	72	116
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	20 µg/L	94.1	71	115
EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	20 µg/L	96.1	72	114
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	20 µg/L	90.9	72	114
EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	20 µg/L	92.7	74	112
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	20 µg/L	92.4	73	114
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	20 µg/L	91.7	70	115
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	20 µg/L	90.1	62	116
EP074B: Oxygenated Compounds (QCLot: 1636132)								
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	200 µg/L	91.2	73	126
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	200 µg/L	93.5	68	136
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	200 µg/L	93.4	76	127
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	200 µg/L	97.9	71	131
EP074C: Sulfonated Compounds (QCLot: 1636132)								
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	20 µg/L	85.9	55	123
EP074D: Fumigants (QCLot: 1636132)								
EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	20 µg/L	88.3	67	122
EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	20 µg/L	95.6	78	120
EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	20 µg/L	91.5	70	118
EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	20 µg/L	91.4	68	115
EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	20 µg/L	98.6	78	120
EP074E: Halogenated Aliphatic Compounds (QCLot: 1636132)								
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	200 µg/L	95.6	62	140
EP074: Chloromethane	74-87-3	50	µg/L	<50	200 µg/L	94.2	68	138
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	200 µg/L	88.7	64	139
EP074: Bromomethane	74-83-9	50	µg/L	<50	200 µg/L	85.7	48	130
EP074: Chloroethane	75-00-3	50	µg/L	<50	200 µg/L	89.3	71	130
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	200 µg/L	87.2	71	126
EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	20 µg/L	86.6	65	124
EP074: Iodomethane	74-88-4	5	µg/L	<5	20 µg/L	85.1	27	120
EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	20 µg/L	88.4	73	121
EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	20 µg/L	91.7	77	120
EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	20 µg/L	91.6	78	120
EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	20 µg/L	87.7	68	116
EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	20 µg/L	87.2	66	119
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	20 µg/L	84.6	66	119
EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	20 µg/L	98.2	79	118
EP074: Trichloroethene	79-01-6	5	µg/L	<5	20 µg/L	84.0	70	120



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EP074E: Halogenated Aliphatic Compounds (QCLot: 1636132) - continued								
EP074: Dibromomethane	74-95-3	5	µg/L	<5	20 µg/L	97.5	75	115
EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	20 µg/L	102	87	114
EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	20 µg/L	103	84	116
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	20 µg/L	92.4	75	119
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	20 µg/L	98.5	75	112
EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	20 µg/L	102	63	119
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	20 µg/L	97.1	54	119
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	20 µg/L	99.7	81	125
EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	20 µg/L	101	81	125
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	20 µg/L	95.2	62	110
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	20 µg/L	95.9	63	106
EP074F: Halogenated Aromatic Compounds (QCLot: 1636132)								
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	20 µg/L	98.3	82	114
EP074: Bromobenzene	108-86-1	5	µg/L	<5	20 µg/L	98.8	74	117
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	20 µg/L	95.7	71	114
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	20 µg/L	96.7	71	112
EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	20 µg/L	103	74	118
EP074G: Trihalomethanes (QCLot: 1636132)								
EP074: Chloroform	67-66-3	5	µg/L	<5	20 µg/L	93.4	79	119
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	20 µg/L	95.0	70	112
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	20 µg/L	99.5	68	107
EP074: Bromoform	75-25-2	5	µg/L	<5	20 µg/L	97.8	62	108
EP075A: Phenolic Compounds (QCLot: 1633113)								
EP075: Phenol	108-95-2	2	µg/L	<2	10 µg/L	35.2	19	47
EP075: 2-Chlorophenol	95-57-8	2	µg/L	<2	10 µg/L	74.6	44	100
EP075: 2-Methylphenol	95-48-7	2	µg/L	<2	10 µg/L	74.0	38	94
EP075: 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2	10 µg/L	68.9	33	88
EP075: 2-Nitrophenol	88-75-5	2	µg/L	<2	10 µg/L	78.1	40	111
EP075: 2.4-Dimethylphenol	105-67-9	2	µg/L	<2	10 µg/L	81.2	44	110
EP075: 2.4-Dichlorophenol	120-83-2	2	µg/L	<2	10 µg/L	82.0	43	110
EP075: 2.6-Dichlorophenol	87-65-0	2	µg/L	<2	10 µg/L	80.6	49	104
EP075: 4-Chloro-3-methylphenol	59-50-7	2	µg/L	<2	10 µg/L	78.0	50	103
EP075: 2.4.6-Trichlorophenol	88-06-2	2	µg/L	<2	10 µg/L	80.7	48	107
EP075: 2.4.5-Trichlorophenol	95-95-4	2	µg/L	<2	10 µg/L	80.5	48	110
EP075: Pentachlorophenol	87-86-5	4	µg/L	<4	10 µg/L	67.3	25	113
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 1633113)								
EP075: Naphthalene	91-20-3	2	µg/L	<2	10 µg/L	81.7	51	102
EP075: 2-Methylnaphthalene	91-57-6	2	µg/L	<2	10 µg/L	82.8	50	107



Sub-Matrix: **WATER**

Method: Compound				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%)	
							Low	High
CAS Number	LOR	Unit	Result					
EP075E: Nitroaromatics and Ketones (QCLot: 1633113) - continued								
EP075: 2-Picoline	109-06-8	2	µg/L	<2	10 µg/L	63.5	17	120
EP075: Acetophenone	98-86-2	2	µg/L	<2	10 µg/L	90.8	51	108
EP075: Nitrobenzene	98-95-3	2	µg/L	<2	10 µg/L	82.9	46	109
EP075: Isophorone	78-59-1	2	µg/L	<2	10 µg/L	84.8	49	114
EP075: 2,6-Dinitrotoluene	606-20-2	4	µg/L	<4	10 µg/L	81.6	56	120
EP075: 2,4-Dinitrotoluene	121-14-2	4	µg/L	<4	10 µg/L	78.7	57	121
EP075: 1-Naphthylamine	134-32-7	2	µg/L	<2	10 µg/L	48.5	11	119
EP075: 4-Nitroquinoline-N-oxide	56-57-5	2	µg/L	<2	10 µg/L	86.8	30	160
EP075: 5-Nitro-o-toluidine	99-55-8	2	µg/L	<2	10 µg/L	91.4	50	124
EP075: Azobenzene	103-33-3	2	µg/L	<2	10 µg/L	83.5	56	120
EP075: 1,3,5-Trinitrobenzene	99-35-4	2	µg/L	<2	10 µg/L	77.4	36	132
EP075: Phenacetin	62-44-2	2	µg/L	<2	10 µg/L	70.5	46	110
EP075: 4-Aminobiphenyl	92-67-1	2	µg/L	<2	10 µg/L	93.8	24	149
EP075: Pentachloronitrobenzene	82-68-8	2	µg/L	<2	10 µg/L	82.3	57	127
EP075: Pronamide	23950-58-5	2	µg/L	<2	10 µg/L	82.0	63	125
EP075: Dimethylaminoazobenzene	60-11-7	2	µg/L	<2	10 µg/L	77.3	57	123
EP075: Chlorobenzilate	510-15-6	2	µg/L	<2	10 µg/L	81.3	61	131
EP075F: Haloethers (QCLot: 1633113)								
EP075: Bis(2-chloroethyl) ether	111-44-4	2	µg/L	<2	10 µg/L	81.8	44	109
EP075: Bis(2-chloroethoxy) methane	111-91-1	2	µg/L	<2	10 µg/L	84.6	46	114
EP075: 4-Chlorophenyl phenyl ether	7005-72-3	2	µg/L	<2	10 µg/L	82.5	55	119
EP075: 4-Bromophenyl phenyl ether	101-55-3	2	µg/L	<2	10 µg/L	82.0	57	119
EP075G: Chlorinated Hydrocarbons (QCLot: 1633113)								
EP075: 1,4-Dichlorobenzene	106-46-7	2	µg/L	<2	10 µg/L	80.9	46	102
EP075: 1,3-Dichlorobenzene	541-73-1	2	µg/L	<2	10 µg/L	81.0	45	101
EP075: 1,2-Dichlorobenzene	95-50-1	2	µg/L	<2	10 µg/L	85.7	47	101
EP075: Hexachloroethane	67-72-1	2	µg/L	<2	10 µg/L	79.9	44	104
EP075: 1,2,4-Trichlorobenzene	120-82-1	2	µg/L	<2	10 µg/L	83.4	46	107
EP075: Hexachloropropylene	1888-71-7	2	µg/L	<2	10 µg/L	77.8	35	109
EP075: Hexachlorobutadiene	87-68-3	2	µg/L	<2	10 µg/L	80.2	48	103
EP075: Hexachlorocyclopentadiene	77-47-4	10	µg/L	<10	10 µg/L	75.8	34	112
EP075: Pentachlorobenzene	608-93-5	2	µg/L	<2	10 µg/L	81.5	53	117
EP075: Hexachlorobenzene (HCB)	118-74-1	4	µg/L	<4	20 µg/L	83.0	55	121
EP075H: Anilines and Benzidines (QCLot: 1633113)								
EP075: Aniline	62-53-3	2	µg/L	<2	10 µg/L	72.2	14	110
EP075: 4-Chloroaniline	106-47-8	2	µg/L	<2	10 µg/L	84.4	32	114
EP075: 2-Nitroaniline	88-74-4	4	µg/L	<4	10 µg/L	78.7	51	119
EP075: 3-Nitroaniline	99-09-2	4	µg/L	<4	10 µg/L	96.3	50	116



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EP075H: Anilines and Benzidines (QCLot: 1633113) - continued								
EP075: Dibenzofuran	132-64-9	2	µg/L	<2	10 µg/L	82.2	53	117
EP075: 4-Nitroaniline	100-01-6	2	µg/L	<2	10 µg/L	87.6	48	114
EP075: Carbazole	86-74-8	2	µg/L	<2	10 µg/L	84.2	63	125
EP075: 3,3'-Dichlorobenzidine	91-94-1	2	µg/L	<2	10 µg/L	96.3	59	137
EP075I: Organochlorine Pesticides (QCLot: 1633113)								
EP075: alpha-BHC	319-84-6	2	µg/L	<2	10 µg/L	82.5	58	124
EP075: beta-BHC	319-85-7	2	µg/L	<2	10 µg/L	83.0	57	127
EP075: gamma-BHC	58-89-9	2	µg/L	<2	10 µg/L	82.2	57	125
EP075: delta-BHC	319-86-8	2	µg/L	<2	10 µg/L	80.7	62	128
EP075: Heptachlor	76-44-8	2	µg/L	<2	10 µg/L	80.8	53	112
EP075: Aldrin	309-00-2	2	µg/L	<2	10 µg/L	81.2	57	110
EP075: Heptachlor epoxide	1024-57-3	2	µg/L	<2	10 µg/L	79.6	55	112
EP075: alpha-Endosulfan	959-98-8	2	µg/L	<2	10 µg/L	84.8	50	124
EP075: 4,4'-DDE	72-55-9	2	µg/L	<2	10 µg/L	82.5	55	110
EP075: Dieldrin	60-57-1	2	µg/L	<2	10 µg/L	79.8	61	131
EP075: Endrin	72-20-8	2	µg/L	<2	10 µg/L	78.9	59	133
EP075: beta-Endosulfan	33213-65-9	2	µg/L	<2	10 µg/L	80.2	60	130
EP075: 4,4'-DDD	72-54-8	2	µg/L	<2	10 µg/L	80.7	61	129
EP075: Endosulfan sulfate	1031-07-8	2	µg/L	<2	10 µg/L	82.5	58	136
EP075: 4,4'-DDT	50-29-3	4	µg/L	<4	10 µg/L	81.8	51	137
EP075J: Organophosphorus Pesticides (QCLot: 1633113)								
EP075: Dichlorvos	62-73-7	2	µg/L	<2	10 µg/L	80.8	50	116
EP075: Dimethoate	60-51-5	2	µg/L	<2	10 µg/L	70.0	49	111
EP075: Diazinon	333-41-5	2	µg/L	<2	10 µg/L	82.1	62	126
EP075: Chlorpyrifos-methyl	5598-13-0	2	µg/L	<2	10 µg/L	81.0	60	126
EP075: Malathion	121-75-5	2	µg/L	<2	10 µg/L	83.0	61	131
EP075: Fenthion	55-38-9	2	µg/L	<2	10 µg/L	80.9	62	128
EP075: Chlorpyrifos	2921-88-2	2	µg/L	<2	10 µg/L	81.4	61	127
EP075: Pirimphos-ethyl	23505-41-1	2	µg/L	<2	10 µg/L	82.4	61	129
EP075: Chlorfenvinphos	470-90-6	2	µg/L	<2	10 µg/L	80.1	61	131
EP075: Prothiofos	34643-46-4	2	µg/L	<2	10 µg/L	79.5	61	125
EP075: Ethion	563-12-2	2	µg/L	<2	10 µg/L	81.5	62	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1633108)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	4331 µg/L	91.5	58	134
EP071: C15 - C28 Fraction	----	100	µg/L	<100	16952 µg/L	95.3	60	133
EP071: C29 - C36 Fraction	----	50	µg/L	<50	8695 µg/L	94.0	54	137
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1636131)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	360 µg/L	78.9	68	125



Sub-Matrix: **WATER**

Method Blank (MB) Report				Laboratory Control Spike (LCS) Report				
				Spike Concentration	Spike Recovery (%)	Recovery Limits (%)		
Method: Compound	CAS Number	LOR	Unit	Result		LCS	Low	High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1633108)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	6292 µg/L	92.3	58	122
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	22143 µg/L	94.3	56	132
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	1677 µg/L	97.4	58	137
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1636131)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	78.1	66	123
EP080: BTEXN (QCLot: 1636131)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	83.4	74	123
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	84.8	77	128
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	83.6	73	126
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	40 µg/L	83.9	72	131
	106-42-3							
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	88.7	74	131
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	104	74	124
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 1633601)								
EP231X-LL: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.002	µg/L	<0.002	0.05 µg/L	107	50	130
EP231X-LL: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.002	µg/L	<0.002	0.05 µg/L	101	50	130
EP231X-LL: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.002	µg/L	<0.002	0.05 µg/L	104	50	130
EP231X-LL: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.002	µg/L	<0.002	0.05 µg/L	99.0	50	130
EP231X-LL: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.002	µg/L	<0.002	0.05 µg/L	84.2	50	130
EP231X-LL: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.002	µg/L	<0.002	0.05 µg/L	52.6	40	130
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 1633601)								
EP231X-LL: Perfluorobutanoic acid (PFBA)	375-22-4	0.01	µg/L	<0.01	0.25 µg/L	95.9	50	130
EP231X-LL: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.002	µg/L	<0.002	0.05 µg/L	111	50	130
EP231X-LL: Perfluorohexanoic acid (PFHxA)	307-24-4	0.002	µg/L	<0.002	0.05 µg/L	122	50	130
EP231X-LL: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.002	µg/L	<0.002	0.05 µg/L	126	50	130
EP231X-LL: Perfluorooctanoic acid (PFOA)	335-67-1	0.002	µg/L	<0.002	0.05 µg/L	112	50	130
EP231X-LL: Perfluorononanoic acid (PFNA)	375-95-1	0.002	µg/L	<0.002	0.05 µg/L	88.2	50	130
EP231X-LL: Perfluorodecanoic acid (PFDA)	335-76-2	0.002	µg/L	<0.002	0.05 µg/L	71.6	50	130
EP231X-LL: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.002	µg/L	<0.002	0.05 µg/L	67.4	40	130
EP231X-LL: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.002	µg/L	<0.002	0.05 µg/L	52.8	40	130
EP231X-LL: Perfluorotridecanoic acid (PFTTrDA)	72629-94-8	0.002	µg/L	<0.002	0.05 µg/L	53.8	40	130
EP231X-LL: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.005	µg/L	<0.005	0.125 µg/L	67.2	40	130
EP231X-LL: Perfluorohexadecanoic acid (PFHxDA)	67905-19-5	----	µg/L	----	0.05 µg/L	89.6	50	130
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 1633601)								
EP231X-LL: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.002	µg/L	<0.002	0.05 µg/L	68.0	40	130
EP231X-LL: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.005	µg/L	<0.005	0.125 µg/L	60.7	40	130
EP231X-LL: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.005	µg/L	<0.005	0.125 µg/L	63.6	40	130



Sub-Matrix: **WATER**

Method: Compound				Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
						LCS	Low	High
CAS Number	LOR	Unit						
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 1633601) - continued								
EP231X-LL: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.005	µg/L	<0.005	0.125 µg/L	60.6	50	130
EP231X-LL: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.005	µg/L	<0.005	0.125 µg/L	67.8	40	130
EP231X-LL: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.002	µg/L	<0.002	0.05 µg/L	51.6	50	130
EP231X-LL: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.002	µg/L	<0.002	0.05 µg/L	91.0	40	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 1633601)								
EP231X-LL: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.005	µg/L	<0.005	0.05 µg/L	108	50	130
EP231X-LL: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.005	µg/L	<0.005	0.05 µg/L	112	50	130
EP231X-LL: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.005	µg/L	<0.005	0.05 µg/L	114	50	130
EP231X-LL: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.005	µg/L	<0.005	0.05 µg/L	54.2	50	130

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID				Matrix Spike (MS) Report			
				Spike Concentration	SpikeRecovery(%)	Recovery Limits (%)	
					MS	Low	High
Client sample ID	Method: Compound	CAS Number					
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 1633475)							
EM1807549-008	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	75.4	70	130
ED045G: Chloride by Discrete Analyser (QCLot: 1633478)							
EM1807669-002	RB401_09052018	ED045G: Chloride	16887-00-6	400 mg/L	111	70	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 1641039)							
EM1807669-001	NEL-ENV-BH025_09052018	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	106	85	131
		EG020A-F: Beryllium	7440-41-7	0.2 mg/L	90.2	73	141
		EG020A-F: Barium	7440-39-3	0.2 mg/L	93.0	75	127
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	91.0	81	133
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	87.5	71	135
		EG020A-F: Cobalt	7440-48-4	0.2 mg/L	100	78	132
		EG020A-F: Copper	7440-50-8	0.2 mg/L	95.0	76	130
		EG020A-F: Lead	7439-92-1	0.2 mg/L	88.7	75	133
		EG020A-F: Manganese	7439-96-5	0.2 mg/L	94.3	64	134
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	96.0	73	131
		EG020A-F: Vanadium	7440-62-2	0.2 mg/L	89.9	73	131
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	96.3	75	131



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 1636600)							
EM1806774-001	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	95.7	82	118
		EG020A-T: Beryllium	7440-41-7	1 mg/L	85.6	79	121
		EG020A-T: Barium	7440-39-3	1 mg/L	94.5	80	114
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	90.3	75	129
		EG020A-T: Chromium	7440-47-3	1 mg/L	89.3	80	118
		EG020A-T: Cobalt	7440-48-4	1 mg/L	87.3	82	120
		EG020A-T: Copper	7440-50-8	1 mg/L	84.8	81	115
		EG020A-T: Lead	7439-92-1	1 mg/L	83.7	83	121
		EG020A-T: Manganese	7439-96-5	1 mg/L	91.5	73	123
		EG020A-T: Nickel	7440-02-0	1 mg/L	93.2	80	118
		EG020A-T: Vanadium	7440-62-2	1 mg/L	94.6	81	119
		EG020A-T: Zinc	7440-66-6	1 mg/L	93.6	74	116
EG035F: Dissolved Mercury by FIMS (QCLot: 1641038)							
EM1807691-006	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	107	70	120
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1637669)							
EM1807197-002	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	85.9	70	130
EK040P: Fluoride by PC Titrator (QCLot: 1636256)							
EM1807669-003	FB401_09052018	EK040P: Fluoride	16984-48-8	5 mg/L	106	70	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 1640062)							
EM1807573-002	Anonymous	EK055G: Ammonia as N	7664-41-7	1 mg/L	94.9	70	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 1640065)							
EM1807669-003	FB401_09052018	EK055G: Ammonia as N	7664-41-7	1 mg/L	106	70	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 1633477)							
EM1807653-002	Anonymous	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	94.1	80	114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 1640063)							
EM1807653-002	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	97.9	70	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 1637016)							
EM1807665-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	93.3	70	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 1637017)							
EM1807665-001	Anonymous	EK067G: Total Phosphorus as P	----	1 mg/L	107	70	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 1633474)							
EM1807549-002	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.5 mg/L	# Not Determined	79	123
EP074E: Halogenated Aliphatic Compounds (QCLot: 1636132)							
EM1807669-002	RB401_09052018	EP074: 1,1-Dichloroethene	75-35-4	20 µg/L	69.9	40	124



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP074E: Halogenated Aliphatic Compounds (QCLot: 1636132) - continued							
EM1807669-002	RB401_09052018	EP074: Trichloroethene	79-01-6	20 µg/L	68.4	54	126
EP074F: Halogenated Aromatic Compounds (QCLot: 1636132)							
EM1807669-002	RB401_09052018	EP074: Chlorobenzene	108-90-7	20 µg/L	94.2	68	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1636131)							
EM1807669-002	RB401_09052018	EP080: C6 - C9 Fraction	----	280 µg/L	65.8	43	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1636131)							
EM1807669-002	RB401_09052018	EP080: C6 - C10 Fraction	C6_C10	330 µg/L	63.0	44	122
EP080: BTEXN (QCLot: 1636131)							
EM1807669-002	RB401_09052018	EP080: Benzene	71-43-2	20 µg/L	85.5	68	130
		EP080: Toluene	108-88-3	20 µg/L	87.4	72	132
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 1633601)							
ES1813511-001	Anonymous	EP231X-LL: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.05 µg/L	119	50	130
		EP231X-LL: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.05 µg/L	115	50	130
		EP231X-LL: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.05 µg/L	126	50	130
		EP231X-LL: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.05 µg/L	99.6	50	130
		EP231X-LL: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.05 µg/L	81.6	50	130
		EP231X-LL: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.05 µg/L	51.2	30	130
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 1633601)							
ES1813511-001	Anonymous	EP231X-LL: Perfluorobutanoic acid (PFBA)	375-22-4	0.25 µg/L	105	30	130
		EP231X-LL: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.05 µg/L	118	50	130
		EP231X-LL: Perfluorohexanoic acid (PFHxA)	307-24-4	0.05 µg/L	123	50	130
		EP231X-LL: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.05 µg/L	126	50	130
		EP231X-LL: Perfluorooctanoic acid (PFOA)	335-67-1	0.05 µg/L	112	50	130
		EP231X-LL: Perfluorononanoic acid (PFNA)	375-95-1	0.05 µg/L	89.4	50	130
		EP231X-LL: Perfluorodecanoic acid (PFDA)	335-76-2	0.05 µg/L	76.6	50	130
		EP231X-LL: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.05 µg/L	54.0	30	130
		EP231X-LL: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.05 µg/L	57.2	30	130
		EP231X-LL: Perfluorotridecanoic acid (PFTTrDA)	72629-94-8	0.05 µg/L	65.6	30	130
		EP231X-LL: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.125 µg/L	61.0	30	130
		EP231X-LL: Perfluorohexadecanoic acid (PFHxDA)	67905-19-5	0.05 µg/L	59.6	30	130
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 1633601)							
ES1813511-001	Anonymous	EP231X-LL: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.05 µg/L	73.0	30	130
		EP231X-LL: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.125 µg/L	62.6	30	130
		EP231X-LL: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.125 µg/L	54.2	30	130



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 1633601) - continued							
ES1813511-001	Anonymous	EP231X-LL: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.125 µg/L	68.6	30	130
		EP231X-LL: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.125 µg/L	68.0	30	130
		EP231X-LL: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.05 µg/L	57.8	30	130
		EP231X-LL: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.05 µg/L	73.0	30	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 1633601)							
ES1813511-001	Anonymous	EP231X-LL: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05 µg/L	118	50	130
		EP231X-LL: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05 µg/L	127	50	130
		EP231X-LL: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05 µg/L	111	50	130
		EP231X-LL: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05 µg/L	51.0	50	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order : **EM1807669**

Page : 1 of 14

Client : **GHD PTY LTD**
 Contact : **KORY AUCH**
 Project : **31350060910**
 Site : **----**
 Sampler : **KORY AUCH**
 Order number : **----**

Laboratory : **Environmental Division Melbourne**
 Telephone : **+61-3-8549 9630**
 Date Samples Received : **10-May-2018**
 Issue Date : **22-May-2018**
 No. of samples received : **4**
 No. of samples analysed : **4**

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO** Method Blank value outliers occur.
- Duplicate outliers exist - please see following pages for full details.
- Laboratory Control outliers exist - please see following pages for full details.
- Matrix Spike outliers exist - please see following pages for full details.
- Surrogate recovery outliers exist for all regular sample matrices - please see following pages for full details.

Outliers : Analysis Holding Time Compliance

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- Quality Control Sample Frequency Outliers exist - please see following pages for full details.



Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Duplicate (DUP) RPDs							
EK055G: Ammonia as N by Discrete Analyser	EM1807670--003	Anonymous	Ammonia as N	7664-41-7	27.6 %	0% - 20%	RPD exceeds LOR based limits
Laboratory Control Spike (LCS) Recoveries							
EP068B: Organophosphorus Pesticides (OP)	QC-1633110-001	----	Parathion	56-38-2	129 %	44-114%	Recovery greater than upper control limit
EP068B: Organophosphorus Pesticides (OP)	QC-1633110-001	----	Azinphos Methyl	86-50-0	124 %	21-120%	Recovery greater than upper control limit
EP075D: Nitrosamines	QC-1633113-001	----	Methapyrilene	91-80-5	44.0 %	55-157%	Recovery less than lower control limit
Matrix Spike (MS) Recoveries							
EK071G: Reactive Phosphorus as P by discrete analyser	EM1807549--002	Anonymous	Reactive Phosphorus as P	14265-44-2	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.

Regular Sample Surrogates

Sub-Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Samples Submitted							
EP075S: Acid Extractable Surrogates	EM1807669-001	NEL-ENV-BH025_09052018	2-Fluorophenol	367-12-4	89.8 %	10-75 %	Recovery greater than upper data quality objective
EP075S: Acid Extractable Surrogates	EM1807669-002	RB401_09052018	2-Fluorophenol	367-12-4	85.9 %	10-75 %	Recovery greater than upper data quality objective
EP075S: Acid Extractable Surrogates	EM1807669-003	FB401_09052018	2-Fluorophenol	367-12-4	79.9 %	10-75 %	Recovery greater than upper data quality objective

Outliers : Analysis Holding Time Compliance

Matrix: **WATER**

Method			Extraction / Preparation			Analysis		
Container / Client Sample ID(s)			Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA005P: pH by PC Titrator								
Clear Plastic Bottle - Natural NEL-ENV-BH025_09052018, FB401_09052018			RB401_09052018,	----	----	----	14-May-2018	09-May-2018
								5

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type		Count		Rate (%)		Quality Control Specification
Method		QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)						
Pesticides by GCMS		0	3	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)		0	3	0.00	10.00	NEPM 2013 B3 & ALS QC Standard



Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP) - Continued					
Semivolatile Organic Compounds	0	3	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	6	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Pesticides by GCMS	0	3	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	0	3	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	0	3	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	6	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis			
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EA005P: pH by PC Titrator								
Clear Plastic Bottle - Natural (EA005-P) NEL-ENV-BH025_09052018, FB401_09052018	RB401_09052018,	09-May-2018	----	----	----	14-May-2018	09-May-2018	✖
EA006: Sodium Adsorption Ratio (SAR)								
Clear Plastic Bottle - Natural (ED093F) RB401_09052018,	FB401_09052018	09-May-2018	----	----	----	16-May-2018	16-May-2018	✔
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) NEL-ENV-BH025_09052018		09-May-2018	----	----	----	16-May-2018	06-Jun-2018	✔
EA010P: Conductivity by PC Titrator								
Clear Plastic Bottle - Natural (EA010-P) NEL-ENV-BH025_09052018, FB401_09052018	RB401_09052018,	09-May-2018	----	----	----	14-May-2018	06-Jun-2018	✔
EA065: Total Hardness as CaCO3								
Clear Plastic Bottle - Natural (ED093F) RB401_09052018,	FB401_09052018	09-May-2018	----	----	----	16-May-2018	16-May-2018	✔
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) NEL-ENV-BH025_09052018		09-May-2018	----	----	----	16-May-2018	06-Jun-2018	✔
ED037P: Alkalinity by PC Titrator								
Clear Plastic Bottle - Natural (ED037-P) NEL-ENV-BH025_09052018, FB401_09052018	RB401_09052018,	09-May-2018	----	----	----	14-May-2018	23-May-2018	✔



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method		Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Clear Plastic Bottle - Natural (ED041G) NEL-ENV-BH025_09052018, FB401_09052018	RB401_09052018,	09-May-2018	----	----	----	12-May-2018	06-Jun-2018	✓
ED045G: Chloride by Discrete Analyser								
Clear Plastic Bottle - Natural (ED045G) NEL-ENV-BH025_09052018, FB401_09052018	RB401_09052018,	09-May-2018	----	----	----	12-May-2018	06-Jun-2018	✓
ED093F: Dissolved Major Cations								
Clear Plastic Bottle - Natural (ED093F) RB401_09052018,	FB401_09052018	09-May-2018	----	----	----	16-May-2018	16-May-2018	✓
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) NEL-ENV-BH025_09052018		09-May-2018	----	----	----	16-May-2018	06-Jun-2018	✓
EG020F: Dissolved Metals by ICP-MS								
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) NEL-ENV-BH025_09052018		09-May-2018	----	----	----	17-May-2018	05-Nov-2018	✓
EG020T: Total Metals by ICP-MS								
Clear Plastic Bottle - Nitric Acid; Unspecified (EG020A-T) RB401_09052018,	FB401_09052018	09-May-2018	14-May-2018	05-Nov-2018	✓	15-May-2018	05-Nov-2018	✓
EG035F: Dissolved Mercury by FIMS								
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) NEL-ENV-BH025_09052018		09-May-2018	----	----	----	17-May-2018	06-Jun-2018	✓
EG035T: Total Recoverable Mercury by FIMS								
Clear Plastic Bottle - Nitric Acid; Unspecified (EG035T) RB401_09052018,	FB401_09052018	09-May-2018	----	----	----	14-May-2018	06-Jun-2018	✓
EK040P: Fluoride by PC Titrator								
Clear Plastic Bottle - Natural (EK040P) NEL-ENV-BH025_09052018, FB401_09052018	RB401_09052018,	09-May-2018	----	----	----	14-May-2018	06-Jun-2018	✓
EK055G: Ammonia as N by Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK055G) NEL-ENV-BH025_09052018, FB401_09052018	RB401_09052018,	09-May-2018	----	----	----	17-May-2018	06-Jun-2018	✓
EK057G: Nitrite as N by Discrete Analyser								
Clear Plastic Bottle - Natural (EK057G) NEL-ENV-BH025_09052018, FB401_09052018	RB401_09052018,	09-May-2018	----	----	----	11-May-2018	11-May-2018	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK059G) NEL-ENV-BH025_09052018, FB401_09052018	RB401_09052018,	09-May-2018	----	----	----	17-May-2018	06-Jun-2018	✓



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK061G) NEL-ENV-BH025_09052018, FB401_09052018	RB401_09052018,	09-May-2018	15-May-2018	06-Jun-2018	✓	15-May-2018	06-Jun-2018	✓
EK067G: Total Phosphorus as P by Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK067G) NEL-ENV-BH025_09052018, FB401_09052018	RB401_09052018,	09-May-2018	15-May-2018	06-Jun-2018	✓	15-May-2018	06-Jun-2018	✓
EK071G: Reactive Phosphorus as P by discrete analyser								
Clear Plastic Bottle - Natural (EK071G) NEL-ENV-BH025_09052018, FB401_09052018	RB401_09052018,	09-May-2018	----	----	----	11-May-2018	11-May-2018	✓
EP066: Polychlorinated Biphenyls (PCB)								
Amber Glass Bottle - Unpreserved (EP066) NEL-ENV-BH025_09052018, FB401_09052018	RB401_09052018,	09-May-2018	11-May-2018	16-May-2018	✓	14-May-2018	20-Jun-2018	✓
EP068A: Organochlorine Pesticides (OC)								
Amber Glass Bottle - Unpreserved (EP068) NEL-ENV-BH025_09052018, FB401_09052018	RB401_09052018,	09-May-2018	11-May-2018	16-May-2018	✓	14-May-2018	20-Jun-2018	✓
EP068B: Organophosphorus Pesticides (OP)								
Amber Glass Bottle - Unpreserved (EP068) NEL-ENV-BH025_09052018, FB401_09052018	RB401_09052018,	09-May-2018	11-May-2018	16-May-2018	✓	14-May-2018	20-Jun-2018	✓
EP074A: Monocyclic Aromatic Hydrocarbons								
Amber VOC Vial - Sulfuric Acid (EP074) NEL-ENV-BH025_09052018, FB401_09052018	RB401_09052018,	09-May-2018	14-May-2018	23-May-2018	✓	14-May-2018	23-May-2018	✓
EP074B: Oxygenated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) NEL-ENV-BH025_09052018, FB401_09052018	RB401_09052018,	09-May-2018	14-May-2018	23-May-2018	✓	14-May-2018	23-May-2018	✓
EP074C: Sulfonated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) NEL-ENV-BH025_09052018, FB401_09052018	RB401_09052018,	09-May-2018	14-May-2018	23-May-2018	✓	14-May-2018	23-May-2018	✓
EP074D: Fumigants								
Amber VOC Vial - Sulfuric Acid (EP074) NEL-ENV-BH025_09052018, FB401_09052018	RB401_09052018,	09-May-2018	14-May-2018	23-May-2018	✓	14-May-2018	23-May-2018	✓



Matrix: **WATER**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method		Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074E: Halogenated Aliphatic Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) NEL-ENV-BH025_09052018, FB401_09052018	RB401_09052018,	09-May-2018	14-May-2018	23-May-2018	✓	14-May-2018	23-May-2018	✓
EP074F: Halogenated Aromatic Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) NEL-ENV-BH025_09052018, FB401_09052018	RB401_09052018,	09-May-2018	14-May-2018	23-May-2018	✓	14-May-2018	23-May-2018	✓
EP074G: Trihalomethanes								
Amber VOC Vial - Sulfuric Acid (EP074) NEL-ENV-BH025_09052018, FB401_09052018	RB401_09052018,	09-May-2018	14-May-2018	23-May-2018	✓	14-May-2018	23-May-2018	✓
EP075A: Phenolic Compounds								
Amber Glass Bottle - Unpreserved (EP075) NEL-ENV-BH025_09052018, FB401_09052018	RB401_09052018,	09-May-2018	11-May-2018	16-May-2018	✓	14-May-2018	20-Jun-2018	✓
EP075B: Polynuclear Aromatic Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP075) NEL-ENV-BH025_09052018, FB401_09052018	RB401_09052018,	09-May-2018	11-May-2018	16-May-2018	✓	14-May-2018	20-Jun-2018	✓
EP075C: Phthalate Esters								
Amber Glass Bottle - Unpreserved (EP075) NEL-ENV-BH025_09052018, FB401_09052018	RB401_09052018,	09-May-2018	11-May-2018	16-May-2018	✓	14-May-2018	20-Jun-2018	✓
EP075D: Nitrosamines								
Amber Glass Bottle - Unpreserved (EP075) NEL-ENV-BH025_09052018, FB401_09052018	RB401_09052018,	09-May-2018	11-May-2018	16-May-2018	✓	14-May-2018	20-Jun-2018	✓
EP075E: Nitroaromatics and Ketones								
Amber Glass Bottle - Unpreserved (EP075) NEL-ENV-BH025_09052018, FB401_09052018	RB401_09052018,	09-May-2018	11-May-2018	16-May-2018	✓	14-May-2018	20-Jun-2018	✓
EP075F: Haloethers								
Amber Glass Bottle - Unpreserved (EP075) NEL-ENV-BH025_09052018, FB401_09052018	RB401_09052018,	09-May-2018	11-May-2018	16-May-2018	✓	14-May-2018	20-Jun-2018	✓
EP075G: Chlorinated Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP075) NEL-ENV-BH025_09052018, FB401_09052018	RB401_09052018,	09-May-2018	11-May-2018	16-May-2018	✓	14-May-2018	20-Jun-2018	✓



Matrix: **WATER**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method		Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075H: Anilines and Benzidines								
Amber Glass Bottle - Unpreserved (EP075) NEL-ENV-BH025_09052018, FB401_09052018	RB401_09052018,	09-May-2018	11-May-2018	16-May-2018	✓	14-May-2018	20-Jun-2018	✓
EP075I: Organochlorine Pesticides								
Amber Glass Bottle - Unpreserved (EP075) NEL-ENV-BH025_09052018, FB401_09052018	RB401_09052018,	09-May-2018	11-May-2018	16-May-2018	✓	14-May-2018	20-Jun-2018	✓
EP075J: Organophosphorus Pesticides								
Amber Glass Bottle - Unpreserved (EP075) NEL-ENV-BH025_09052018, FB401_09052018	RB401_09052018,	09-May-2018	11-May-2018	16-May-2018	✓	14-May-2018	20-Jun-2018	✓
EP080/071: Total Petroleum Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP071) NEL-ENV-BH025_09052018, FB401_09052018	RB401_09052018,	09-May-2018	11-May-2018	16-May-2018	✓	14-May-2018	20-Jun-2018	✓
Amber VOC Vial - Sulfuric Acid (EP080) NEL-ENV-BH025_09052018, FB401_09052018,	RB401_09052018, TB401_09052018	09-May-2018	14-May-2018	23-May-2018	✓	14-May-2018	23-May-2018	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Amber Glass Bottle - Unpreserved (EP071) NEL-ENV-BH025_09052018, FB401_09052018	RB401_09052018,	09-May-2018	11-May-2018	16-May-2018	✓	14-May-2018	20-Jun-2018	✓
Amber VOC Vial - Sulfuric Acid (EP080) NEL-ENV-BH025_09052018, FB401_09052018,	RB401_09052018, TB401_09052018	09-May-2018	14-May-2018	23-May-2018	✓	14-May-2018	23-May-2018	✓
EP080: BTEXN								
Amber VOC Vial - Sulfuric Acid (EP080) NEL-ENV-BH025_09052018, FB401_09052018,	RB401_09052018, TB401_09052018	09-May-2018	14-May-2018	23-May-2018	✓	14-May-2018	23-May-2018	✓
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE (no PTFE) (EP231X-LL) NEL-ENV-BH025_09052018, FB401_09052018	RB401_09052018,	09-May-2018	11-May-2018	05-Nov-2018	✓	14-May-2018	05-Nov-2018	✓
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE (no PTFE) (EP231X-LL) NEL-ENV-BH025_09052018, FB401_09052018	RB401_09052018,	09-May-2018	11-May-2018	05-Nov-2018	✓	14-May-2018	05-Nov-2018	✓
EP231C: Perfluoroalkyl Sulfonamides								
HDPE (no PTFE) (EP231X-LL) NEL-ENV-BH025_09052018, FB401_09052018	RB401_09052018,	09-May-2018	11-May-2018	05-Nov-2018	✓	14-May-2018	05-Nov-2018	✓

Page : 8 of 14
 Work Order : EM1807669
 Client : GHD PTY LTD
 Project : 31350060910



Matrix: **WATER**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method		Sample Date	Extraction / Preparation			Analysis			
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
HDPE (no PTFE) (EP231X-LL)	NEL-ENV-BH025_09052018, FB401_09052018	RB401_09052018,	09-May-2018	11-May-2018	05-Nov-2018	✔	14-May-2018	05-Nov-2018	✔
EP231P: PFAS Sums									
HDPE (no PTFE) (EP231X-LL)	NEL-ENV-BH025_09052018, FB401_09052018	RB401_09052018,	09-May-2018	11-May-2018	05-Nov-2018	✔	14-May-2018	05-Nov-2018	✔



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Alkalinity by PC Titrator	ED037-P	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	4	40	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	6	16.67	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by PC Titrator	EA010-P	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	5	20.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	18	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Fluoride by PC Titrator	EK040P	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	2	7	28.57	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS by LCMSMS	EP231X-LL	1	7	14.29	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	3	0.00	10.00	✗	NEPM 2013 B3 & ALS QC Standard
pH by PC Titrator	EA005-P	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	3	0.00	10.00	✗	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	17	11.76	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	0	3	0.00	10.00	✗	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	19	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	18	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	6	0.00	10.00	✗	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	2	13	15.38	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Alkalinity by PC Titrator	ED037-P	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	6	33.33	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by PC Titrator	EA010-P	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Fluoride by PC Titrator	EK040P	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	7	14.29	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS by LCMSMS	EP231X-LL	1	7	14.29	5.00	✓	NEPM 2013 B3 & ALS QC Standard



Matrix: **WATER**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)		Quality Control Specification	
Analytical Methods	Method	QC	Regular	Actual	Expected		Evaluation
Laboratory Control Samples (LCS) - Continued							
Pesticides by GCMS	EP068	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	19	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	13	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Ammonia as N by Discrete analyser	EK055G	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by PC Titrator	EA010-P	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Fluoride by PC Titrator	EK040P	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	7	14.29	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS by LCMSMS	EP231X-LL	1	7	14.29	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	13	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard



Matrix: **WATER**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Matrix Spikes (MS) - Continued							
Fluoride by PC Titrator	EK040P	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	7	14.29	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS by LCMSMS	EP231X-LL	1	7	14.29	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	3	0.00	5.00	✖	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	3	0.00	5.00	✖	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	17	5.88	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	0	3	0.00	5.00	✖	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	19	5.26	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	18	5.56	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	6	0.00	5.00	✖	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	13	7.69	5.00	✔	NEPM 2013 B3 & ALS QC Standard



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH by PC Titrator	EA005-P	WATER	In house: Referenced to APHA 4500 H+ B. This procedure determines pH of water samples by automated ISE. This method is compliant with NEPM (2013) Schedule B(3)
Conductivity by PC Titrator	EA010-P	WATER	In house: Referenced to APHA 2510 B. This procedure determines conductivity by automated ISE. This method is compliant with NEPM (2013) Schedule B(3)
Calculated TDS (from Electrical Conductivity)	EA016	WATER	In house: Calculation from Electrical Conductivity (APHA 2510 B) using a conversion factor specified in the analytical report. This method is compliant with NEPM (2013) Schedule B(3)
Alkalinity by PC Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM (2013) Schedule B(3)
Sulfate (Turbidimetric) as SO ₄ 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO ₄ . Dissolved sulfate is determined in a 0.45µm filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO ₄ suspension is measured by a photometer and the SO ₄ -2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM (2013) Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G. The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocyanate forms highly-coloured ferric thiocyanate which is measured at 480 nm APHA 21st edition seal method 2 017-1-L april 2003
Major Cations - Dissolved	ED093F	WATER	In house: Referenced to APHA 3120 and 3125; USEPA SW 846 - 6010 and 6020; Cations are determined by either ICP-AES or ICP-MS techniques. This method is compliant with NEPM (2013) Schedule B(3) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM (2013) Schedule B(3) Hardness parameters are calculated based on APHA 2340 B. This method is compliant with NEPM (2013) Schedule B(3)
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.



Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) Samples are 0.45µm filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Fluoride by PC Titrator	EK040P	WATER	In house: Referenced to APHA 4500-F C: CDTA is added to the sample to provide a uniform ionic strength background, adjust pH, and break up complexes. Fluoride concentration is determined by either manual or automatic ISE measurement. This method is compliant with NEPM (2013) Schedule B(3)
Ammonia as N by Discrete analyser	EK055G	WATER	In house: Referenced to APHA 4500-NH ₃ G Ammonia is determined by direct colorimetry by Discrete Analyser. This method is compliant with NEPM (2013) Schedule B(3)
Nitrite as N by Discrete Analyser	EK057G	WATER	In house: Referenced to APHA 4500-NO ₂ - B. Nitrite is determined by direct colourimetry by Discrete Analyser. This method is compliant with NEPM (2013) Schedule B(3)
Nitrate as N by Discrete Analyser	EK058G	WATER	In house: Referenced to APHA 4500-NO ₃ - F. Nitrate is reduced to nitrite by way of a chemical reduction followed by quantification by Discrete Analyser. Nitrite is determined separately by direct colourimetry and result for Nitrate calculated as the difference between the two results. This method is compliant with NEPM (2013) Schedule B(3)
Nitrite and Nitrate as N (NO _x) by Discrete Analyser	EK059G	WATER	In house: Referenced to APHA 4500-NO ₃ - F. Combined oxidised Nitrogen (NO ₂ +NO ₃) is determined by Chemical Reduction and direct colourimetry by Discrete Analyser. This method is compliant with NEPM (2013) Schedule B(3)
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	WATER	In house: Referenced to APHA 4500-Norg D (In house). An aliquot of sample is digested using a high temperature Kjeldahl digestion to convert nitrogenous compounds to ammonia. Ammonia is determined colorimetrically by discrete analyser. This method is compliant with NEPM (2013) Schedule B(3)
Total Nitrogen as N (TKN + Nox) By Discrete Analyser	EK062G	WATER	In house: Referenced to APHA 4500-Norg / 4500-NO ₃ -. This method is compliant with NEPM (2013) Schedule B(3)
Total Phosphorus as P By Discrete Analyser	EK067G	WATER	In house: Referenced to APHA 4500-P H, Jirka et al (1976), Zhang et al (2006). This procedure involves sulphuric acid digestion of a sample aliquot to break phosphorus down to orthophosphate. The orthophosphate reacts with ammonium molybdate and antimony potassium tartrate to form a complex which is then reduced and its concentration measured at 880nm using discrete analyser. This method is compliant with NEPM (2013) Schedule B(3)
Reactive Phosphorus as P-By Discrete Analyser	EK071G	WATER	In house: Referenced to APHA 4500-P F Ammonium molybdate and potassium antimonyl tartrate reacts in acid medium with orthophosphate to form a heteropoly acid -phosphomolybdic acid - which is reduced to intensely coloured molybdenum blue by ascorbic acid. Quantification is by Discrete Analyser. This method is compliant with NEPM (2013) Schedule B(3)
Ionic Balance by PCT DA and Turbi SO4 DA	EN055 - PG	WATER	In house: Referenced to APHA 1030F. This method is compliant with NEPM (2013) Schedule B(3)



Analytical Methods	Method	Matrix	Method Descriptions
Polychlorinated Biphenyls (PCB)	EP066	WATER	In house: Referenced to USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Pesticides by GCMS	EP068	WATER	In house: Referenced to USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)
Volatile Organic Compounds	EP074	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Semivolatile Organic Compounds	EP075	WATER	In house: Referenced to USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)
Per- and Polyfluoroalkyl Substances (PFAS by LCMSMS)	EP231X-LL	WATER	In-house: Analysis of fresh and saline waters by solid phase extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM. Where commercially available, isotopically labelled analogues of the target analytes are used as internal standards for quantification. Where a labelled analogue is not commercially available, the internal standard with similar chemistry and the closest retention time to the target is used for quantification. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. This method complies with the quality control definitions as stated in QSM 5.1. Data is reviewed in line with the DQOs as stated in QSM5.1
Sulphate Reducing Bacteria (BART)	MM669	WATER	Specialist microbiological analysis subcontracted to ALS Scoresby (NATA accreditation does not cover this service).
Preparation Methods	Method	Matrix	Method Descriptions
TKN/TP Digestion	EK061/EK067	WATER	In house: Referenced to APHA 4500 Norg - D; APHA 4500 P - H. This method is compliant with NEPM (2013) Schedule B(3)
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
SPE preparation for LL and saline PFCs	EP231-SPE	WATER	In house
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

CERTIFICATE OF ANALYSIS

Work Order : **EM1810368**
Client : **GHD PTY LTD**
Contact : **KORY AUCH**
Address : **LEVEL 8, 180 LONSDALE ST**
MELBOURNE VIC, AUSTRALIA 3001
Telephone : **----**
Project : **31350060910**
Order number : **----**
C-O-C number : **----**
Sampler : **KORY AUCH / ?**
Site : **----**
Quote number : **ME/124/18 - North East Link**
No. of samples received : **6**
No. of samples analysed : **6**

Page : 1 of 30
Laboratory : Environmental Division Melbourne
Contact : Shirley LeCornu
Address : 4 Westall Rd Springvale VIC Australia 3171
Telephone : +61-3-8549 9630
Date Samples Received : 28-Jun-2018 12:40
Date Analysis Commenced : 28-Jun-2018
Issue Date : 11-Jul-2018 07:40



Accreditation No. 825
 Accredited for compliance with
 ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Franco Lentini		Sydney Organics, Smithfield, NSW
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC
Samantha Smith	Laboratory Coordinator	WRG Subcontracting, Springvale, VIC



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

ø = ALS is not NATA accredited for these tests.

~ = Indicates an estimated value.

- EG020-T: Manganese results for EM1810368 #4 has been confirmed by re-preparation and re-analysis.
- EA010-P: Electrical Conductivity @25°C was analysed by manual method (EA010)
- SRB (MM669) is conducted by ALS Scoresby NATA accreditation no. 992, site no. 989. NATA accreditation does not cover performance of this method.
- EP075: Poor surrogate recoveries for sample EM1810368-003 due to possible matrix interference. Insufficient sample remains to confirm sample heterogeneity via re-extraction and re-analysis
- ED093F:EM1810368_001 and 003 have been confirmed for major cations by re-preparation and re-analysis.
- Ionic Balance out of acceptable limits for sample #1 and #3 due to analytes not quantified in this report. cations and anions have been confirmed by re-analysis.
- Ionic balances were calculated using: major anions - chloride, alkalinity and sulfate; and major cations - calcium, magnesium, potassium and sodium.
- ED045G: The presence of thiocyanate can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.
- EP075: 'Sum of PAH' is the sum of the USEPA 16 priority PAHs
- EA016: Calculated TDS is determined from Electrical conductivity using a conversion factor of 0.65.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a,h)anthracene (1.0), Benzo(g,h,i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.



Analytical Results

Sub-Matrix: GROUNDWATER
 (Matrix: WATER)

Client sample ID

				NEL-ENV-BH006_2706 2018	NEL-ENV-BH009_2706 2018	NEL-ENV-BH032_2706 2018	----	----
Client sampling date / time				27-Jun-2018 12:45	27-Jun-2018 13:50	27-Jun-2018 10:35	----	----
Compound	CAS Number	LOR	Unit	EM1810368-001	EM1810368-002	EM1810368-003	-----	-----
				Result	Result	Result	----	----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	7.42	6.74	7.49	----	----
EA006: Sodium Adsorption Ratio (SAR)								
^ Sodium Adsorption Ratio	----	0.01	-	23.0	1.75	28.9	----	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	9770	1480	11100	----	----
EA016: Calculated TDS (from Electrical Conductivity)								
Total Dissolved Solids (Calc.)	----	1	mg/L	6350	962	7220	----	----
EA065: Total Hardness as CaCO3								
Total Hardness as CaCO3	----	1	mg/L	870	532	864	----	----
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	<1	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	748	487	962	----	----
Total Alkalinity as CaCO3	----	1	mg/L	748	487	962	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	222	84	313	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	3180	209	3600	----	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	78	48	54	----	----
Magnesium	7439-95-4	1	mg/L	164	100	177	----	----
Sodium	7440-23-5	1	mg/L	1560	93	1950	----	----
Potassium	7440-09-7	1	mg/L	23	<1	16	----	----
EG020F: Dissolved Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.001	----	----
Boron	7440-42-8	0.05	mg/L	0.40	0.17	0.32	----	----
Barium	7440-39-3	0.001	mg/L	0.052	0.208	0.065	----	----
Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	<0.001	----	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	----	----
Cobalt	7440-48-4	0.001	mg/L	<0.001	0.002	0.003	----	----
Chromium	7440-47-3	0.001	mg/L	0.002	<0.001	<0.001	----	----
Copper	7440-50-8	0.001	mg/L	0.002	0.006	0.012	----	----
Manganese	7439-96-5	0.001	mg/L	0.024	0.126	0.039	----	----



Analytical Results

Sub-Matrix: GROUNDWATER
 (Matrix: WATER)

Client sample ID

				NEL-ENV-BH006_2706 2018	NEL-ENV-BH009_2706 2018	NEL-ENV-BH032_2706 2018	----	----
Client sampling date / time				27-Jun-2018 12:45	27-Jun-2018 13:50	27-Jun-2018 10:35	----	----
Compound	CAS Number	LOR	Unit	EM1810368-001	EM1810368-002	EM1810368-003	-----	-----
				Result	Result	Result	----	----
EG020F: Dissolved Metals by ICP-MS - Continued								
Nickel	7440-02-0	0.001	mg/L	0.001	0.008	0.005	----	----
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	----	----
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.02	----	----
Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	<0.01	----	----
Zinc	7440-66-6	0.005	mg/L	0.009	0.038	0.012	----	----
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	----	----
EK040P: Fluoride by PC Titrator								
Fluoride	16984-48-8	0.1	mg/L	1.1	0.3	0.9	----	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	0.01	<0.01	0.03	----	----
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.02	0.06	----	----
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	1.58	4.39	2.56	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	1.58	4.41	2.62	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.2	0.6	0.3	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	1.8	5.0	2.9	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	0.10	0.04	0.07	----	----
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	0.02	<0.01	<0.01	----	----
EN055: Ionic Balance								
Total Anions	----	0.01	meq/L	109	17.4	127	----	----
Total Cations	----	0.01	meq/L	85.8	14.7	102	----	----
Ionic Balance	----	0.01	%	12.0	8.44	10.8	----	----
EP066: Polychlorinated Biphenyls (PCB)								
^ Total Polychlorinated biphenyls	----	1	µg/L	<1	<1	<1	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.5	µg/L	<0.5	<0.5	<0.5	----	----



Analytical Results

Sub-Matrix: GROUNDWATER
 (Matrix: WATER)

Client sample ID

				NEL-ENV-BH006_2706 2018	NEL-ENV-BH009_2706 2018	NEL-ENV-BH032_2706 2018	----	----
Client sampling date / time				27-Jun-2018 12:45	27-Jun-2018 13:50	27-Jun-2018 10:35	----	----
Compound	CAS Number	LOR	Unit	EM1810368-001	EM1810368-002	EM1810368-003	-----	-----
				Result	Result	Result	----	----
EP068A: Organochlorine Pesticides (OC) - Continued								
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	<0.5	<0.5	----	----
beta-BHC	319-85-7	0.5	µg/L	<0.5	<0.5	<0.5	----	----
gamma-BHC	58-89-9	0.5	µg/L	<0.5	<0.5	<0.5	----	----
delta-BHC	319-86-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Heptachlor	76-44-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Aldrin	309-00-2	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	<0.5	<0.5	----	----
trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	<0.5	<0.5	----	----
alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Dieldrin	60-57-1	0.5	µg/L	<0.5	<0.5	<0.5	----	----
4,4'-DDE	72-55-9	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Endrin	72-20-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	<0.5	<0.5	----	----
4,4'-DDD	72-54-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
4,4'-DDT	50-29-3	2.0	µg/L	<2.0	<2.0	<2.0	----	----
Endrin ketone	53494-70-5	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Methoxychlor	72-43-5	2.0	µg/L	<2.0	<2.0	<2.0	----	----
^ Total Chlordane (sum)	----	0.5	µg/L	<0.5	<0.5	<0.5	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.5	µg/L	<0.5	<0.5	<0.5	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.5	µg/L	<0.5	<0.5	<0.5	----	----
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Monocrotophos	6923-22-4	2.0	µg/L	<2.0	<2.0	<2.0	----	----
Dimethoate	60-51-5	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Diazinon	333-41-5	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Parathion-methyl	298-00-0	2.0	µg/L	<2.0	<2.0	<2.0	----	----
Malathion	121-75-5	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Fenthion	55-38-9	0.5	µg/L	<0.5	<0.5	<0.5	----	----

Sub-Matrix: **GROUNDWATER**
(Matrix: **WATER**)

NEL-ENV-BH006_2706
2018

NEL-ENV-BH009_2706
2018

NEL-ENV-BH032_2706
2018

Client sampling date / time

27-Jun-2018 12:45

27-Jun-2018 13:50

27-Jun-2018 10:35

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Compound	CAS Number	LOR	Unit
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EM1810368-001

EM1810368-002

EM1810368-003

■■■■■■■■■■

Result

Result

Result

0000-0000-0000-0000

1000

Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Parathion	56-38-2	2.0	µg/L	<2.0	<2.0	<2.0	----	----
Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Fenamiphos	22224-92-6	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Prothiofos	34643-46-4	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Ethion	563-12-2	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Carbophenothion	786-19-6	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	<0.5	<0.5	----	----

Styrene	100-42-5	5	µg/L	<5	<5	<5	----	----
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	<5	----	----
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	<5	----	----
1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	<5	----	----
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	<5	----	----
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	<5	----	----
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	<5	----	----
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	<5	----	----
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	<5	----	----

Vinyl Acetate	108-05-4	50	µg/L	<50	<50	<50	----	----
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	<50	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	<50	----	----
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	<50	----	----

Carbon disulfide	75-15-0	5	µg/L	<5	<5	<5	----	----
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2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	<5	----	----
1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	<5	----	----
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	<5	----	----
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	<5	----	----
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	<5	----	----

EP074E: Halogenated Aliphatic Compounds

Sub-Matrix: **GROUNDWATER**
(Matrix: **WATER**)

NEL-ENV-BH006_2706
2018

NEL-ENV-BH009_2706
2018

NEL-ENV-BH032_2706
2018

Client sampling date / time

27-Jun-2018 12:45

27-Jun-2018 13:50

27-Jun-2018 10:35

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Compound

CAS Number

LOR

Unit

EM1810368-001

EM1810368-002

EM1810368-003

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Result

Result

Result

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Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	<50	----	----
Chloromethane	74-87-3	50	µg/L	<50	<50	<50	----	----
Vinyl chloride	75-01-4	50	µg/L	<50	<50	<50	----	----
Bromomethane	74-83-9	50	µg/L	<50	<50	<50	----	----
Chloroethane	75-00-3	50	µg/L	<50	<50	<50	----	----
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	<50	----	----
1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	<5	----	----
Iodomethane	74-88-4	5	µg/L	<5	<5	<5	----	----
trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	<5	----	----
1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	<5	----	----
cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	<5	----	----
1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	<5	----	----
1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	<5	----	----
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	<5	----	----
1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	<5	----	----
Trichloroethene	79-01-6	5	µg/L	<5	<5	<5	----	----
Dibromomethane	74-95-3	5	µg/L	<5	<5	<5	----	----
1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	<5	----	----
1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	<5	----	----
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	<5	----	----
1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	<5	----	----
trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	<5	----	----
cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	<5	----	----
1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	<5	----	----
1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	<5	----	----
Pentachloroethane	76-01-7	5	µg/L	<5	<5	<5	----	----
1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	<5	----	----

Chlorobenzene	108-90-7	5	µg/L	<5	<5	<5	----	----
Bromobenzene	108-86-1	5	µg/L	<5	<5	<5	----	----
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	<5	----	----
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	<5	----	----
1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	<5	----	----



Analytical Results

Sub-Matrix: GROUNDWATER
 (Matrix: WATER)

Client sample ID

				NEL-ENV-BH006_2706 2018	NEL-ENV-BH009_2706 2018	NEL-ENV-BH032_2706 2018	----	----
Client sampling date / time				27-Jun-2018 12:45	27-Jun-2018 13:50	27-Jun-2018 10:35	----	----
Compound	CAS Number	LOR	Unit	EM1810368-001	EM1810368-002	EM1810368-003	-----	-----
				Result	Result	Result	----	----
EP074G: Trihalomethanes - Continued								
Chloroform	67-66-3	5	µg/L	<5	<5	<5	----	----
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	<5	----	----
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	<5	----	----
Bromoform	75-25-2	5	µg/L	<5	<5	<5	----	----
EP075A: Phenolic Compounds								
Phenol	108-95-2	2	µg/L	<2	<2	<2	----	----
2-Chlorophenol	95-57-8	2	µg/L	<2	<2	<2	----	----
2-Methylphenol	95-48-7	2	µg/L	<2	<2	<2	----	----
3- & 4-Methylphenol	1319-77-3	4	µg/L	<4	<4	<4	----	----
2-Nitrophenol	88-75-5	2	µg/L	<2	<2	<2	----	----
2,4-Dimethylphenol	105-67-9	2	µg/L	<2	<2	<2	----	----
2,4-Dichlorophenol	120-83-2	2	µg/L	<2	<2	<2	----	----
2,6-Dichlorophenol	87-65-0	2	µg/L	<2	<2	<2	----	----
4-Chloro-3-methylphenol	59-50-7	2	µg/L	<2	<2	<2	----	----
2,4,6-Trichlorophenol	88-06-2	2	µg/L	<2	<2	<2	----	----
2,4,5-Trichlorophenol	95-95-4	2	µg/L	<2	<2	<2	----	----
Pentachlorophenol	87-86-5	4	µg/L	<4	<4	<4	----	----
EP075B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	2	µg/L	<2	<2	<2	----	----
2-Methylnaphthalene	91-57-6	2	µg/L	<2	<2	<2	----	----
2-Chloronaphthalene	91-58-7	2	µg/L	<2	<2	<2	----	----
Acenaphthylene	208-96-8	2	µg/L	<2	<2	<2	----	----
Acenaphthene	83-32-9	2	µg/L	<2	<2	<2	----	----
Fluorene	86-73-7	2	µg/L	<2	<2	<2	----	----
Phenanthrene	85-01-8	2	µg/L	<2	<2	<2	----	----
Anthracene	120-12-7	2	µg/L	<2	<2	<2	----	----
Fluoranthene	206-44-0	2	µg/L	<2	<2	<2	----	----
Pyrene	129-00-0	2	µg/L	<2	<2	<2	----	----
N-2-Fluorenyl Acetamide	53-96-3	2	µg/L	<2	<2	<2	----	----
Benz(a)anthracene	56-55-3	2	µg/L	<2	<2	<2	----	----
Chrysene	218-01-9	2	µg/L	<2	<2	<2	----	----
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	4	µg/L	<4	<4	<4	----	----
7,12-Dimethylbenz(a)anthracene	57-97-6	2	µg/L	<2	<2	<2	----	----



Analytical Results

Sub-Matrix: GROUNDWATER
 (Matrix: WATER)

Client sample ID

				NEL-ENV-BH006_2706 2018	NEL-ENV-BH009_2706 2018	NEL-ENV-BH032_2706 2018	----	----
Client sampling date / time				27-Jun-2018 12:45	27-Jun-2018 13:50	27-Jun-2018 10:35	----	----
Compound	CAS Number	LOR	Unit	EM1810368-001	EM1810368-002	EM1810368-003	-----	-----
				Result	Result	Result	----	----
EP075B: Polynuclear Aromatic Hydrocarbons - Continued								
Benzo(a)pyrene	50-32-8	2	µg/L	<2	<2	<2	----	----
3-Methylcholanthrene	56-49-5	2	µg/L	<2	<2	<2	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	2	µg/L	<2	<2	<2	----	----
Dibenz(a,h)anthracene	53-70-3	2	µg/L	<2	<2	<2	----	----
Benzo(g,h,i)perylene	191-24-2	2	µg/L	<2	<2	<2	----	----
^ Sum of PAHs	----	2	µg/L	<2	<2	<2	----	----
^ Benzo(a)pyrene TEQ (zero)	----	2	µg/L	<2	<2	<2	----	----
EP075C: Phthalate Esters								
Dimethyl phthalate	131-11-3	2	µg/L	<2	<2	<2	----	----
Diethyl phthalate	84-66-2	2	µg/L	<2	<2	<2	----	----
Di-n-butyl phthalate	84-74-2	2	µg/L	<2	<2	<2	----	----
Butyl benzyl phthalate	85-68-7	2	µg/L	<2	<2	<2	----	----
bis(2-ethylhexyl) phthalate	117-81-7	10	µg/L	<10	<10	<10	----	----
Di-n-octylphthalate	117-84-0	2	µg/L	<2	<2	<2	----	----
EP075D: Nitrosamines								
N-Nitrosomethylethylamine	10595-95-6	2	µg/L	<2	<2	<2	----	----
N-Nitrosodiethylamine	55-18-5	2	µg/L	<2	<2	<2	----	----
N-Nitrosopyrrolidine	930-55-2	4	µg/L	<4	<4	<4	----	----
N-Nitrosomorpholine	59-89-2	2	µg/L	<2	<2	<2	----	----
N-Nitrosodi-n-propylamine	621-64-7	2	µg/L	<2	<2	<2	----	----
N-Nitrosopiperidine	100-75-4	2	µg/L	<2	<2	<2	----	----
N-Nitrosodibutylamine	924-16-3	2	µg/L	<2	<2	<2	----	----
N-Nitrosodiphenyl & Diphenylamine	86-30-6 122-39-4	4	µg/L	<4	<4	<4	----	----
Methapyrilene	91-80-5	2	µg/L	<2	<2	<2	----	----
EP075E: Nitroaromatics and Ketones								
2-Picoline	109-06-8	2	µg/L	<2	<2	<2	----	----
Acetophenone	98-86-2	2	µg/L	<2	<2	<2	----	----
Nitrobenzene	98-95-3	2	µg/L	<2	<2	<2	----	----
Isophorone	78-59-1	2	µg/L	<2	<2	<2	----	----
2,6-Dinitrotoluene	606-20-2	4	µg/L	<4	<4	<4	----	----
2,4-Dinitrotoluene	121-14-2	4	µg/L	<4	<4	<4	----	----
1-Naphthylamine	134-32-7	2	µg/L	<2	<2	<2	----	----
4-Nitroquinoline-N-oxide	56-57-5	2	µg/L	<2	<2	<2	----	----



Analytical Results

Sub-Matrix: GROUNDWATER
 (Matrix: WATER)

Client sample ID

				NEL-ENV-BH006_2706 2018	NEL-ENV-BH009_2706 2018	NEL-ENV-BH032_2706 2018	----	----
Client sampling date / time				27-Jun-2018 12:45	27-Jun-2018 13:50	27-Jun-2018 10:35	----	----
Compound	CAS Number	LOR	Unit	EM1810368-001	EM1810368-002	EM1810368-003	-----	-----
				Result	Result	Result	----	----
EP075E: Nitroaromatics and Ketones - Continued								
5-Nitro-o-toluidine	99-55-8	2	µg/L	<2	<2	<2	----	----
Azobenzene	103-33-3	2	µg/L	<2	<2	<2	----	----
1,3,5-Trinitrobenzene	99-35-4	2	µg/L	<2	<2	<2	----	----
Phenacetin	62-44-2	2	µg/L	<2	<2	<2	----	----
4-Aminobiphenyl	92-67-1	2	µg/L	<2	<2	<2	----	----
Pentachloronitrobenzene	82-68-8	2	µg/L	<2	<2	<2	----	----
Pronamide	23950-58-5	2	µg/L	<2	<2	<2	----	----
Dimethylaminoazobenzene	60-11-7	2	µg/L	<2	<2	<2	----	----
Chlorobenzilate	510-15-6	2	µg/L	<2	<2	<2	----	----
EP075F: Haloethers								
Bis(2-chloroethyl) ether	111-44-4	2	µg/L	<2	<2	<2	----	----
Bis(2-chloroethoxy) methane	111-91-1	2	µg/L	<2	<2	<2	----	----
4-Chlorophenyl phenyl ether	7005-72-3	2	µg/L	<2	<2	<2	----	----
4-Bromophenyl phenyl ether	101-55-3	2	µg/L	<2	<2	<2	----	----
EP075G: Chlorinated Hydrocarbons								
1,3-Dichlorobenzene	541-73-1	2	µg/L	<2	<2	<2	----	----
1,4-Dichlorobenzene	106-46-7	2	µg/L	<2	<2	<2	----	----
1,2-Dichlorobenzene	95-50-1	2	µg/L	<2	<2	<2	----	----
Hexachloroethane	67-72-1	2	µg/L	<2	<2	<2	----	----
1,2,4-Trichlorobenzene	120-82-1	2	µg/L	<2	<2	<2	----	----
Hexachloropropylene	1888-71-7	2	µg/L	<2	<2	<2	----	----
Hexachlorobutadiene	87-68-3	2	µg/L	<2	<2	<2	----	----
Hexachlorocyclopentadiene	77-47-4	10	µg/L	<10	<10	<10	----	----
Pentachlorobenzene	608-93-5	2	µg/L	<2	<2	<2	----	----
Hexachlorobenzene (HCB)	118-74-1	4	µg/L	<4	<4	<4	----	----
EP075H: Anilines and Benzidines								
Aniline	62-53-3	2	µg/L	<2	<2	<2	----	----
4-Chloroaniline	106-47-8	2	µg/L	<2	<2	<2	----	----
2-Nitroaniline	88-74-4	4	µg/L	<4	<4	<4	----	----
3-Nitroaniline	99-09-2	4	µg/L	<4	<4	<4	----	----
Dibenzofuran	132-64-9	2	µg/L	<2	<2	<2	----	----
4-Nitroaniline	100-01-6	2	µg/L	<2	<2	<2	----	----
Carbazole	86-74-8	2	µg/L	<2	<2	<2	----	----
3,3'-Dichlorobenzidine	91-94-1	2	µg/L	<2	<2	<2	----	----



Analytical Results

Sub-Matrix: GROUNDWATER
 (Matrix: WATER)

Client sample ID

				NEL-ENV-BH006_2706 2018	NEL-ENV-BH009_2706 2018	NEL-ENV-BH032_2706 2018	----	----
Client sampling date / time				27-Jun-2018 12:45	27-Jun-2018 13:50	27-Jun-2018 10:35	----	----
Compound	CAS Number	LOR	Unit	EM1810368-001	EM1810368-002	EM1810368-003	-----	-----
				Result	Result	Result	----	----
EP075I: Organochlorine Pesticides								
alpha-BHC	319-84-6	2	µg/L	<2	<2	<2	----	----
beta-BHC	319-85-7	2	µg/L	<2	<2	<2	----	----
gamma-BHC	58-89-9	2	µg/L	<2	<2	<2	----	----
delta-BHC	319-86-8	2	µg/L	<2	<2	<2	----	----
Heptachlor	76-44-8	2	µg/L	<2	<2	<2	----	----
Aldrin	309-00-2	2	µg/L	<2	<2	<2	----	----
Heptachlor epoxide	1024-57-3	2	µg/L	<2	<2	<2	----	----
alpha-Endosulfan	959-98-8	2	µg/L	<2	<2	<2	----	----
4,4'-DDE	72-55-9	2	µg/L	<2	<2	<2	----	----
Dieldrin	60-57-1	2	µg/L	<2	<2	<2	----	----
Endrin	72-20-8	2	µg/L	<2	<2	<2	----	----
beta-Endosulfan	33213-65-9	2	µg/L	<2	<2	<2	----	----
4,4'-DDD	72-54-8	2	µg/L	<2	<2	<2	----	----
Endosulfan sulfate	1031-07-8	2	µg/L	<2	<2	<2	----	----
4,4'-DDT	50-29-3	4	µg/L	<4	<4	<4	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	4	µg/L	<4	<4	<4	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-29-3	4	µg/L	<4	<4	<4	----	----
EP075J: Organophosphorus Pesticides								
Dichlorvos	62-73-7	2	µg/L	<2	<2	<2	----	----
Dimethoate	60-51-5	2	µg/L	<2	<2	<2	----	----
Diazinon	333-41-5	2	µg/L	<2	<2	<2	----	----
Chlorpyrifos-methyl	5598-13-0	2	µg/L	<2	<2	<2	----	----
Malathion	121-75-5	2	µg/L	<2	<2	<2	----	----
Fenthion	55-38-9	2	µg/L	<2	<2	<2	----	----
Chlorpyrifos	2921-88-2	2	µg/L	<2	<2	<2	----	----
Pirimphos-ethyl	23505-41-1	2	µg/L	<2	<2	<2	----	----
Chlorfenvinphos	470-90-6	2	µg/L	<2	<2	<2	----	----
Prothiofos	34643-46-4	2	µg/L	<2	<2	<2	----	----
Ethion	563-12-2	2	µg/L	<2	<2	<2	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	----	----
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	----	----
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	----	----

Sub-Matrix: **GROUNDWATER**
(Matrix: **WATER**)

NEL-ENV-BH006_2706
2018

NEL-ENV-BH009_2706
2018

NEL-ENV-BH032_2706
2018

Client sampling date / time

27-Jun-2018 12:45

27-Jun-2018 13:50

27-Jun-2018 10:35

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Compound

CAS Number

LOR

Unit

EM1810368-001

EM1810368-002

EM1810368-003

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C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	----	----

C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	----	----
>C10 - C16 Fraction	----	100	µg/L	<100	<100	<100	----	----
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	----	----
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	----	----

Benzene	71-43-2	1	µg/L	<1	<1	<1	----	----
Toluene	108-88-3	2	µg/L	<2	<2	<2	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	----	----
^ Total Xylenes	----	2	µg/L	<2	<2	<2	----	----
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	----	----
Napthalene	91-20-3	5	µg/L	<5	<5	<5	----	----

Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.002	µg/L	<0.002	0.070	<0.002	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.002	µg/L	<0.002	0.059	<0.002	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.002	µg/L	<0.002	0.552	<0.002	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.002	µg/L	<0.002	0.032	<0.002	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.002	µg/L	<0.002	0.146	<0.002	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.002	µg/L	<0.002	<0.002	<0.002	----	----

Sub-Matrix: **GROUNDWATER**
(Matrix: **WATER**)

NEL-ENV-BH006_2706
2018

NEL-ENV-BH009_2706
2018

NEL-ENV-BH032_2706
2018

Client sampling date / time

27-Jun-2018 12:45

27-Jun-2018 13:50

27-Jun-2018 10:35

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Compound

CAS Number

LOR

Unit

EM1810368-001

EM1810368-002

EM1810368-003

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Result

Result

Result

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Perfluorobutanoic acid (PFBA)	375-22-4	0.01	µg/L	<0.01	0.16	<0.01	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.002	µg/L	<0.002	0.249	<0.002	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.002	µg/L	<0.002	0.180	<0.002	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.002	µg/L	<0.002	0.113	<0.002	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.002	µg/L	<0.002	0.066	<0.002	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.002	µg/L	<0.002	0.005	<0.002	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.002	µg/L	<0.002	<0.002	<0.002	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.002	µg/L	<0.002	<0.002	<0.002	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.002	µg/L	<0.002	<0.002	<0.002	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.002	µg/L	<0.002	<0.002	<0.002	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.005	µg/L	<0.005	<0.005	<0.005	----	----
Perfluorohexadecanoic acid (PFHxDA)	67905-19-5	0.005	µg/L	<0.005	<0.005	<0.005	----	----

Perfluorooctane sulfonamide (FOSA)	754-91-6	0.002	µg/L	<0.002	<0.002	<0.002	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.005	µg/L	<0.005	<0.005	<0.005	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.005	µg/L	<0.005	<0.005	<0.005	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.005	µg/L	<0.005	<0.005	<0.005	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.005	µg/L	<0.005	<0.005	<0.005	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.002	µg/L	<0.002	<0.002	<0.002	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.002	µg/L	<0.002	<0.002	<0.002	----	----

EP231D: (n:2) Fluorotelomer Sulfonic Acids



Analytical Results

Sub-Matrix: GROUNDWATER
 (Matrix: WATER)

Client sample ID

				NEL-ENV-BH006_2706 2018	NEL-ENV-BH009_2706 2018	NEL-ENV-BH032_2706 2018	----	----
Client sampling date / time				27-Jun-2018 12:45	27-Jun-2018 13:50	27-Jun-2018 10:35	----	----
Compound	CAS Number	LOR	Unit	EM1810368-001	EM1810368-002	EM1810368-003	-----	-----
				Result	Result	Result	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued								
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.005	µg/L	<0.005	<0.005	<0.005	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.005	µg/L	<0.005	0.025	<0.005	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.005	µg/L	<0.005	<0.005	<0.005	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.005	µg/L	<0.005	<0.005	<0.005	----	----
EP231P: PFAS Sums								
Sum of PFAS	----	0.002	µg/L	<0.002	1.66	<0.002	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.002	µg/L	<0.002	0.698	<0.002	----	----
Sum of PFAS (WA DER List)	----	0.002	µg/L	<0.002	1.56	<0.002	----	----
MM669: Sulphate Reducing Bacteria								
Sulphate Reducing Bacteria Population Estimate	----	20	pac/mL	120000	6000	500000	----	----
Aggressivity	----	1	-	High	High	High	----	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	1	%	84.7	74.5	74.5	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.5	%	96.9	85.6	85.8	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.5	%	109	106	101	----	----
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	5	%	86.5	94.9	87.7	----	----
Toluene-D8	2037-26-5	5	%	88.0	98.8	90.1	----	----
4-Bromofluorobenzene	460-00-4	5	%	92.2	110	104	----	----
EP075S: Acid Extractable Surrogates								
2-Fluorophenol	367-12-4	2	%	55.1	42.4	15.3	----	----
Phenol-d6	13127-88-3	2	%	27.6	25.6	10.1	----	----
2-Chlorophenol-D4	93951-73-6	2	%	65.8	60.1	21.9	----	----
2,4,6-Tribromophenol	118-79-6	2	%	66.4	59.5	64.1	----	----
EP075T: Base/Neutral Extractable Surrogates								
Nitrobenzene-D5	4165-60-0	2	%	76.7	78.6	26.8	----	----



Analytical Results

Sub-Matrix: GROUNDWATER
 (Matrix: WATER)

Client sample ID

				NEL-ENV-BH006_2706 2018	NEL-ENV-BH009_2706 2018	NEL-ENV-BH032_2706 2018	----	----
Client sampling date / time				27-Jun-2018 12:45	27-Jun-2018 13:50	27-Jun-2018 10:35	----	----
Compound	CAS Number	LOR	Unit	EM1810368-001	EM1810368-002	EM1810368-003	-----	-----
				Result	Result	Result	----	----
EP075T: Base/Neutral Extractable Surrogates - Continued								
1,2-Dichlorobenzene-D4	2199-69-1	2	%	71.4	63.5	22.4	----	----
2-Fluorobiphenyl	321-60-8	2	%	91.3	84.4	37.5	----	----
Anthracene-d10	1719-06-8	2	%	106	90.5	84.6	----	----
4-Terphenyl-d14	1718-51-0	2	%	105	87.8	88.7	----	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	2	%	85.7	94.4	86.9	----	----
Toluene-D8	2037-26-5	2	%	80.4	90.4	82.2	----	----
4-Bromofluorobenzene	460-00-4	2	%	91.1	98.5	93.1	----	----
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.002	%	81.0	60.7	71.8	----	----
13C8-PFOA	----	0.002	%	106	84.3	101	----	----



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Client sample ID

				RB402_27062018	FB402_27062018	TB402_27062018	----	----
Client sampling date / time				27-Jun-2018 10:45	27-Jun-2018 10:45	27-Jun-2018 10:45	----	----
Compound	CAS Number	LOR	Unit	EM1810368-004	EM1810368-005	EM1810368-006	-----	-----
				Result	Result	Result	----	----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	6.61	5.36	----	----	----
EA006: Sodium Adsorption Ratio (SAR)								
^ Sodium Adsorption Ratio	----	0.01	-	0.12	0.12	----	----	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	4	3	----	----	----
EA016: Calculated TDS (from Electrical Conductivity)								
Total Dissolved Solids (Calc.)	----	1	mg/L	3	2	----	----	----
EA065: Total Hardness as CaCO3								
Total Hardness as CaCO3	----	1	mg/L	<1	<1	----	----	----
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	----	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	----	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	4	<1	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L	4	<1	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	<1	----	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	<1	<1	----	----	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	<1	<1	----	----	----
Magnesium	7439-95-4	1	mg/L	<1	<1	----	----	----
Sodium	7440-23-5	1	mg/L	<1	<1	----	----	----
Potassium	7440-09-7	1	mg/L	<1	<1	----	----	----
EG020T: Total Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	----	----	----
Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	----	----	----
Barium	7440-39-3	0.001	mg/L	<0.001	<0.001	----	----	----
Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	----	----	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	----	----	----
Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	----	----	----
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	----	----	----
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	----	----	----
Manganese	7439-96-5	0.001	mg/L	0.002	<0.001	----	----	----
Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	RB402_27062018	FB402_27062018	TB402_27062018	----	----
Client sampling date / time					27-Jun-2018 10:45	27-Jun-2018 10:45	27-Jun-2018 10:45	----	----
Compound	CAS Number	LOR	Unit		EM1810368-004	EM1810368-005	EM1810368-006	-----	-----
				Result	Result	Result		----	----
EG020T: Total Metals by ICP-MS - Continued									
Lead	7439-92-1	0.001	mg/L		<0.001	<0.001	----	----	----
Selenium	7782-49-2	0.01	mg/L		<0.01	<0.01	----	----	----
Vanadium	7440-62-2	0.01	mg/L		<0.01	<0.01	----	----	----
Zinc	7440-66-6	0.005	mg/L		<0.005	<0.005	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	----	----	----
EK040P: Fluoride by PC Titrator									
Fluoride	16984-48-8	0.1	mg/L		<0.1	<0.1	----	----	----
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		<0.01	<0.01	----	----	----
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L		<0.01	<0.01	----	----	----
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L		<0.01	<0.01	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		<0.01	<0.01	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L		<0.1	<0.1	----	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L		<0.1	<0.1	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L		<0.01	<0.01	----	----	----
EK071G: Reactive Phosphorus as P by discrete analyser									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L		<0.01	<0.01	----	----	----
EN055: Ionic Balance									
Total Anions	----	0.01	meq/L		0.08	<0.01	----	----	----
Total Cations	----	0.01	meq/L		<0.01	<0.01	----	----	----
EP066: Polychlorinated Biphenyls (PCB)									
^ Total Polychlorinated biphenyls	----	1	µg/L		<1	<1	----	----	----
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.5	µg/L		<0.5	<0.5	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L		<0.5	<0.5	----	----	----
beta-BHC	319-85-7	0.5	µg/L		<0.5	<0.5	----	----	----



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Client sample ID

				RB402_27062018	FB402_27062018	TB402_27062018	----	----
Client sampling date / time				27-Jun-2018 10:45	27-Jun-2018 10:45	27-Jun-2018 10:45	----	----
Compound	CAS Number	LOR	Unit	EM1810368-004	EM1810368-005	EM1810368-006	-----	-----
				Result	Result	Result	----	----

EP068A: Organochlorine Pesticides (OC) - Continued

gamma-BHC	58-89-9	0.5	µg/L	<0.5	<0.5	----	----	----
delta-BHC	319-86-8	0.5	µg/L	<0.5	<0.5	----	----	----
Heptachlor	76-44-8	0.5	µg/L	<0.5	<0.5	----	----	----
Aldrin	309-00-2	0.5	µg/L	<0.5	<0.5	----	----	----
Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	<0.5	----	----	----
trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	<0.5	----	----	----
alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	<0.5	----	----	----
cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	<0.5	----	----	----
Dieldrin	60-57-1	0.5	µg/L	<0.5	<0.5	----	----	----
4,4'-DDE	72-55-9	0.5	µg/L	<0.5	<0.5	----	----	----
Endrin	72-20-8	0.5	µg/L	<0.5	<0.5	----	----	----
beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	<0.5	----	----	----
4,4'-DDD	72-54-8	0.5	µg/L	<0.5	<0.5	----	----	----
Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	<0.5	----	----	----
Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	<0.5	----	----	----
4,4'-DDT	50-29-3	2.0	µg/L	<2.0	<2.0	----	----	----
Endrin ketone	53494-70-5	0.5	µg/L	<0.5	<0.5	----	----	----
Methoxychlor	72-43-5	2.0	µg/L	<2.0	<2.0	----	----	----
^ Total Chlordane (sum)	----	0.5	µg/L	<0.5	<0.5	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.5	µg/L	<0.5	<0.5	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.5	µg/L	<0.5	<0.5	----	----	----

EP068B: Organophosphorus Pesticides (OP)

Dichlorvos	62-73-7	0.5	µg/L	<0.5	<0.5	----	----	----
Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	<0.5	----	----	----
Monocrotophos	6923-22-4	2.0	µg/L	<2.0	<2.0	----	----	----
Dimethoate	60-51-5	0.5	µg/L	<0.5	<0.5	----	----	----
Diazinon	333-41-5	0.5	µg/L	<0.5	<0.5	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	<0.5	----	----	----
Parathion-methyl	298-00-0	2.0	µg/L	<2.0	<2.0	----	----	----
Malathion	121-75-5	0.5	µg/L	<0.5	<0.5	----	----	----
Fenthion	55-38-9	0.5	µg/L	<0.5	<0.5	----	----	----
Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	<0.5	----	----	----
Parathion	56-38-2	2.0	µg/L	<2.0	<2.0	----	----	----
Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	<0.5	----	----	----



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Client sample ID

				RB402_27062018	FB402_27062018	TB402_27062018	----	----
Client sampling date / time				27-Jun-2018 10:45	27-Jun-2018 10:45	27-Jun-2018 10:45	----	----
Compound	CAS Number	LOR	Unit	EM1810368-004	EM1810368-005	EM1810368-006	-----	-----
				Result	Result	Result	----	----
EP068B: Organophosphorus Pesticides (OP) - Continued								
Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	<0.5	----	----	----
Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	<0.5	----	----	----
Fenamiphos	22224-92-6	0.5	µg/L	<0.5	<0.5	----	----	----
Prothiofos	34643-46-4	0.5	µg/L	<0.5	<0.5	----	----	----
Ethion	563-12-2	0.5	µg/L	<0.5	<0.5	----	----	----
Carbophenothion	786-19-6	0.5	µg/L	<0.5	<0.5	----	----	----
Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	<0.5	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	5	µg/L	<5	<5	----	----	----
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	----	----	----
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	----	----	----
1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	----	----	----
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	----	----	----
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	----	----	----
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	----	----	----
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	----	----	----
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	----	----	----
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	----	----	----
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	----	----	----
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	----	----	----
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	----	----	----
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	----	----	----
1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	----	----	----
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	----	----	----
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	----	----	----
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	----	----	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	----	----	----
Chloromethane	74-87-3	50	µg/L	<50	<50	----	----	----
Vinyl chloride	75-01-4	50	µg/L	<50	<50	----	----	----



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Client sample ID

				RB402_27062018	FB402_27062018	TB402_27062018	----	----
Client sampling date / time				27-Jun-2018 10:45	27-Jun-2018 10:45	27-Jun-2018 10:45	----	----
Compound	CAS Number	LOR	Unit	EM1810368-004	EM1810368-005	EM1810368-006	-----	-----
				Result	Result	Result	----	----
EP074E: Halogenated Aliphatic Compounds - Continued								
Bromomethane	74-83-9	50	µg/L	<50	<50	----	----	----
Chloroethane	75-00-3	50	µg/L	<50	<50	----	----	----
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	----	----	----
1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	----	----	----
Iodomethane	74-88-4	5	µg/L	<5	<5	----	----	----
trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	----	----	----
1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	----	----	----
cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	----	----	----
1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	----	----	----
1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	----	----	----
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	----	----	----
1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	----	----	----
Trichloroethene	79-01-6	5	µg/L	<5	<5	----	----	----
Dibromomethane	74-95-3	5	µg/L	<5	<5	----	----	----
1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	----	----	----
1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	----	----	----
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	----	----	----
1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	----	----	----
trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	----	----	----
cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	----	----	----
1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	----	----	----
1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	----	----	----
Pentachloroethane	76-01-7	5	µg/L	<5	<5	----	----	----
1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	----	----	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	----	----	----
Bromobenzene	108-86-1	5	µg/L	<5	<5	----	----	----
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	----	----	----
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	----	----	----
1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	----	----	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	----	----	----
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	----	----	----
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	----	----	----



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Client sample ID

				RB402_27062018	FB402_27062018	TB402_27062018	----	----
Client sampling date / time				27-Jun-2018 10:45	27-Jun-2018 10:45	27-Jun-2018 10:45	----	----
Compound	CAS Number	LOR	Unit	EM1810368-004	EM1810368-005	EM1810368-006	-----	-----
				Result	Result	Result	----	----
EP074G: Trihalomethanes - Continued								
Bromoform	75-25-2	5	µg/L	<5	<5	----	----	----
EP075A: Phenolic Compounds								
Phenol	108-95-2	2	µg/L	<2	<2	----	----	----
2-Chlorophenol	95-57-8	2	µg/L	<2	<2	----	----	----
2-Methylphenol	95-48-7	2	µg/L	<2	<2	----	----	----
3- & 4-Methylphenol	1319-77-3	4	µg/L	<4	<4	----	----	----
2-Nitrophenol	88-75-5	2	µg/L	<2	<2	----	----	----
2,4-Dimethylphenol	105-67-9	2	µg/L	<2	<2	----	----	----
2,4-Dichlorophenol	120-83-2	2	µg/L	<2	<2	----	----	----
2,6-Dichlorophenol	87-65-0	2	µg/L	<2	<2	----	----	----
4-Chloro-3-methylphenol	59-50-7	2	µg/L	<2	<2	----	----	----
2,4,6-Trichlorophenol	88-06-2	2	µg/L	<2	<2	----	----	----
2,4,5-Trichlorophenol	95-95-4	2	µg/L	<2	<2	----	----	----
Pentachlorophenol	87-86-5	4	µg/L	<4	<4	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	2	µg/L	<2	<2	----	----	----
2-Methylnaphthalene	91-57-6	2	µg/L	<2	<2	----	----	----
2-Chloronaphthalene	91-58-7	2	µg/L	<2	<2	----	----	----
Acenaphthylene	208-96-8	2	µg/L	<2	<2	----	----	----
Acenaphthene	83-32-9	2	µg/L	<2	<2	----	----	----
Fluorene	86-73-7	2	µg/L	<2	<2	----	----	----
Phenanthrene	85-01-8	2	µg/L	<2	<2	----	----	----
Anthracene	120-12-7	2	µg/L	<2	<2	----	----	----
Fluoranthene	206-44-0	2	µg/L	<2	<2	----	----	----
Pyrene	129-00-0	2	µg/L	<2	<2	----	----	----
N-2-Fluorenyl Acetamide	53-96-3	2	µg/L	<2	<2	----	----	----
Benz(a)anthracene	56-55-3	2	µg/L	<2	<2	----	----	----
Chrysene	218-01-9	2	µg/L	<2	<2	----	----	----
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	4	µg/L	<4	<4	----	----	----
7,12-Dimethylbenz(a)anthracene	57-97-6	2	µg/L	<2	<2	----	----	----
Benzo(a)pyrene	50-32-8	2	µg/L	<2	<2	----	----	----
3-Methylcholanthrene	56-49-5	2	µg/L	<2	<2	----	----	----
Indeno(1,2,3-cd)pyrene	193-39-5	2	µg/L	<2	<2	----	----	----
Dibenz(a,h)anthracene	53-70-3	2	µg/L	<2	<2	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	RB402_27062018	FB402_27062018	TB402_27062018	----	----
Client sampling date / time					27-Jun-2018 10:45	27-Jun-2018 10:45	27-Jun-2018 10:45	----	----
Compound	CAS Number	LOR	Unit		EM1810368-004	EM1810368-005	EM1810368-006	-----	-----
					Result	Result	Result	----	----
EP075B: Polynuclear Aromatic Hydrocarbons - Continued									
Benzo(g,h,i)perylene	191-24-2	2	µg/L		<2	<2	----	----	----
^ Sum of PAHs	----	2	µg/L		<2	<2	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	2	µg/L		<2	<2	----	----	----
EP075C: Phthalate Esters									
Dimethyl phthalate	131-11-3	2	µg/L		<2	<2	----	----	----
Diethyl phthalate	84-66-2	2	µg/L		<2	<2	----	----	----
Di-n-butyl phthalate	84-74-2	2	µg/L		<2	<2	----	----	----
Butyl benzyl phthalate	85-68-7	2	µg/L		<2	<2	----	----	----
bis(2-ethylhexyl) phthalate	117-81-7	10	µg/L		<10	<10	----	----	----
Di-n-octylphthalate	117-84-0	2	µg/L		<2	<2	----	----	----
EP075D: Nitrosamines									
N-Nitrosomethylethylamine	10595-95-6	2	µg/L		<2	<2	----	----	----
N-Nitrosodiethylamine	55-18-5	2	µg/L		<2	<2	----	----	----
N-Nitrosopyrrolidine	930-55-2	4	µg/L		<4	<4	----	----	----
N-Nitrosomorpholine	59-89-2	2	µg/L		<2	<2	----	----	----
N-Nitrosodi-n-propylamine	621-64-7	2	µg/L		<2	<2	----	----	----
N-Nitrosopiperidine	100-75-4	2	µg/L		<2	<2	----	----	----
N-Nitrosodibutylamine	924-16-3	2	µg/L		<2	<2	----	----	----
N-Nitrosodiphenyl & Diphenylamine	86-30-6 122-39-4	4	µg/L		<4	<4	----	----	----
Methapyrilene	91-80-5	2	µg/L		<2	<2	----	----	----
EP075E: Nitroaromatics and Ketones									
2-Picoline	109-06-8	2	µg/L		<2	<2	----	----	----
Acetophenone	98-86-2	2	µg/L		<2	<2	----	----	----
Nitrobenzene	98-95-3	2	µg/L		<2	<2	----	----	----
Isophorone	78-59-1	2	µg/L		<2	<2	----	----	----
2,6-Dinitrotoluene	606-20-2	4	µg/L		<4	<4	----	----	----
2,4-Dinitrotoluene	121-14-2	4	µg/L		<4	<4	----	----	----
1-Naphthylamine	134-32-7	2	µg/L		<2	<2	----	----	----
4-Nitroquinoline-N-oxide	56-57-5	2	µg/L		<2	<2	----	----	----
5-Nitro-o-toluidine	99-55-8	2	µg/L		<2	<2	----	----	----
Azobenzene	103-33-3	2	µg/L		<2	<2	----	----	----
1,3,5-Trinitrobenzene	99-35-4	2	µg/L		<2	<2	----	----	----
Phenacetin	62-44-2	2	µg/L		<2	<2	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	RB402_27062018	FB402_27062018	TB402_27062018	----	----
Client sampling date / time					27-Jun-2018 10:45	27-Jun-2018 10:45	27-Jun-2018 10:45	----	----
Compound	CAS Number	LOR	Unit		EM1810368-004	EM1810368-005	EM1810368-006	-----	-----
					Result	Result	Result	----	----
EP075E: Nitroaromatics and Ketones - Continued									
4-Aminobiphenyl	92-67-1	2	µg/L		<2	<2	----	----	----
Pentachloronitrobenzene	82-68-8	2	µg/L		<2	<2	----	----	----
Pronamide	23950-58-5	2	µg/L		<2	<2	----	----	----
Dimethylaminoazobenzene	60-11-7	2	µg/L		<2	<2	----	----	----
Chlorobenzilate	510-15-6	2	µg/L		<2	<2	----	----	----
EP075F: Haloethers									
Bis(2-chloroethyl) ether	111-44-4	2	µg/L		<2	<2	----	----	----
Bis(2-chloroethoxy) methane	111-91-1	2	µg/L		<2	<2	----	----	----
4-Chlorophenyl phenyl ether	7005-72-3	2	µg/L		<2	<2	----	----	----
4-Bromophenyl phenyl ether	101-55-3	2	µg/L		<2	<2	----	----	----
EP075G: Chlorinated Hydrocarbons									
1,3-Dichlorobenzene	541-73-1	2	µg/L		<2	<2	----	----	----
1,4-Dichlorobenzene	106-46-7	2	µg/L		<2	<2	----	----	----
1,2-Dichlorobenzene	95-50-1	2	µg/L		<2	<2	----	----	----
Hexachloroethane	67-72-1	2	µg/L		<2	<2	----	----	----
1,2,4-Trichlorobenzene	120-82-1	2	µg/L		<2	<2	----	----	----
Hexachloropropylene	1888-71-7	2	µg/L		<2	<2	----	----	----
Hexachlorobutadiene	87-68-3	2	µg/L		<2	<2	----	----	----
Hexachlorocyclopentadiene	77-47-4	10	µg/L		<10	<10	----	----	----
Pentachlorobenzene	608-93-5	2	µg/L		<2	<2	----	----	----
Hexachlorobenzene (HCB)	118-74-1	4	µg/L		<4	<4	----	----	----
EP075H: Anilines and Benzidines									
Aniline	62-53-3	2	µg/L		<2	<2	----	----	----
4-Chloroaniline	106-47-8	2	µg/L		<2	<2	----	----	----
2-Nitroaniline	88-74-4	4	µg/L		<4	<4	----	----	----
3-Nitroaniline	99-09-2	4	µg/L		<4	<4	----	----	----
Dibenzofuran	132-64-9	2	µg/L		<2	<2	----	----	----
4-Nitroaniline	100-01-6	2	µg/L		<2	<2	----	----	----
Carbazole	86-74-8	2	µg/L		<2	<2	----	----	----
3,3'-Dichlorobenzidine	91-94-1	2	µg/L		<2	<2	----	----	----
EP075I: Organochlorine Pesticides									
alpha-BHC	319-84-6	2	µg/L		<2	<2	----	----	----
beta-BHC	319-85-7	2	µg/L		<2	<2	----	----	----
gamma-BHC	58-89-9	2	µg/L		<2	<2	----	----	----



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Client sample ID

				RB402_27062018	FB402_27062018	TB402_27062018	----	----
Client sampling date / time				27-Jun-2018 10:45	27-Jun-2018 10:45	27-Jun-2018 10:45	----	----
Compound	CAS Number	LOR	Unit	EM1810368-004	EM1810368-005	EM1810368-006	-----	-----
				Result	Result	Result	----	----

EP075I: Organochlorine Pesticides - Continued

delta-BHC	319-86-8	2	µg/L	<2	<2	----	----	----
Heptachlor	76-44-8	2	µg/L	<2	<2	----	----	----
Aldrin	309-00-2	2	µg/L	<2	<2	----	----	----
Heptachlor epoxide	1024-57-3	2	µg/L	<2	<2	----	----	----
alpha-Endosulfan	959-98-8	2	µg/L	<2	<2	----	----	----
4,4'-DDE	72-55-9	2	µg/L	<2	<2	----	----	----
Dieldrin	60-57-1	2	µg/L	<2	<2	----	----	----
Endrin	72-20-8	2	µg/L	<2	<2	----	----	----
beta-Endosulfan	33213-65-9	2	µg/L	<2	<2	----	----	----
4,4'-DDD	72-54-8	2	µg/L	<2	<2	----	----	----
Endosulfan sulfate	1031-07-8	2	µg/L	<2	<2	----	----	----
4,4'-DDT	50-29-3	4	µg/L	<4	<4	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	4	µg/L	<4	<4	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	4	µg/L	<4	<4	----	----	----

EP075J: Organophosphorus Pesticides

Dichlorvos	62-73-7	2	µg/L	<2	<2	----	----	----
Dimethoate	60-51-5	2	µg/L	<2	<2	----	----	----
Diazinon	333-41-5	2	µg/L	<2	<2	----	----	----
Chlorpyrifos-methyl	5598-13-0	2	µg/L	<2	<2	----	----	----
Malathion	121-75-5	2	µg/L	<2	<2	----	----	----
Fenthion	55-38-9	2	µg/L	<2	<2	----	----	----
Chlorpyrifos	2921-88-2	2	µg/L	<2	<2	----	----	----
Pirimphos-ethyl	23505-41-1	2	µg/L	<2	<2	----	----	----
Chlorfenvinphos	470-90-6	2	µg/L	<2	<2	----	----	----
Prothiofos	34643-46-4	2	µg/L	<2	<2	----	----	----
Ethion	563-12-2	2	µg/L	<2	<2	----	----	----

EP080/071: Total Petroleum Hydrocarbons

C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	----	----
C10 - C14 Fraction	----	50	µg/L	<50	<50	----	----	----
C15 - C28 Fraction	----	100	µg/L	<100	<100	----	----	----
C29 - C36 Fraction	----	50	µg/L	<50	<50	----	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	----	----	----

EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Client sample ID

				RB402_27062018	FB402_27062018	TB402_27062018	----	----
Client sampling date / time				27-Jun-2018 10:45	27-Jun-2018 10:45	27-Jun-2018 10:45	----	----
Compound	CAS Number	LOR	Unit	EM1810368-004	EM1810368-005	EM1810368-006	-----	-----
				Result	Result	Result	----	----

EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued

C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	----	----
>C10 - C16 Fraction	----	100	µg/L	<100	<100	----	----	----
>C16 - C34 Fraction	----	100	µg/L	<100	<100	----	----	----
>C34 - C40 Fraction	----	100	µg/L	<100	<100	----	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	----	----	----

EP080: BTEXN

Benzene	71-43-2	1	µg/L	<1	<1	<1	----	----
Toluene	108-88-3	2	µg/L	<2	<2	<2	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	----	----
^ Total Xylenes	----	2	µg/L	<2	<2	<2	----	----
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	----	----
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	----	----

EP231A: Perfluoroalkyl Sulfonic Acids

Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.002	µg/L	<0.002	<0.002	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.002	µg/L	<0.002	<0.002	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.002	µg/L	<0.002	<0.002	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.002	µg/L	<0.002	<0.002	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.002	µg/L	<0.002	<0.002	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.002	µg/L	<0.002	<0.002	----	----	----

EP231B: Perfluoroalkyl Carboxylic Acids

Perfluorobutanoic acid (PFBA)	375-22-4	0.01	µg/L	<0.01	<0.01	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.002	µg/L	<0.002	<0.002	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.002	µg/L	<0.002	<0.002	----	----	----



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Client sample ID

				RB402_27062018	FB402_27062018	TB402_27062018	----	----
Client sampling date / time				27-Jun-2018 10:45	27-Jun-2018 10:45	27-Jun-2018 10:45	----	----
Compound	CAS Number	LOR	Unit	EM1810368-004	EM1810368-005	EM1810368-006	-----	-----
				Result	Result	Result	----	----
EP231B: Perfluoroalkyl Carboxylic Acids - Continued								
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.002	µg/L	<0.002	<0.002	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.002	µg/L	<0.002	<0.002	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.002	µg/L	<0.002	<0.002	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.002	µg/L	<0.002	<0.002	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.002	µg/L	<0.002	<0.002	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.002	µg/L	<0.002	<0.002	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.002	µg/L	<0.002	<0.002	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.005	µg/L	<0.005	<0.005	----	----	----
Perfluorohexadecanoic acid (PFHxDA)	67905-19-5	0.005	µg/L	<0.005	<0.005	----	----	----
EP231C: Perfluoroalkyl Sulfonamides								
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.002	µg/L	<0.002	<0.002	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.005	µg/L	<0.005	<0.005	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.005	µg/L	<0.005	<0.005	----	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.005	µg/L	<0.005	<0.005	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.005	µg/L	<0.005	<0.005	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.002	µg/L	<0.002	<0.002	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.002	µg/L	<0.002	<0.002	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.005	µg/L	<0.005	<0.005	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.005	µg/L	<0.005	<0.005	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	RB402_27062018	FB402_27062018	TB402_27062018	----	----
Client sampling date / time					27-Jun-2018 10:45	27-Jun-2018 10:45	27-Jun-2018 10:45	----	----
Compound	CAS Number	LOR	Unit		EM1810368-004	EM1810368-005	EM1810368-006	-----	-----
					Result	Result	Result	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.005	µg/L		<0.005	<0.005	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.005	µg/L		<0.005	<0.005	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.002	µg/L		<0.002	<0.002	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.002	µg/L		<0.002	<0.002	----	----	----
Sum of PFAS (WA DER List)	----	0.002	µg/L		<0.002	<0.002	----	----	----
MM669: Sulphate Reducing Bacteria									
Sulphate Reducing Bacteria Population Estimate	----	20	pac/mL		<20	<20	----	----	----
Aggressivity	----	1	-		Not Aggressive	Not Aggressive	----	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	1	%		61.9	82.7	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.5	%		71.5	95.9	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.5	%		83.0	108	----	----	----
EP074S: VOC Surrogates									
1,2-Dichloroethane-D4	17060-07-0	5	%		86.5	86.7	----	----	----
Toluene-D8	2037-26-5	5	%		87.8	90.0	----	----	----
4-Bromofluorobenzene	460-00-4	5	%		100	105	----	----	----
EP075S: Acid Extractable Surrogates									
2-Fluorophenol	367-12-4	2	%		39.6	54.3	----	----	----
Phenol-d6	13127-88-3	2	%		22.4	28.9	----	----	----
2-Chlorophenol-D4	93951-73-6	2	%		56.7	68.7	----	----	----
2,4,6-Tribromophenol	118-79-6	2	%		49.1	76.0	----	----	----
EP075T: Base/Neutral Extractable Surrogates									
Nitrobenzene-D5	4165-60-0	2	%		62.6	75.7	----	----	----
1,2-Dichlorobenzene-D4	2199-69-1	2	%		57.4	68.0	----	----	----
2-Fluorobiphenyl	321-60-8	2	%		69.6	85.8	----	----	----
Anthracene-d10	1719-06-8	2	%		79.1	91.6	----	----	----
4-Terphenyl-d14	1718-51-0	2	%		73.2	83.8	----	----	----



Analytical Results

Sub-Matrix: **WATER**
 (Matrix: **WATER**)

Client sample ID

				RB402_27062018	FB402_27062018	TB402_27062018	----	----
Client sampling date / time				27-Jun-2018 10:45	27-Jun-2018 10:45	27-Jun-2018 10:45	----	----
Compound	CAS Number	LOR	Unit	EM1810368-004	EM1810368-005	EM1810368-006	-----	-----
				Result	Result	Result	----	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	2	%	85.7	86.5	87.8	----	----
Toluene-D8	2037-26-5	2	%	80.1	82.1	83.8	----	----
4-Bromofluorobenzene	460-00-4	2	%	89.6	93.3	93.5	----	----
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.002	%	88.8	68.6	----	----	----
13C8-PFOA	----	0.002	%	99.8	96.0	----	----	----



Surrogate Control Limits

Sub-Matrix: GROUNDWATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	41	125
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	117
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	51	127
EP074S: VOC Surrogates			
1,2-Dichloroethane-D4	17060-07-0	72	132
Toluene-D8	2037-26-5	77	132
4-Bromofluorobenzene	460-00-4	67	131
EP075S: Acid Extractable Surrogates			
2-Fluorophenol	367-12-4	10	75
Phenol-d6	13127-88-3	10	65
2-Chlorophenol-D4	93951-73-6	21	103
2,4,6-Tribromophenol	118-79-6	22	120
EP075T: Base/Neutral Extractable Surrogates			
Nitrobenzene-D5	4165-60-0	24	116
1,2-Dichlorobenzene-D4	2199-69-1	23	99
2-Fluorobiphenyl	321-60-8	32	114
Anthracene-d10	1719-06-8	47	119
4-Terphenyl-d14	1718-51-0	44	124
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	73	129
Toluene-D8	2037-26-5	70	125
4-Bromofluorobenzene	460-00-4	71	129
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	41	125
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	117
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	51	127
EP074S: VOC Surrogates			
1,2-Dichloroethane-D4	17060-07-0	72	132



Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP074S: VOC Surrogates - Continued			
Toluene-D8	2037-26-5	77	132
4-Bromofluorobenzene	460-00-4	67	131
EP075S: Acid Extractable Surrogates			
2-Fluorophenol	367-12-4	10	75
Phenol-d6	13127-88-3	10	65
2-Chlorophenol-D4	93951-73-6	21	103
2,4,6-Tribromophenol	118-79-6	22	120
EP075T: Base/Neutral Extractable Surrogates			
Nitrobenzene-D5	4165-60-0	24	116
1,2-Dichlorobenzene-D4	2199-69-1	23	99
2-Fluorobiphenyl	321-60-8	32	114
Anthracene-d10	1719-06-8	47	119
4-Terphenyl-d14	1718-51-0	44	124
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	73	129
Toluene-D8	2037-26-5	70	125
4-Bromofluorobenzene	460-00-4	71	129
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

CHAIN OF CUSTODY RECORD

GHD



GHD Melbourne

180 Lansdale Street, Melbourne 3000

Telephone: 613 8687 8000 Facsimile: 613 8687 8111

Job Number 31/35006/0910		GHD Office Melbourne		Laboratory: ALS Springvale																PLEASE NOTE: - Sign white copy on receipt and release of samples. - Samples are to be delivered to the Laboratory Address. - On receipt of samples, the laboratory contact to sign white copy and fax/email to GHD Contact. - On completion of analyses please return white copy with results. Pink copy is returned to the sampler once the courier has signed for the samples. - E-mail results to the GHD Contact with the GHD Job Number in the e-mail subject line. Results to be provided in ESDAT compatible format	
Project North East Link - Contamination Assessment				Address: 2 - 4 Westall Rd, Springvale Lab Contact: Shirley LeCornu																	
GHD Contact Kory Auch		Contact Email kory.auch@ghd.com																			
Standard TAT		Quote No./GHD Reference ME/124/18																			
Sample ID	Date	Time	Composite Sample	Sample Matrix & Soil St. Sample No. (e.g. GHD-123456)	Preservative	Type Vial or Glass Bottle or Plastic Bottle	Number	Volume (mL)	HOLD	Extended water suite (NT-14)	Sulfate Reducing Bacteria (MW017)	NEPM Metals Suite (W-3)	TRH(C6-C40)/BTEXN/PAH/Phenols (W-24)	OC/OP/PCB (W-13)	VOCs/SVOCs (W-23)	PFAS Full Suite Low Level (28 analytes)- (EP231X-LL)	TRH(C6-C10) and BTEXN (W-18)	Remarks			
NEL-ENV-BH006_27062018	27 June 2018	12:45			GW	Y	V_G_P	2,1,5		X	X	X	X	X	X	X					
NEL-ENV-BH009_27062018	27 / / 2018	13:50			GW	Y	V_G_P	2,1,5		X	X	X	X	X	X	X					
NEL-ENV-BH032_27062018	27 / / 2018	10:35			GW	Y	V_G_P	2,1,5		X	X	X	X	X	X	X					
RB402_27062018	27 / / 2018	10:45			W	Y	V_G_P	2,1,5		X	X	X	X	X	X	X					
FB402_27062018	27 / / 2018	10:45			W	Y	V_G_P	2,1,5		X	X	X	X	X	X	X					
TB402_27062018	27 June 2018	10:45			W	Y	V	2									X				

Environmental Division
Melbourne
Work Order Reference
EM1810368



Telephone : + 61-3-8649 9600

Sampled by:	Kory Auch / Ky/22	Date/Time:	27/06/2018 @ 15:30	Relinquished by:		Date/Time:	
Received by:		Date/Time:		Relinquished by:		Date/Time:	
Received by Courier:		Date/Time:		Relinquished by:		Date/Time:	
Received by Lab:	Mann (AU)	Date/Time:	28/6 17:40				
Remarks:	Please CC reports and correspondence to David Quinn (david.quinn@ghd.com) & GHD Lab Reports						

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : EM1810368

<p>Client : GHD PTY LTD</p> <p>Contact : KORY AUCH</p> <p>Address : LEVEL 8, 180 LONSDALE ST MELBOURNE VIC, AUSTRALIA 3001</p> <p>E-mail : kory.auch@ghd.com</p> <p>Telephone : ----</p> <p>Facsimile : ----</p> <p>Project : 31350060910</p> <p>Order number :</p> <p>C-O-C number : ----</p> <p>Site : ----</p> <p>Sampler : KORY AUCH / ?</p>	<p>Laboratory : Environmental Division Melbourne</p> <p>Contact : Shirley LeCornu</p> <p>Address : 4 Westall Rd Springvale VIC Australia 3171</p> <p>E-mail : shirley.lecornu@Alsglobal.com</p> <p>Telephone : +61-3-8549 9630</p> <p>Facsimile : +61-3-8549 9626</p> <p>Page : 1 of 3</p> <p>Quote number : EM2018GHDSE0003 (ME/124/18 - North East Link)</p> <p>QC Level : NEPM 2013 B3 & ALS QC Standard</p>
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Dates

Date Samples Received : 28-Jun-2018 12:40	Issue Date : 28-Jun-2018
Client Requested Due : 05-Jul-2018	Scheduled Reporting Date : 05-Jul-2018
Date	

Delivery Details

Mode of Delivery : Carrier	Security Seal : Intact.
No. of coolers/boxes : 1	Temperature : 5.6°C - Ice present
Receipt Detail :	No. of samples received / analysed : 6 / 6

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- **Work order due date will be required to be extended for Sulphate Reducing Bacteria analysis - all other analysis to be available by 5/7.**
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **Analytical work for this work order will be conducted at ALS Springvale, ALS Scoresby & ALS Sydney.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- No sample container / preservation non-compliance exists.

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

EM1810368-001 : 27-Jun-2018 12:45 : NEL-ENV-BH006_27062018
EM1810368-002 : 27-Jun-2018 13:50 : NEL-ENV-BH009_27062018
EM1810368-003 : 27-Jun-2018 10:35 : NEL-ENV-BH032_27062018

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EP231X-LL PFAS - Full Suite Low Level (29 analytes)	WATER - MM669 (Subcontracted) Sulphate Reducing Bacteria (BART)	WATER - NT-14 Extended Water Suite B	WATER - W-03 15 Metals (NEPM Suite)	WATER - W-04 TRH/BTEXN	WATER - W-13 OC/OP/PCB	WATER - W-23 SVOC/VOC
EM1810368-001	27-Jun-2018 12:45	NEL-ENV-BH006_270620...	✓	✓	✓	✓	✓	✓	✓
EM1810368-002	27-Jun-2018 13:50	NEL-ENV-BH009_270620...	✓	✓	✓	✓	✓	✓	✓
EM1810368-003	27-Jun-2018 10:35	NEL-ENV-BH032_270620...	✓	✓	✓	✓	✓	✓	✓
EM1810368-004	27-Jun-2018 10:45	RB402_27062018	✓	✓	✓		✓	✓	✓
EM1810368-005	27-Jun-2018 10:45	FB402_27062018	✓	✓	✓		✓	✓	✓

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-03T 15 Metals (Total) (NEPM)	WATER - W-18 TRH(C6 - C9)/BTEXN
EM1810368-004	27-Jun-2018 10:45	RB402_27062018	✓	
EM1810368-005	27-Jun-2018 10:45	FB402_27062018	✓	
EM1810368-006	27-Jun-2018 10:45	TB402_27062018		✓

Proactive Holding Time Report

The following table summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory.

Matrix: **WATER**

Evaluation: ✗ = Holding time breach ; ✓ = Within holding time.

Method		Container	Due for extraction	Due for analysis	Samples Received		Instructions Received	
					Date	Evaluation	Date	Evaluation
Client Sample ID(s)								
EA005-P: pH by PC Titrator								
FB402_27062018	Clear Plastic Bottle - Natural	----	27-Jun-2018	28-Jun-2018	✗	----	----	
NEL-ENV-BH006_27	Clear Plastic Bottle - Natural	----	27-Jun-2018	28-Jun-2018	✗	----	----	
NEL-ENV-BH009_27	Clear Plastic Bottle - Natural	----	27-Jun-2018	28-Jun-2018	✗	----	----	
NEL-ENV-BH032_27	Clear Plastic Bottle - Natural	----	27-Jun-2018	28-Jun-2018	✗	----	----	
RB402_27062018	Clear Plastic Bottle - Natural	----	27-Jun-2018	28-Jun-2018	✗	----	----	

QUALITY CONTROL REPORT

Work Order	: EM1810368	Page	: 1 of 23
Client	: GHD PTY LTD	Laboratory	: Environmental Division Melbourne
Contact	: KORY AUCH	Contact	: Shirley LeCornu
Address	: LEVEL 8, 180 LONSDALE ST MELBOURNE VIC, AUSTRALIA 3001	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +61-3-8549 9630
Project	: 31350060910	Date Samples Received	: 28-Jun-2018
Order number	: ----	Date Analysis Commenced	: 28-Jun-2018
C-O-C number	: ----	Issue Date	: 11-Jul-2018
Sampler	: KORY AUCH / ?		
Site	: ----		
Quote number	: ME/124/18 - North East Link		
No. of samples received	: 6		
No. of samples analysed	: 6		



This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Franco Lentini		Sydney Organics, Smithfield, NSW
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC
Samantha Smith	Laboratory Coordinator	WRG Subcontracting, Springvale, VIC



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key :
 Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
 CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
 LOR = Limit of reporting
 RPD = Relative Percentage Difference
 # = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EA005P: pH by PC Titrator (QC Lot: 1764160)									
EM1810368-003	NEL-ENV-BH032_2706201 8	EA005-P: pH Value	----	0.01	pH Unit	7.49	7.51	0.267	0% - 20%
EM1810368-001	NEL-ENV-BH006_2706201 8	EA005-P: pH Value	----	0.01	pH Unit	7.42	7.43	0.216	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 1764157)									
EM1810355-003	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	6270	6300	0.477	0% - 20%
EM1810368-001	NEL-ENV-BH006_2706201 8	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	9770	9750	0.205	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 1764162)									
EM1810368-003	NEL-ENV-BH032_2706201 8	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	11100	11200	0.180	0% - 20%
EM1810374-006	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	3120	3110	0.321	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 1764161)									
EM1810374-006	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.00	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.00	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	1220	1210	0.935	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	1220	1210	0.935	0% - 20%
EM1810368-001	NEL-ENV-BH006_2706201 8	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.00	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.00	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	748	748	0.00	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	748	748	0.00	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 1761865)									
EM1810353-002	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	793	800	0.857	0% - 20%



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 1761865) - continued									
EM1810357-004	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	58	54	6.75	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 1761868)									
EM1810368-003	NEL-ENV-BH032_27062018	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	313	315	0.629	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 1761866)									
EM1810364-005	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	73	74	0.00	0% - 20%
EM1810357-006	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	37	38	0.00	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 1764268)									
EM1810353-008	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	<1	<1	0.00	No Limit
		ED093F: Magnesium	7439-95-4	1	mg/L	<1	<1	0.00	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	<1	<1	0.00	No Limit
		ED093F: Potassium	7440-09-7	1	mg/L	<1	<1	0.00	No Limit
EM1810364-005	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	88	89	0.00	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	10	10	0.00	0% - 50%
		ED093F: Sodium	7440-23-5	1	mg/L	67	68	0.00	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	<1	<1	0.00	No Limit
EG020F: Dissolved Metals by ICP-MS (QC Lot: 1764267)									
EM1810353-007	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.004	0.004	0.00	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.037	0.038	2.77	0% - 20%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	0.003	0.003	0.00	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.002	0.002	0.00	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.014	0.014	0.00	0% - 50%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.002	0.002	0.00	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.066	0.068	3.07	0% - 50%
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	0.01	0.01	0.00	No Limit
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-F: Boron	7440-42-8	0.05	mg/L	0.28	0.32	11.5	No Limit
		EM1810379-002	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001
EG020A-F: Arsenic	7440-38-2			0.001	mg/L	0.002	0.002	0.00	No Limit
EG020A-F: Beryllium	7440-41-7			0.001	mg/L	<0.001	<0.001	0.00	No Limit
EG020A-F: Barium	7440-39-3			0.001	mg/L	0.026	0.028	7.38	0% - 20%
EG020A-F: Chromium	7440-47-3			0.001	mg/L	<0.001	<0.001	0.00	No Limit
EG020A-F: Cobalt	7440-48-4			0.001	mg/L	0.004	0.004	0.00	No Limit
EG020A-F: Copper	7440-50-8			0.001	mg/L	0.004	0.005	0.00	No Limit
EG020A-F: Lead	7439-92-1	0.001	mg/L	0.002	0.002	0.00	No Limit		



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG020F: Dissolved Metals by ICP-MS (QC Lot: 1764267) - continued									
EM1810379-002	Anonymous	EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.081	0.083	2.19	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.004	0.004	0.00	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.082	0.088	7.08	0% - 50%
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	0.01	0.01	0.00	No Limit
		EG020A-F: Boron	7440-42-8	0.05	mg/L	0.08	0.08	0.00	No Limit
EG020T: Total Metals by ICP-MS (QC Lot: 1764262)									
EM1810355-003	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	0.0001	<0.0001	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.011	0.011	0.00	0% - 50%
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	0.020	0.020	0.00	0% - 50%
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.001	0.002	0.00	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	0.002	0.001	0.00	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.003	0.003	0.00	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.004	0.004	0.00	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.271	0.268	1.28	0% - 20%
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.009	0.009	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.013	0.014	0.00	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.00	No Limit
EM1810380-002	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	0.162	0.156	3.33	0% - 20%
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.003	0.003	0.00	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	0.002	0.002	0.00	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.001	0.00	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.117	0.112	4.84	0% - 20%
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.007	0.007	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.013	0.013	0.00	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-T: Boron	7440-42-8	0.05	mg/L	0.31	0.31	0.00	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 1764264)									
EM1810353-005	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	0.0001	<0.0001	0.00	No Limit
EM1810219-010	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1774886)									
EM1810264-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1774886) - continued									
EM1810367-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EK040P: Fluoride by PC Titrator (QC Lot: 1764159)									
EM1810351-002	Anonymous	EK040P: Fluoride	16984-48-8	0.1	mg/L	4.8	4.8	0.00	0% - 20%
EM1810368-001	NEL-ENV-BH006_27062018	EK040P: Fluoride	16984-48-8	0.1	mg/L	1.1	1.1	0.00	0% - 50%
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 1764646)									
EM1810367-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	1.24	1.22	1.56	0% - 20%
EM1810374-003	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.64	0.66	3.65	0% - 20%
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 1761867)									
EM1810359-003	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	0.02	0.01	0.00	No Limit
EM1810368-001	NEL-ENV-BH006_27062018	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 1764647)									
EM1810367-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	1.46	1.42	2.76	0% - 20%
EM1810374-003	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.01	0.01	0.00	No Limit
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 1764554)									
EM1810368-005	FB402_27062018	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	<0.1	0.00	No Limit
EM1810374-009	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.9	0.4	73.1	No Limit
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 1764552)									
EM1809855-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.03	0.06	75.0	No Limit
EM1810364-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	0.05	131	No Limit
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 1764555)									
EM1810368-005	FB402_27062018	EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	0.07	150	No Limit
EM1810374-009	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.10	0.09	0.00	No Limit
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 1761862)									
EM1810311-001	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EM1810357-006	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	0.03	0.03	0.00	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 1764092)									
EM1810353-001	Anonymous	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.00	No Limit
EM1810379-002	Anonymous	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.00	No Limit



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 1764092) - continued									
EM1810379-002	Anonymous	EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.00	No Limit
EP074B: Oxygenated Compounds (QC Lot: 1764092)									
EM1810353-001	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.00	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.00	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.00	No Limit
EM1810379-002	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.00	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.00	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.00	No Limit
EP074C: Sulfonated Compounds (QC Lot: 1764092)									
EM1810353-001	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.00	No Limit
EM1810379-002	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.00	No Limit
EP074D: Fumigants (QC Lot: 1764092)									
EM1810353-001	Anonymous	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.00	No Limit
EM1810379-002	Anonymous	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.00	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 1764092)									
EM1810353-001	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.00	No Limit



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074E: Halogenated Aliphatic Compounds (QC Lot: 1764092) - continued									
EM1810353-001	Anonymous	EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.00	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.00	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.00	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.00	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.00	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.00	No Limit
EM1810379-002	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.00	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.00	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.00	No Limit



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074E: Halogenated Aliphatic Compounds (QC Lot: 1764092) - continued									
EM1810379-002	Anonymous	EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.00	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.00	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.00	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.00	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 1764092)									
EM1810353-001	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.00	No Limit
EM1810379-002	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.00	No Limit
EP074G: Trihalomethanes (QC Lot: 1764092)									
EM1810353-001	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.00	No Limit
EM1810379-002	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1764093)									
EM1810353-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EM1810379-002	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1764093)									
EM1810353-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EM1810379-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 1764093)									
EM1810353-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.00	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080: BTEXN (QC Lot: 1764093) - continued									
EM1810353-001	Anonymous	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
EM1810379-002	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.00	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 1770103)									
EM1810368-004	RB402_27062018	EP231X-LL: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.002	µg/L	<0.002	<0.002	0.00	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 1770103)									
EM1810368-004	RB402_27062018	EP231X-LL: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorohexanoic acid (PFHxA)	307-24-4	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorooctanoic acid (PFOA)	335-67-1	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorononanoic acid (PFNA)	375-95-1	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorodecanoic acid (PFDA)	335-76-2	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorotridecanoic acid (PFTTrDA)	72629-94-8	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: Perfluorobutanoic acid (PFBA)	375-22-4	0.01	µg/L	<0.01	<0.01	0.00	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 1770103)									
EM1810368-004	RB402_27062018	EP231X-LL: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.002	µg/L	<0.002	<0.002	0.00	No Limit

Page : 10 of 23
 Work Order : EM1810368
 Client : GHD PTY LTD
 Project : 31350060910



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 1770103) - continued									
EM1810368-004	RB402_27062018	EP231X-LL: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.005	µg/L	<0.005	<0.005	0.00	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 1770103)									
EM1810368-004	RB402_27062018	EP231X-LL: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.005	µg/L	<0.005	<0.005	0.00	No Limit



Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EA010P: Conductivity by PC Titrator (QCLot: 1764157)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	1412 µS/cm	103	85	119
EA010P: Conductivity by PC Titrator (QCLot: 1764162)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	1412 µS/cm	103	85	119
ED037P: Alkalinity by PC Titrator (QCLot: 1764161)								
ED037-P: Total Alkalinity as CaCO3	----	----	mg/L	----	200 mg/L	100	88	109
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 1761865)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	96.4	92	115
				<1	100 mg/L	99.0	92	115
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 1761868)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	106	92	115
				<1	100 mg/L	101	92	115
ED045G: Chloride by Discrete Analyser (QCLot: 1761866)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	10 mg/L	105	88	118
				<1	1000 mg/L	110	88	118
ED093F: Dissolved Major Cations (QCLot: 1764268)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	5 mg/L	95.6	93	110
ED093F: Magnesium	7439-95-4	1	mg/L	<1	5 mg/L	99.7	91	110
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	104	90	109
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	101	89	109
EG020F: Dissolved Metals by ICP-MS (QCLot: 1764267)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	103	91	107
EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	92.4	82	113
EG020A-F: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	99.2	84	106
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	93.6	84	104
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	90.5	83	103
EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	99.5	83	106
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	97.6	82	103
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	95.9	83	105
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	93.1	83	105
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	97.0	82	106
EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	99.2	82	109
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	93.2	83	106
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	107	85	109
EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	0.5 mg/L	89.1	84	116

Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EG020T: Total Metals by ICP-MS (QCLot: 1764262)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	104	90	110
EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	96.0	88	113
EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	106	88	112
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	96.9	86	111
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	101	87	109
EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	101	88	113
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	99.5	87	108
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	101	88	109
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	102	88	111
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	103	87	111
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	97.5	85	113
EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	104	88	112
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	107	87	113
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	0.5 mg/L	96.3	88	118
EG035F: Dissolved Mercury by FIMS (QCLot: 1764264)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	94.5	81	114
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1774886)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	97.9	81	114
EK040P: Fluoride by PC Titrator (QCLot: 1764159)								
EK040P: Fluoride	16984-48-8	0.1	mg/L	<0.1	5 mg/L	102	85	112
EK055G: Ammonia as N by Discrete Analyser (QCLot: 1764646)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	107	80	115
EK057G: Nitrite as N by Discrete Analyser (QCLot: 1761867)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	103	94	107
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 1764647)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	112	89	114
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 1764554)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	5 mg/L	81.7	70	117
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 1764552)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	2.21 mg/L	92.2	70	120
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 1764555)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	2.21 mg/L	92.7	70	120
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 1761862)								
EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.5 mg/L	109	90	110
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 1761959)								
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1.0	10 µg/L	87.4	54	132
EP068A: Organochlorine Pesticides (OC) (QCLot: 1761960)								



Sub-Matrix: **WATER**

Method: Compound				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
						LCS	Low	High
CAS Number	LOR	Unit	Result					
EP068A: Organochlorine Pesticides (OC) (QCLot: 1761960) - continued								
EP068: alpha-BHC	319-84-6	0.5	µg/L	<0.5	5 µg/L	71.8	51	122
EP068: Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	5 µg/L	60.3	51	118
EP068: beta-BHC	319-85-7	0.5	µg/L	<0.5	5 µg/L	87.3	57	119
EP068: gamma-BHC	58-89-9	0.5	µg/L	<0.5	5 µg/L	76.4	51	121
EP068: delta-BHC	319-86-8	0.5	µg/L	<0.5	5 µg/L	94.7	58	114
EP068: Heptachlor	76-44-8	0.5	µg/L	<0.5	5 µg/L	79.3	47	113
EP068: Aldrin	309-00-2	0.5	µg/L	<0.5	5 µg/L	72.5	53	118
EP068: Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	5 µg/L	88.8	53	117
EP068: trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	5 µg/L	95.9	50	126
EP068: alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	5 µg/L	88.0	55	121
EP068: cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	5 µg/L	87.7	54	120
EP068: Dieldrin	60-57-1	0.5	µg/L	<0.5	5 µg/L	88.3	50	121
EP068: 4,4'-DDE	72-55-9	0.5	µg/L	<0.5	5 µg/L	88.9	54	120
EP068: Endrin	72-20-8	0.5	µg/L	<0.5	5 µg/L	96.4	45	122
EP068: beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	5 µg/L	90.2	55	120
EP068: 4,4'-DDD	72-54-8	0.5	µg/L	<0.5	5 µg/L	109	53	126
EP068: Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	5 µg/L	101	52	123
EP068: Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	5 µg/L	88.0	48	121
EP068: 4,4'-DDT	50-29-3	2	µg/L	<2.0	5 µg/L	96.5	46	120
EP068: Endrin ketone	53494-70-5	0.5	µg/L	<0.5	5 µg/L	90.7	56	118
EP068: Methoxychlor	72-43-5	2	µg/L	<2.0	5 µg/L	98.5	42	123
EP068B: Organophosphorus Pesticides (OP) (QCLot: 1761960)								
EP068: Dichlorvos	62-73-7	0.5	µg/L	<0.5	5 µg/L	63.7	45	123
EP068: Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	5 µg/L	86.8	42	129
EP068: Monocrotophos	6923-22-4	2	µg/L	<2.0	5 µg/L	15.1	10	43
EP068: Dimethoate	60-51-5	0.5	µg/L	<0.5	5 µg/L	83.0	38	115
EP068: Diazinon	333-41-5	0.5	µg/L	<0.5	5 µg/L	84.8	54	121
EP068: Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	5 µg/L	85.3	56	118
EP068: Parathion-methyl	298-00-0	2	µg/L	<2.0	5 µg/L	106	43	115
EP068: Malathion	121-75-5	0.5	µg/L	<0.5	5 µg/L	92.6	50	120
EP068: Fenthion	55-38-9	0.5	µg/L	<0.5	5 µg/L	88.5	55	119
EP068: Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	5 µg/L	87.2	50	122
EP068: Parathion	56-38-2	2	µg/L	<2.0	5 µg/L	105	44	114
EP068: Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	5 µg/L	96.0	52	117
EP068: Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	5 µg/L	90.4	42	126
EP068: Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	5 µg/L	90.0	50	117
EP068: Fenamiphos	22224-92-6	0.5	µg/L	<0.5	5 µg/L	93.4	45	127
EP068: Prothiofos	34643-46-4	0.5	µg/L	<0.5	5 µg/L	86.9	52	120
EP068: Ethion	563-12-2	0.5	µg/L	<0.5	5 µg/L	91.3	49	118



Sub-Matrix: **WATER**

Method: Compound				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
						LCS	Low	High
CAS Number	LOR	Unit	Result					
EP068B: Organophosphorus Pesticides (OP) (QCLot: 1761960) - continued								
EP068: Carbophenothion	786-19-6	0.5	µg/L	<0.5	5 µg/L	92.2	52	119
EP068: Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	5 µg/L	105	21	120
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 1764092)								
EP074: Styrene	100-42-5	5	µg/L	<5	20 µg/L	100	79	114
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	20 µg/L	96.0	72	116
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	20 µg/L	91.6	71	115
EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	20 µg/L	94.2	72	114
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	20 µg/L	92.5	72	114
EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	20 µg/L	95.1	74	112
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	20 µg/L	93.9	73	114
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	20 µg/L	93.2	70	115
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	20 µg/L	87.2	62	116
EP074B: Oxygenated Compounds (QCLot: 1764092)								
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	200 µg/L	95.9	73	126
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	200 µg/L	102	68	136
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	200 µg/L	102	76	127
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	200 µg/L	104	71	131
EP074C: Sulfonated Compounds (QCLot: 1764092)								
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	20 µg/L	83.4	55	123
EP074D: Fumigants (QCLot: 1764092)								
EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	20 µg/L	87.6	67	122
EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	20 µg/L	95.5	78	120
EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	20 µg/L	94.8	70	118
EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	20 µg/L	94.5	68	115
EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	20 µg/L	106	78	120
EP074E: Halogenated Aliphatic Compounds (QCLot: 1764092)								
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	200 µg/L	74.7	62	140
EP074: Chloromethane	74-87-3	50	µg/L	<50	200 µg/L	69.8	68	138
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	200 µg/L	76.0	64	139
EP074: Bromomethane	74-83-9	50	µg/L	<50	200 µg/L	50.5	48	130
EP074: Chloroethane	75-00-3	50	µg/L	<50	200 µg/L	79.0	71	130
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	200 µg/L	81.7	71	126
EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	20 µg/L	85.2	65	124
EP074: Iodomethane	74-88-4	5	µg/L	<5	20 µg/L	47.5	27	120
EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	20 µg/L	90.4	73	121
EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	20 µg/L	91.2	77	120
EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	20 µg/L	95.0	78	120
EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	20 µg/L	87.3	68	116



Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result			Low	High
EP074E: Halogenated Aliphatic Compounds (QCLot: 1764092) - continued								
EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	20 µg/L	85.1	66	119
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	20 µg/L	83.6	66	119
EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	20 µg/L	94.5	79	118
EP074: Trichloroethene	79-01-6	5	µg/L	<5	20 µg/L	92.7	70	120
EP074: Dibromomethane	74-95-3	5	µg/L	<5	20 µg/L	98.7	75	115
EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	20 µg/L	105	87	114
EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	20 µg/L	102	84	116
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	20 µg/L	95.7	75	119
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	20 µg/L	99.3	75	112
EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	20 µg/L	89.0	63	119
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	20 µg/L	89.5	54	119
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	20 µg/L	104	81	125
EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	20 µg/L	106	81	125
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	20 µg/L	90.5	62	110
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	20 µg/L	97.9	63	106
EP074F: Halogenated Aromatic Compounds (QCLot: 1764092)								
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	20 µg/L	99.3	82	114
EP074: Bromobenzene	108-86-1	5	µg/L	<5	20 µg/L	100	74	117
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	20 µg/L	94.2	71	114
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	20 µg/L	94.0	71	112
EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	20 µg/L	98.9	74	118
EP074G: Trihalomethanes (QCLot: 1764092)								
EP074: Chloroform	67-66-3	5	µg/L	<5	20 µg/L	93.6	79	119
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	20 µg/L	94.1	70	112
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	20 µg/L	98.4	68	107
EP074: Bromoform	75-25-2	5	µg/L	<5	20 µg/L	95.6	62	108
EP075A: Phenolic Compounds (QCLot: 1761961)								
EP075: Phenol	108-95-2	2	µg/L	<2	10 µg/L	26.8	19	47
EP075: 2-Chlorophenol	95-57-8	2	µg/L	<2	10 µg/L	58.8	44	100
EP075: 2-Methylphenol	95-48-7	2	µg/L	<2	10 µg/L	50.4	38	94
EP075: 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2	10 µg/L	46.8	33	88
EP075: 2-Nitrophenol	88-75-5	2	µg/L	<2	10 µg/L	65.6	40	111
EP075: 2.4-Dimethylphenol	105-67-9	2	µg/L	<2	10 µg/L	64.3	44	110
EP075: 2.4-Dichlorophenol	120-83-2	2	µg/L	<2	10 µg/L	57.4	43	110
EP075: 2.6-Dichlorophenol	87-65-0	2	µg/L	<2	10 µg/L	67.9	49	104
EP075: 4-Chloro-3-methylphenol	59-50-7	2	µg/L	<2	10 µg/L	66.1	50	103
EP075: 2.4.6-Trichlorophenol	88-06-2	2	µg/L	<2	10 µg/L	72.8	48	107
EP075: 2.4.5-Trichlorophenol	95-95-4	2	µg/L	<2	10 µg/L	75.5	48	110



Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EP075A: Phenolic Compounds (QCLot: 1761961) - continued								
EP075: Pentachlorophenol	87-86-5	4	µg/L	<4	10 µg/L	58.6	25	113
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 1761961)								
EP075: Naphthalene	91-20-3	2	µg/L	<2	10 µg/L	67.2	51	102
EP075: 2-Methylnaphthalene	91-57-6	2	µg/L	<2	10 µg/L	73.2	50	107
EP075: 2-Chloronaphthalene	91-58-7	2	µg/L	<2	10 µg/L	74.7	47	111
EP075: Acenaphthylene	208-96-8	2	µg/L	<2	10 µg/L	75.1	49	110
EP075: Acenaphthene	83-32-9	2	µg/L	<2	10 µg/L	70.2	54	105
EP075: Fluorene	86-73-7	2	µg/L	<2	10 µg/L	72.3	54	108
EP075: Phenanthrene	85-01-8	2	µg/L	<2	10 µg/L	81.7	57	108
EP075: Anthracene	120-12-7	2	µg/L	<2	10 µg/L	81.6	57	108
EP075: Fluoranthene	206-44-0	2	µg/L	<2	10 µg/L	80.6	57	111
EP075: Pyrene	129-00-0	2	µg/L	<2	10 µg/L	79.6	58	110
EP075: N-2-Fluorenyl Acetamide	53-96-3	2	µg/L	<2	10 µg/L	81.3	48	117
EP075: Benz(a)anthracene	56-55-3	2	µg/L	<2	10 µg/L	81.5	55	112
EP075: Chrysene	218-01-9	2	µg/L	<2	10 µg/L	80.8	55	113
EP075: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	4	µg/L	<4	20 µg/L	89.2	56	111
EP075: 7,12-Dimethylbenz(a)anthracene	57-97-6	2	µg/L	<2	10 µg/L	94.8	55	140
EP075: Benzo(a)pyrene	50-32-8	2	µg/L	<2	10 µg/L	88.3	57	129
EP075: 3-Methylcholanthrene	56-49-5	2	µg/L	<2	10 µg/L	81.2	47	135
EP075: Indeno(1,2,3-cd)pyrene	193-39-5	2	µg/L	<2	10 µg/L	84.0	59	125
EP075: Dibenzo(a,h)anthracene	53-70-3	2	µg/L	<2	10 µg/L	85.7	58	126
EP075: Benzo(g,h,i)perylene	191-24-2	2	µg/L	<2	10 µg/L	84.8	59	127
EP075C: Phthalate Esters (QCLot: 1761961)								
EP075: Dimethyl phthalate	131-11-3	2	µg/L	<2	10 µg/L	78.8	57	121
EP075: Diethyl phthalate	84-66-2	2	µg/L	<2	10 µg/L	77.8	62	128
EP075: Di-n-butyl phthalate	84-74-2	2	µg/L	<2	10 µg/L	84.0	65	129
EP075: Butyl benzyl phthalate	85-68-7	2	µg/L	<2	10 µg/L	80.2	63	127
EP075: bis(2-ethylhexyl) phthalate	117-81-7	10	µg/L	<10	10 µg/L	86.8	56	131
EP075: Di-n-octylphthalate	117-84-0	2	µg/L	<2	10 µg/L	90.0	57	129
EP075D: Nitrosamines (QCLot: 1761961)								
EP075: N-Nitrosomethylethylamine	10595-95-6	2	µg/L	<2	10 µg/L	45.1	19	102
EP075: N-Nitrosodiethylamine	55-18-5	2	µg/L	<2	10 µg/L	77.1	38	113
EP075: N-Nitrosopyrrolidine	930-55-2	4	µg/L	<4	10 µg/L	54.8	29	88
EP075: N-Nitrosomorpholine	59-89-2	2	µg/L	<2	10 µg/L	53.2	27	90
EP075: N-Nitrosodi-n-propylamine	621-64-7	2	µg/L	<2	10 µg/L	76.4	43	119
EP075: N-Nitrosopiperidine	100-75-4	2	µg/L	<2	10 µg/L	74.8	43	112
EP075: N-Nitrosodibutylamine	924-16-3	2	µg/L	<2	10 µg/L	80.0	49	119



Sub-Matrix: **WATER**

Method: Compound				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%)	
							Low	High
CAS Number	LOR	Unit	Result					
EP075H: Anilines and Benzidines (QCLot: 1761961) - continued								
EP075: Aniline	62-53-3	2	µg/L	<2	10 µg/L	59.0	14	110
EP075: 4-Chloroaniline	106-47-8	2	µg/L	<2	10 µg/L	67.4	32	114
EP075: 2-Nitroaniline	88-74-4	4	µg/L	<4	10 µg/L	75.6	51	119
EP075: 3-Nitroaniline	99-09-2	4	µg/L	<4	10 µg/L	81.2	50	116
EP075: Dibenzofuran	132-64-9	2	µg/L	<2	10 µg/L	71.2	53	117
EP075: 4-Nitroaniline	100-01-6	2	µg/L	<2	10 µg/L	90.7	48	114
EP075: Carbazole	86-74-8	2	µg/L	<2	10 µg/L	90.8	63	125
EP075: 3,3'-Dichlorobenzidine	91-94-1	2	µg/L	<2	10 µg/L	105	59	137
EP075I: Organochlorine Pesticides (QCLot: 1761961)								
EP075: alpha-BHC	319-84-6	2	µg/L	<2	10 µg/L	73.8	58	124
EP075: beta-BHC	319-85-7	2	µg/L	<2	10 µg/L	68.0	57	127
EP075: gamma-BHC	58-89-9	2	µg/L	<2	10 µg/L	66.3	57	125
EP075: delta-BHC	319-86-8	2	µg/L	<2	10 µg/L	86.0	62	128
EP075: Heptachlor	76-44-8	2	µg/L	<2	10 µg/L	74.6	53	112
EP075: Aldrin	309-00-2	2	µg/L	<2	10 µg/L	77.5	57	110
EP075: Heptachlor epoxide	1024-57-3	2	µg/L	<2	10 µg/L	77.6	55	112
EP075: alpha-Endosulfan	959-98-8	2	µg/L	<2	10 µg/L	79.4	50	124
EP075: 4,4'-DDE	72-55-9	2	µg/L	<2	10 µg/L	80.4	55	110
EP075: Dieldrin	60-57-1	2	µg/L	<2	10 µg/L	77.7	61	131
EP075: Endrin	72-20-8	2	µg/L	<2	10 µg/L	78.4	59	133
EP075: beta-Endosulfan	33213-65-9	2	µg/L	<2	10 µg/L	80.8	60	130
EP075: 4,4'-DDD	72-54-8	2	µg/L	<2	10 µg/L	84.5	61	129
EP075: Endosulfan sulfate	1031-07-8	2	µg/L	<2	10 µg/L	82.3	58	136
EP075: 4,4'-DDT	50-29-3	4	µg/L	<4	10 µg/L	70.5	51	137
EP075J: Organophosphorus Pesticides (QCLot: 1761961)								
EP075: Dichlorvos	62-73-7	2	µg/L	<2	10 µg/L	62.0	50	116
EP075: Dimethoate	60-51-5	2	µg/L	<2	10 µg/L	65.2	49	111
EP075: Diazinon	333-41-5	2	µg/L	<2	10 µg/L	71.5	62	126
EP075: Chlorpyrifos-methyl	5598-13-0	2	µg/L	<2	10 µg/L	69.6	60	126
EP075: Malathion	121-75-5	2	µg/L	<2	10 µg/L	85.1	61	131
EP075: Fenthion	55-38-9	2	µg/L	<2	10 µg/L	80.2	62	128
EP075: Chlorpyrifos	2921-88-2	2	µg/L	<2	10 µg/L	80.4	61	127
EP075: Pirimphos-ethyl	23505-41-1	2	µg/L	<2	10 µg/L	81.6	61	129
EP075: Chlorfenvinphos	470-90-6	2	µg/L	<2	10 µg/L	79.3	61	131
EP075: Prothiofos	34643-46-4	2	µg/L	<2	10 µg/L	80.0	61	125
EP075: Ethion	563-12-2	2	µg/L	<2	10 µg/L	82.8	62	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1761963)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	4331 µg/L	121	58	134



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1761963) - continued								
EP071: C15 - C28 Fraction	----	100	µg/L	<100	16952 µg/L	122	60	133
EP071: C29 - C36 Fraction	----	50	µg/L	<50	8695 µg/L	119	54	137
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1764093)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	360 µg/L	81.6	68	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1761963)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	6292 µg/L	121	58	122
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	22143 µg/L	119	56	132
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	1677 µg/L	121	58	137
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1764093)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	82.1	66	123
EP080: BTEXN (QCLot: 1764093)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	86.0	74	123
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	88.2	77	128
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	87.9	73	126
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	40 µg/L	89.4	72	131
	106-42-3							
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	94.5	74	131
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	99.4	74	124
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 1770103)								
EP231X-LL: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.002	µg/L	<0.002	0.05 µg/L	75.0	50	130
EP231X-LL: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.002	µg/L	<0.002	0.05 µg/L	78.2	50	130
EP231X-LL: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.002	µg/L	<0.002	0.05 µg/L	73.2	50	130
EP231X-LL: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.002	µg/L	<0.002	0.05 µg/L	94.4	50	130
EP231X-LL: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.002	µg/L	<0.002	0.05 µg/L	74.6	50	130
EP231X-LL: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.002	µg/L	<0.002	0.05 µg/L	53.2	40	130
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 1770103)								
EP231X-LL: Perfluorobutanoic acid (PFBA)	375-22-4	0.01	µg/L	<0.01	0.25 µg/L	108	50	130
EP231X-LL: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.002	µg/L	<0.002	0.05 µg/L	83.6	50	130
EP231X-LL: Perfluorohexanoic acid (PFHxA)	307-24-4	0.002	µg/L	<0.002	0.05 µg/L	72.8	50	130
EP231X-LL: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.002	µg/L	<0.002	0.05 µg/L	82.6	50	130
EP231X-LL: Perfluorooctanoic acid (PFOA)	335-67-1	0.002	µg/L	<0.002	0.05 µg/L	88.4	50	130
EP231X-LL: Perfluorononanoic acid (PFNA)	375-95-1	0.002	µg/L	<0.002	0.05 µg/L	78.2	50	130
EP231X-LL: Perfluorodecanoic acid (PFDA)	335-76-2	0.002	µg/L	<0.002	0.05 µg/L	60.2	50	130
EP231X-LL: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.002	µg/L	<0.002	0.05 µg/L	79.8	40	130
EP231X-LL: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.002	µg/L	<0.002	0.05 µg/L	57.4	40	130
EP231X-LL: Perfluorotridecanoic acid (PFTTrDA)	72629-94-8	0.002	µg/L	<0.002	0.05 µg/L	54.8	40	130
EP231X-LL: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.005	µg/L	<0.005	0.125 µg/L	42.1	40	130
EP231X-LL: Perfluorohexadecanoic acid (PFHxDA)	67905-19-5	----	µg/L	----	0.05 µg/L	62.2	50	130



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 1770103)								
EP231X-LL: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.002	µg/L	<0.002	0.05 µg/L	68.2	40	130
EP231X-LL: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.005	µg/L	<0.005	0.125 µg/L	40.2	40	130
EP231X-LL: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.005	µg/L	<0.005	0.125 µg/L	49.1	40	130
EP231X-LL: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.005	µg/L	<0.005	0.125 µg/L	53.7	50	130
EP231X-LL: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.005	µg/L	<0.005	0.125 µg/L	51.5	40	130
EP231X-LL: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.002	µg/L	<0.002	0.05 µg/L	56.0	50	130
EP231X-LL: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.002	µg/L	<0.002	0.05 µg/L	50.6	40	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 1770103)								
EP231X-LL: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.005	µg/L	<0.005	0.05 µg/L	88.4	50	130
EP231X-LL: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.005	µg/L	<0.005	0.05 µg/L	102	50	130
EP231X-LL: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.005	µg/L	<0.005	0.05 µg/L	61.6	50	130
EP231X-LL: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.005	µg/L	<0.005	0.05 µg/L	64.6	50	130

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike Concentration	SpikeRecovery(%) MS	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number			Low	High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 1761865)							
EM1810353-005	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	# Not Determined	70	130
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 1761868)							
EM1810368-004	RB402_27062018	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	89.3	70	130
ED045G: Chloride by Discrete Analyser (QCLot: 1761866)							
EM1810357-007	Anonymous	ED045G: Chloride	16887-00-6	400 mg/L	95.6	70	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 1764267)							
EM1810353-007	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	107	85	131
		EG020A-F: Beryllium	7440-41-7	0.2 mg/L	88.7	73	141
		EG020A-F: Barium	7440-39-3	0.2 mg/L	101	75	127
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	87.5	81	133
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	89.6	71	135



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 1764267) - continued							
EM1810353-007	Anonymous	EG020A-F: Cobalt	7440-48-4	0.2 mg/L	102	78	132
		EG020A-F: Copper	7440-50-8	0.2 mg/L	96.6	76	130
		EG020A-F: Lead	7439-92-1	0.2 mg/L	91.6	75	133
		EG020A-F: Manganese	7439-96-5	0.2 mg/L	88.7	64	134
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	96.2	73	131
		EG020A-F: Vanadium	7440-62-2	0.2 mg/L	90.6	73	131
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	101	75	131
EG020T: Total Metals by ICP-MS (QCLot: 1764262)							
EM1810355-003	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	110	82	118
		EG020A-T: Beryllium	7440-41-7	1 mg/L	100	79	121
		EG020A-T: Barium	7440-39-3	1 mg/L	108	80	114
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	99.5	75	129
		EG020A-T: Chromium	7440-47-3	1 mg/L	102	80	118
		EG020A-T: Cobalt	7440-48-4	1 mg/L	101	82	120
		EG020A-T: Copper	7440-50-8	1 mg/L	103	81	115
		EG020A-T: Lead	7439-92-1	1 mg/L	94.4	83	121
		EG020A-T: Manganese	7439-96-5	1 mg/L	99.0	73	123
		EG020A-T: Nickel	7440-02-0	1 mg/L	103	80	118
		EG020A-T: Vanadium	7440-62-2	1 mg/L	105	81	119
		EG020A-T: Zinc	7440-66-6	1 mg/L	106	74	116
EG035F: Dissolved Mercury by FIMS (QCLot: 1764264)							
EM1810219-011	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	97.9	70	120
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1774886)							
EM1810329-003	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	100	70	130
EK040P: Fluoride by PC Titrator (QCLot: 1764159)							
EM1810357-001	Anonymous	EK040P: Fluoride	16984-48-8	5 mg/L	112	70	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 1764646)							
EM1810367-002	Anonymous	EK055G: Ammonia as N	7664-41-7	1 mg/L	104	70	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 1761867)							
EM1810359-004	Anonymous	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	98.8	80	114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 1764647)							
EM1810367-002	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	95.5	70	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 1764554)							
EM1810374-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	91.7	70	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 1764552)							
EM1809855-002	Anonymous	EK067G: Total Phosphorus as P	----	1 mg/L	72.1	70	130

Sub-Matrix: WATER				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 1764555)							
EM1810374-001	Anonymous	EK067G: Total Phosphorus as P	----	1 mg/L	100	70	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 1761862)							
EM1810321-001	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.5 mg/L	97.5	79	123
EP074E: Halogenated Aliphatic Compounds (QCLot: 1764092)							
EM1810353-002	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	20 µg/L	76.8	40	124
		EP074: Trichloroethene	79-01-6	20 µg/L	74.1	54	126
EP074F: Halogenated Aromatic Compounds (QCLot: 1764092)							
EM1810353-002	Anonymous	EP074: Chlorobenzene	108-90-7	20 µg/L	95.0	68	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1764093)							
EM1810353-002	Anonymous	EP080: C6 - C9 Fraction	----	280 µg/L	68.6	43	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1764093)							
EM1810353-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	330 µg/L	68.8	44	122
EP080: BTEXN (QCLot: 1764093)							
EM1810353-002	Anonymous	EP080: Benzene	71-43-2	20 µg/L	86.0	68	130
		EP080: Toluene	108-88-3	20 µg/L	87.5	72	132
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 1770103)							
EM1810368-005	FB402_27062018	EP231X-LL: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.05 µg/L	86.4	50	130
		EP231X-LL: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.05 µg/L	94.2	50	130
		EP231X-LL: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.05 µg/L	83.8	50	130
		EP231X-LL: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.05 µg/L	101	50	130
		EP231X-LL: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.05 µg/L	73.6	50	130
		EP231X-LL: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.05 µg/L	51.8	30	130
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 1770103)							
EM1810368-005	FB402_27062018	EP231X-LL: Perfluorobutanoic acid (PFBA)	375-22-4	0.25 µg/L	127	30	130
		EP231X-LL: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.05 µg/L	92.4	50	130
		EP231X-LL: Perfluorohexanoic acid (PFHxA)	307-24-4	0.05 µg/L	91.4	50	130
		EP231X-LL: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.05 µg/L	96.0	50	130
		EP231X-LL: Perfluorooctanoic acid (PFOA)	335-67-1	0.05 µg/L	103	50	130
		EP231X-LL: Perfluorononanoic acid (PFNA)	375-95-1	0.05 µg/L	93.0	50	130
		EP231X-LL: Perfluorodecanoic acid (PFDA)	335-76-2	0.05 µg/L	70.6	50	130
		EP231X-LL: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.05 µg/L	73.4	30	130
		EP231X-LL: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.05 µg/L	65.2	30	130
		EP231X-LL: Perfluorotridecanoic acid (PFTTrDA)	72629-94-8	0.05 µg/L	75.0	30	130
		EP231X-LL: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.125 µg/L	49.0	30	130
		EP231X-LL: Perfluorohexadecanoic acid (PFHxDA)	67905-19-5	0.05 µg/L	87.2	30	130
		EP231C: Perfluoroalkyl Sulfonamides (QCLot: 1770103)					



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 1770103) - continued							
EM1810368-005	FB402_27062018	EP231X-LL: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.05 µg/L	111	30	130
		EP231X-LL: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.125 µg/L	56.6	30	130
		EP231X-LL: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.125 µg/L	62.2	30	130
		EP231X-LL: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.125 µg/L	46.2	30	130
		EP231X-LL: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.125 µg/L	56.6	30	130
		EP231X-LL: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.05 µg/L	47.2	30	130
		EP231X-LL: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.05 µg/L	47.2	30	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 1770103)							
EM1810368-005	FB402_27062018	EP231X-LL: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05 µg/L	80.8	50	130
		EP231X-LL: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05 µg/L	103	50	130
		EP231X-LL: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05 µg/L	82.2	50	130
		EP231X-LL: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05 µg/L	66.6	50	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order : **EM1810368**

Page : 1 of 15

Client : **GHD PTY LTD**
 Contact : **KORY AUCH**
 Project : **31350060910**
 Site : **----**
 Sampler : **KORY AUCH / ?**
 Order number :

Laboratory : **Environmental Division Melbourne**
 Telephone : **+61-3-8549 9630**
 Date Samples Received : **28-Jun-2018**
 Issue Date : **11-Jul-2018**
 No. of samples received : **6**
 No. of samples analysed : **6**

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **Laboratory Control outliers exist - please see following pages for full details.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **Surrogate recovery outliers exist for all regular sample matrices - please see following pages for full details.**

Outliers : Analysis Holding Time Compliance

- **Analysis Holding Time Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**



Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Laboratory Control Spike (LCS) Recoveries							
EP075D: Nitrosamines	QC-1761961-001	----	Methapyrilene	91-80-5	18.1 %	55-157%	Recovery less than lower control limit
Matrix Spike (MS) Recoveries							
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA	EM1810353--005	Anonymous	Sulfate as SO4 - Turbidimetric	14808-79-8	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.

Regular Sample Surrogates

Sub-Matrix: **GROUNDWATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Samples Submitted							
EP075T: Base/Neutral Extractable Surrogates	EM1810368-003	NEL-ENV-BH032_27062018	1,2-Dichlorobenzene-D4	2199-69-1	22.4 %	23-99 %	Recovery less than lower data quality objective

Outliers : Analysis Holding Time Compliance

Matrix: **WATER**

Method		Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA005P: pH by PC Titrator							
Clear Plastic Bottle - Natural NEL-ENV-BH006_27062018, NEL-ENV-BH032_27062018, FB402_27062018		NEL-ENV-BH009_27062018, RB402_27062018,	----	----	----	29-Jun-2018	27-Jun-2018
							2

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
Pesticides by GCMS	0	5	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	0	5	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	0	5	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	5	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Pesticides by GCMS	0	5	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	0	5	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	0	5	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	5	0.00	5.00	NEPM 2013 B3 & ALS QC Standard



Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis			
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EA005P: pH by PC Titrator								
Clear Plastic Bottle - Natural (EA005-P) NEL-ENV-BH006_27062018, NEL-ENV-BH032_27062018, FB402_27062018	NEL-ENV-BH009_27062018, RB402_27062018,	27-Jun-2018	----	----	----	29-Jun-2018	27-Jun-2018	✖
EA006: Sodium Adsorption Ratio (SAR)								
Clear Plastic Bottle - Natural (ED093F) RB402_27062018,	FB402_27062018	27-Jun-2018	----	----	----	29-Jun-2018	04-Jul-2018	✔
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) NEL-ENV-BH006_27062018, NEL-ENV-BH032_27062018	NEL-ENV-BH009_27062018,	27-Jun-2018	----	----	----	29-Jun-2018	25-Jul-2018	✔
EA010P: Conductivity by PC Titrator								
Clear Plastic Bottle - Natural (EA010-P) NEL-ENV-BH006_27062018, NEL-ENV-BH032_27062018, FB402_27062018	NEL-ENV-BH009_27062018, RB402_27062018,	27-Jun-2018	----	----	----	29-Jun-2018	25-Jul-2018	✔
EA065: Total Hardness as CaCO3								
Clear Plastic Bottle - Natural (ED093F) RB402_27062018,	FB402_27062018	27-Jun-2018	----	----	----	29-Jun-2018	04-Jul-2018	✔
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) NEL-ENV-BH006_27062018, NEL-ENV-BH032_27062018	NEL-ENV-BH009_27062018,	27-Jun-2018	----	----	----	29-Jun-2018	25-Jul-2018	✔
ED037P: Alkalinity by PC Titrator								
Clear Plastic Bottle - Natural (ED037-P) NEL-ENV-BH006_27062018, NEL-ENV-BH032_27062018, FB402_27062018	NEL-ENV-BH009_27062018, RB402_27062018,	27-Jun-2018	----	----	----	29-Jun-2018	11-Jul-2018	✔
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Clear Plastic Bottle - Natural (ED041G) NEL-ENV-BH006_27062018, NEL-ENV-BH032_27062018, FB402_27062018	NEL-ENV-BH009_27062018, RB402_27062018,	27-Jun-2018	----	----	----	29-Jun-2018	25-Jul-2018	✔



Matrix: **WATER**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method		Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED045G: Chloride by Discrete Analyser								
Clear Plastic Bottle - Natural (ED045G) NEL-ENV-BH006_27062018, NEL-ENV-BH032_27062018, FB402_27062018	NEL-ENV-BH009_27062018, RB402_27062018,	27-Jun-2018	----	----	----	29-Jun-2018	25-Jul-2018	✓
ED093F: Dissolved Major Cations								
Clear Plastic Bottle - Natural (ED093F) RB402_27062018,	FB402_27062018	27-Jun-2018	----	----	----	29-Jun-2018	04-Jul-2018	✓
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) NEL-ENV-BH006_27062018, NEL-ENV-BH032_27062018	NEL-ENV-BH009_27062018,	27-Jun-2018	----	----	----	29-Jun-2018	25-Jul-2018	✓
EG020F: Dissolved Metals by ICP-MS								
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) NEL-ENV-BH006_27062018, NEL-ENV-BH032_27062018	NEL-ENV-BH009_27062018,	27-Jun-2018	----	----	----	29-Jun-2018	24-Dec-2018	✓
EG020T: Total Metals by ICP-MS								
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) FB402_27062018		27-Jun-2018	29-Jun-2018	24-Dec-2018	✓	29-Jun-2018	24-Dec-2018	✓
Clear Plastic Bottle - Nitric Acid; Unspecified (EG020A-T) RB402_27062018		27-Jun-2018	29-Jun-2018	24-Dec-2018	✓	29-Jun-2018	24-Dec-2018	✓
EG035F: Dissolved Mercury by FIMS								
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) NEL-ENV-BH006_27062018, NEL-ENV-BH032_27062018	NEL-ENV-BH009_27062018,	27-Jun-2018	----	----	----	02-Jul-2018	25-Jul-2018	✓
EG035T: Total Recoverable Mercury by FIMS								
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) FB402_27062018		27-Jun-2018	----	----	----	04-Jul-2018	25-Jul-2018	✓
Clear Plastic Bottle - Nitric Acid; Unspecified (EG035T) RB402_27062018		27-Jun-2018	----	----	----	04-Jul-2018	25-Jul-2018	✓
EK040P: Fluoride by PC Titrator								
Clear Plastic Bottle - Natural (EK040P) NEL-ENV-BH006_27062018, NEL-ENV-BH032_27062018, FB402_27062018	NEL-ENV-BH009_27062018, RB402_27062018,	27-Jun-2018	----	----	----	29-Jun-2018	25-Jul-2018	✓
EK055G: Ammonia as N by Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK055G) NEL-ENV-BH006_27062018, NEL-ENV-BH032_27062018, FB402_27062018	NEL-ENV-BH009_27062018, RB402_27062018,	27-Jun-2018	----	----	----	02-Jul-2018	25-Jul-2018	✓



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method		Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EK057G: Nitrite as N by Discrete Analyser								
Clear Plastic Bottle - Natural (EK057G) NEL-ENV-BH006_27062018, NEL-ENV-BH032_27062018, FB402_27062018	NEL-ENV-BH009_27062018, RB402_27062018,	27-Jun-2018	----	----	----	28-Jun-2018	29-Jun-2018	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK059G) NEL-ENV-BH006_27062018, NEL-ENV-BH032_27062018, FB402_27062018	NEL-ENV-BH009_27062018, RB402_27062018,	27-Jun-2018	----	----	----	02-Jul-2018	25-Jul-2018	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK061G) NEL-ENV-BH006_27062018, NEL-ENV-BH032_27062018, FB402_27062018	NEL-ENV-BH009_27062018, RB402_27062018,	27-Jun-2018	02-Jul-2018	25-Jul-2018	✓	02-Jul-2018	25-Jul-2018	✓
EK067G: Total Phosphorus as P by Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK067G) NEL-ENV-BH006_27062018, NEL-ENV-BH032_27062018, FB402_27062018	NEL-ENV-BH009_27062018, RB402_27062018,	27-Jun-2018	02-Jul-2018	25-Jul-2018	✓	02-Jul-2018	25-Jul-2018	✓
EK071G: Reactive Phosphorus as P by discrete analyser								
Clear Plastic Bottle - Natural (EK071G) NEL-ENV-BH006_27062018, NEL-ENV-BH032_27062018, FB402_27062018	NEL-ENV-BH009_27062018, RB402_27062018,	27-Jun-2018	----	----	----	28-Jun-2018	29-Jun-2018	✓
EP066: Polychlorinated Biphenyls (PCB)								
Amber Glass Bottle - Unpreserved (EP066) NEL-ENV-BH006_27062018, NEL-ENV-BH032_27062018, FB402_27062018	NEL-ENV-BH009_27062018, RB402_27062018,	27-Jun-2018	28-Jun-2018	04-Jul-2018	✓	29-Jun-2018	07-Aug-2018	✓
EP068A: Organochlorine Pesticides (OC)								
Amber Glass Bottle - Unpreserved (EP068) NEL-ENV-BH006_27062018, NEL-ENV-BH032_27062018, FB402_27062018	NEL-ENV-BH009_27062018, RB402_27062018,	27-Jun-2018	28-Jun-2018	04-Jul-2018	✓	29-Jun-2018	07-Aug-2018	✓
EP068B: Organophosphorus Pesticides (OP)								
Amber Glass Bottle - Unpreserved (EP068) NEL-ENV-BH006_27062018, NEL-ENV-BH032_27062018, FB402_27062018	NEL-ENV-BH009_27062018, RB402_27062018,	27-Jun-2018	28-Jun-2018	04-Jul-2018	✓	29-Jun-2018	07-Aug-2018	✓



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method		Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074A: Monocyclic Aromatic Hydrocarbons								
Amber VOC Vial - Sulfuric Acid (EP074) NEL-ENV-BH006_27062018, NEL-ENV-BH032_27062018, FB402_27062018	NEL-ENV-BH009_27062018, RB402_27062018,	27-Jun-2018	29-Jun-2018	11-Jul-2018	✓	29-Jun-2018	11-Jul-2018	✓
EP074B: Oxygenated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) NEL-ENV-BH006_27062018, NEL-ENV-BH032_27062018, FB402_27062018	NEL-ENV-BH009_27062018, RB402_27062018,	27-Jun-2018	29-Jun-2018	11-Jul-2018	✓	29-Jun-2018	11-Jul-2018	✓
EP074C: Sulfonated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) NEL-ENV-BH006_27062018, NEL-ENV-BH032_27062018, FB402_27062018	NEL-ENV-BH009_27062018, RB402_27062018,	27-Jun-2018	29-Jun-2018	11-Jul-2018	✓	29-Jun-2018	11-Jul-2018	✓
EP074D: Fumigants								
Amber VOC Vial - Sulfuric Acid (EP074) NEL-ENV-BH006_27062018, NEL-ENV-BH032_27062018, FB402_27062018	NEL-ENV-BH009_27062018, RB402_27062018,	27-Jun-2018	29-Jun-2018	11-Jul-2018	✓	29-Jun-2018	11-Jul-2018	✓
EP074E: Halogenated Aliphatic Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) NEL-ENV-BH006_27062018, NEL-ENV-BH032_27062018, FB402_27062018	NEL-ENV-BH009_27062018, RB402_27062018,	27-Jun-2018	29-Jun-2018	11-Jul-2018	✓	29-Jun-2018	11-Jul-2018	✓
EP074F: Halogenated Aromatic Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) NEL-ENV-BH006_27062018, NEL-ENV-BH032_27062018, FB402_27062018	NEL-ENV-BH009_27062018, RB402_27062018,	27-Jun-2018	29-Jun-2018	11-Jul-2018	✓	29-Jun-2018	11-Jul-2018	✓
EP074G: Trihalomethanes								
Amber VOC Vial - Sulfuric Acid (EP074) NEL-ENV-BH006_27062018, NEL-ENV-BH032_27062018, FB402_27062018	NEL-ENV-BH009_27062018, RB402_27062018,	27-Jun-2018	29-Jun-2018	11-Jul-2018	✓	29-Jun-2018	11-Jul-2018	✓
EP075A: Phenolic Compounds								
Amber Glass Bottle - Unpreserved (EP075) NEL-ENV-BH006_27062018, NEL-ENV-BH032_27062018, FB402_27062018	NEL-ENV-BH009_27062018, RB402_27062018,	27-Jun-2018	28-Jun-2018	04-Jul-2018	✓	29-Jun-2018	07-Aug-2018	✓



Matrix: **WATER**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method		Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075B: Polynuclear Aromatic Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP075) NEL-ENV-BH006_27062018, NEL-ENV-BH032_27062018, FB402_27062018	NEL-ENV-BH009_27062018, RB402_27062018,	27-Jun-2018	28-Jun-2018	04-Jul-2018	✓	29-Jun-2018	07-Aug-2018	✓
EP075C: Phthalate Esters								
Amber Glass Bottle - Unpreserved (EP075) NEL-ENV-BH006_27062018, NEL-ENV-BH032_27062018, FB402_27062018	NEL-ENV-BH009_27062018, RB402_27062018,	27-Jun-2018	28-Jun-2018	04-Jul-2018	✓	29-Jun-2018	07-Aug-2018	✓
EP075D: Nitrosamines								
Amber Glass Bottle - Unpreserved (EP075) NEL-ENV-BH006_27062018, NEL-ENV-BH032_27062018, FB402_27062018	NEL-ENV-BH009_27062018, RB402_27062018,	27-Jun-2018	28-Jun-2018	04-Jul-2018	✓	29-Jun-2018	07-Aug-2018	✓
EP075E: Nitroaromatics and Ketones								
Amber Glass Bottle - Unpreserved (EP075) NEL-ENV-BH006_27062018, NEL-ENV-BH032_27062018, FB402_27062018	NEL-ENV-BH009_27062018, RB402_27062018,	27-Jun-2018	28-Jun-2018	04-Jul-2018	✓	29-Jun-2018	07-Aug-2018	✓
EP075F: Haloethers								
Amber Glass Bottle - Unpreserved (EP075) NEL-ENV-BH006_27062018, NEL-ENV-BH032_27062018, FB402_27062018	NEL-ENV-BH009_27062018, RB402_27062018,	27-Jun-2018	28-Jun-2018	04-Jul-2018	✓	29-Jun-2018	07-Aug-2018	✓
EP075G: Chlorinated Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP075) NEL-ENV-BH006_27062018, NEL-ENV-BH032_27062018, FB402_27062018	NEL-ENV-BH009_27062018, RB402_27062018,	27-Jun-2018	28-Jun-2018	04-Jul-2018	✓	29-Jun-2018	07-Aug-2018	✓
EP075H: Anilines and Benzidines								
Amber Glass Bottle - Unpreserved (EP075) NEL-ENV-BH006_27062018, NEL-ENV-BH032_27062018, FB402_27062018	NEL-ENV-BH009_27062018, RB402_27062018,	27-Jun-2018	28-Jun-2018	04-Jul-2018	✓	29-Jun-2018	07-Aug-2018	✓
EP075I: Organochlorine Pesticides								
Amber Glass Bottle - Unpreserved (EP075) NEL-ENV-BH006_27062018, NEL-ENV-BH032_27062018, FB402_27062018	NEL-ENV-BH009_27062018, RB402_27062018,	27-Jun-2018	28-Jun-2018	04-Jul-2018	✓	29-Jun-2018	07-Aug-2018	✓



Matrix: **WATER**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method		Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075J: Organophosphorus Pesticides								
Amber Glass Bottle - Unpreserved (EP075) NEL-ENV-BH006_27062018, NEL-ENV-BH032_27062018, FB402_27062018	NEL-ENV-BH009_27062018, RB402_27062018,	27-Jun-2018	28-Jun-2018	04-Jul-2018	✓	29-Jun-2018	07-Aug-2018	✓
EP080/071: Total Petroleum Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP071) NEL-ENV-BH006_27062018, NEL-ENV-BH032_27062018, FB402_27062018	NEL-ENV-BH009_27062018, RB402_27062018,	27-Jun-2018	28-Jun-2018	04-Jul-2018	✓	29-Jun-2018	07-Aug-2018	✓
Amber VOC Vial - Sulfuric Acid (EP080) NEL-ENV-BH006_27062018, NEL-ENV-BH032_27062018, FB402_27062018,	NEL-ENV-BH009_27062018, RB402_27062018, TB402_27062018	27-Jun-2018	29-Jun-2018	11-Jul-2018	✓	29-Jun-2018	11-Jul-2018	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Amber Glass Bottle - Unpreserved (EP071) NEL-ENV-BH006_27062018, NEL-ENV-BH032_27062018, FB402_27062018	NEL-ENV-BH009_27062018, RB402_27062018,	27-Jun-2018	28-Jun-2018	04-Jul-2018	✓	29-Jun-2018	07-Aug-2018	✓
Amber VOC Vial - Sulfuric Acid (EP080) NEL-ENV-BH006_27062018, NEL-ENV-BH032_27062018, FB402_27062018,	NEL-ENV-BH009_27062018, RB402_27062018, TB402_27062018	27-Jun-2018	29-Jun-2018	11-Jul-2018	✓	29-Jun-2018	11-Jul-2018	✓
EP080: BTEXN								
Amber VOC Vial - Sulfuric Acid (EP080) NEL-ENV-BH006_27062018, NEL-ENV-BH032_27062018, FB402_27062018,	NEL-ENV-BH009_27062018, RB402_27062018, TB402_27062018	27-Jun-2018	29-Jun-2018	11-Jul-2018	✓	29-Jun-2018	11-Jul-2018	✓
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE (no PTFE) (EP231X-LL) NEL-ENV-BH006_27062018, NEL-ENV-BH032_27062018, FB402_27062018	NEL-ENV-BH009_27062018, RB402_27062018,	27-Jun-2018	03-Jul-2018	24-Dec-2018	✓	03-Jul-2018	24-Dec-2018	✓
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE (no PTFE) (EP231X-LL) NEL-ENV-BH006_27062018, NEL-ENV-BH032_27062018, FB402_27062018	NEL-ENV-BH009_27062018, RB402_27062018,	27-Jun-2018	03-Jul-2018	24-Dec-2018	✓	03-Jul-2018	24-Dec-2018	✓

Page : 9 of 15
 Work Order : EM1810368
 Client : GHD PTY LTD
 Project : 31350060910



Matrix: **WATER**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method		Sample Date	Extraction / Preparation			Analysis			
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP231C: Perfluoroalkyl Sulfonamides									
HDPE (no PTFE) (EP231X-LL) NEL-ENV-BH006_27062018, NEL-ENV-BH032_27062018, FB402_27062018		NEL-ENV-BH009_27062018, RB402_27062018,	27-Jun-2018	03-Jul-2018	24-Dec-2018	✔	03-Jul-2018	24-Dec-2018	✔
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
HDPE (no PTFE) (EP231X-LL) NEL-ENV-BH006_27062018, NEL-ENV-BH032_27062018, FB402_27062018		NEL-ENV-BH009_27062018, RB402_27062018,	27-Jun-2018	03-Jul-2018	24-Dec-2018	✔	03-Jul-2018	24-Dec-2018	✔
EP231P: PFAS Sums									
HDPE (no PTFE) (EP231X-LL) NEL-ENV-BH006_27062018, NEL-ENV-BH032_27062018, FB402_27062018		NEL-ENV-BH009_27062018, RB402_27062018,	27-Jun-2018	03-Jul-2018	24-Dec-2018	✔	03-Jul-2018	24-Dec-2018	✔



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Alkalinity by PC Titrator	ED037-P	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	14	14.29	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by PC Titrator	EA010-P	4	40	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	2	19	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	13	15.38	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Fluoride by PC Titrator	EK040P	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	2	12	16.67	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS by LCMSMS	EP231X-LL	1	5	20.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	5	0.00	10.00	✗	NEPM 2013 B3 & ALS QC Standard
pH by PC Titrator	EA005-P	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	5	0.00	10.00	✗	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	18	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	0	5	0.00	10.00	✗	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	3	23	13.04	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	16	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	4	40	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	5	0.00	10.00	✗	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	19	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	2	11	18.18	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Alkalinity by PC Titrator	ED037-P	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	14	14.29	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by PC Titrator	EA010-P	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	13	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Fluoride by PC Titrator	EK040P	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	12	8.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS by LCMSMS	EP231X-LL	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard



Matrix: **WATER**

Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Control Samples (LCS) - Continued							
Pesticides by GCMS	EP068	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	4	23	17.39	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	11	9.09	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Ammonia as N by Discrete analyser	EK055G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by PC Titrator	EA010-P	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	13	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Fluoride by PC Titrator	EK040P	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	12	8.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS by LCMSMS	EP231X-LL	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	23	8.70	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	11	9.09	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	13	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard



Matrix: **WATER**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Matrix Spikes (MS) - Continued							
Fluoride by PC Titrator	EK040P	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	12	8.33	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS by LCMSMS	EP231X-LL	1	5	20.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	5	0.00	5.00	✖	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	5	0.00	5.00	✖	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	18	5.56	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	0	5	0.00	5.00	✖	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	23	8.70	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	16	6.25	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	40	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	5	0.00	5.00	✖	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	5.26	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	11	9.09	5.00	✔	NEPM 2013 B3 & ALS QC Standard



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH by PC Titrator	EA005-P	WATER	In house: Referenced to APHA 4500 H+ B. This procedure determines pH of water samples by automated ISE. This method is compliant with NEPM (2013) Schedule B(3)
Conductivity by PC Titrator	EA010-P	WATER	In house: Referenced to APHA 2510 B. This procedure determines conductivity by automated ISE. This method is compliant with NEPM (2013) Schedule B(3)
Calculated TDS (from Electrical Conductivity)	EA016	WATER	In house: Calculation from Electrical Conductivity (APHA 2510 B) using a conversion factor specified in the analytical report. This method is compliant with NEPM (2013) Schedule B(3)
Alkalinity by PC Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM (2013) Schedule B(3)
Sulfate (Turbidimetric) as SO ₄ 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO ₄ . Dissolved sulfate is determined in a 0.45µm filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO ₄ suspension is measured by a photometer and the SO ₄ -2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM (2013) Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G. The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocyanate forms highly-coloured ferric thiocyanate which is measured at 480 nm APHA 21st edition seal method 2 017-1-L april 2003
Major Cations - Dissolved	ED093F	WATER	In house: Referenced to APHA 3120 and 3125; USEPA SW 846 - 6010 and 6020; Cations are determined by either ICP-AES or ICP-MS techniques. This method is compliant with NEPM (2013) Schedule B(3) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM (2013) Schedule B(3) Hardness parameters are calculated based on APHA 2340 B. This method is compliant with NEPM (2013) Schedule B(3)
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.



Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) Samples are 0.45µm filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Fluoride by PC Titrator	EK040P	WATER	In house: Referenced to APHA 4500-F C: CDTA is added to the sample to provide a uniform ionic strength background, adjust pH, and break up complexes. Fluoride concentration is determined by either manual or automatic ISE measurement. This method is compliant with NEPM (2013) Schedule B(3)
Ammonia as N by Discrete analyser	EK055G	WATER	In house: Referenced to APHA 4500-NH ₃ G Ammonia is determined by direct colorimetry by Discrete Analyser. This method is compliant with NEPM (2013) Schedule B(3)
Nitrite as N by Discrete Analyser	EK057G	WATER	In house: Referenced to APHA 4500-NO ₂ - B. Nitrite is determined by direct colourimetry by Discrete Analyser. This method is compliant with NEPM (2013) Schedule B(3)
Nitrate as N by Discrete Analyser	EK058G	WATER	In house: Referenced to APHA 4500-NO ₃ - F. Nitrate is reduced to nitrite by way of a chemical reduction followed by quantification by Discrete Analyser. Nitrite is determined separately by direct colourimetry and result for Nitrate calculated as the difference between the two results. This method is compliant with NEPM (2013) Schedule B(3)
Nitrite and Nitrate as N (NO _x) by Discrete Analyser	EK059G	WATER	In house: Referenced to APHA 4500-NO ₃ - F. Combined oxidised Nitrogen (NO ₂ +NO ₃) is determined by Chemical Reduction and direct colourimetry by Discrete Analyser. This method is compliant with NEPM (2013) Schedule B(3)
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	WATER	In house: Referenced to APHA 4500-Norg D (In house). An aliquot of sample is digested using a high temperature Kjeldahl digestion to convert nitrogenous compounds to ammonia. Ammonia is determined colorimetrically by discrete analyser. This method is compliant with NEPM (2013) Schedule B(3)
Total Nitrogen as N (TKN + Nox) By Discrete Analyser	EK062G	WATER	In house: Referenced to APHA 4500-Norg / 4500-NO ₃ -. This method is compliant with NEPM (2013) Schedule B(3)
Total Phosphorus as P By Discrete Analyser	EK067G	WATER	In house: Referenced to APHA 4500-P H, Jirka et al (1976), Zhang et al (2006). This procedure involves sulphuric acid digestion of a sample aliquot to break phosphorus down to orthophosphate. The orthophosphate reacts with ammonium molybdate and antimony potassium tartrate to form a complex which is then reduced and its concentration measured at 880nm using discrete analyser. This method is compliant with NEPM (2013) Schedule B(3)
Reactive Phosphorus as P-By Discrete Analyser	EK071G	WATER	In house: Referenced to APHA 4500-P F Ammonium molybdate and potassium antimonyl tartrate reacts in acid medium with orthophosphate to form a heteropoly acid -phosphomolybdic acid - which is reduced to intensely coloured molybdenum blue by ascorbic acid. Quantification is by Discrete Analyser. This method is compliant with NEPM (2013) Schedule B(3)
Ionic Balance by PCT DA and Turbi SO4 DA	EN055 - PG	WATER	In house: Referenced to APHA 1030F. This method is compliant with NEPM (2013) Schedule B(3)



Analytical Methods	Method	Matrix	Method Descriptions
Polychlorinated Biphenyls (PCB)	EP066	WATER	In house: Referenced to USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Pesticides by GCMS	EP068	WATER	In house: Referenced to USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)
Volatile Organic Compounds	EP074	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Semivolatile Organic Compounds	EP075	WATER	In house: Referenced to USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)
Per- and Polyfluoroalkyl Substances (PFAS by LCMSMS)	EP231X-LL	WATER	In-house: Analysis of fresh and saline waters by solid phase extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM. Where commercially available, isotopically labelled analogues of the target analytes are used as internal standards for quantification. Where a labelled analogue is not commercially available, the internal standard with similar chemistry and the closest retention time to the target is used for quantification. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. This method complies with the quality control definitions as stated in QSM 5.1. Data is reviewed in line with the DQOs as stated in QSM5.1
Sulphate Reducing Bacteria (BART)	MM669	WATER	Specialist microbiological analysis subcontracted to ALS Scoresby (NATA accreditation does not cover this service).
Preparation Methods	Method	Matrix	Method Descriptions
TKN/TP Digestion	EK061/EK067	WATER	In house: Referenced to APHA 4500 Norg - D; APHA 4500 P - H. This method is compliant with NEPM (2013) Schedule B(3)
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
SPE preparation for LL and saline PFCs	EP231-SPE	WATER	In house
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

Certificate of Analysis

GHD Melbourne
 Level 8, 180 Lonsdale St
 Melbourne
 VIC 3000



NATA Accredited
 Accreditation Number 1261
 Site Number 1254

Accredited for compliance with ISO/IEC 17025 – Testing
 The results of the tests, calibrations and/or
 measurements included in this document are traceable
 to Australian/national standards.

Attention: **Matthew Moore**

Report **607533-W**
 Project name **BULLEEN VIC 3105**
 Project ID **31/35006/0813**
 Received Date **Jul 13, 2018**

Client Sample ID			NEL-PB01A	NEL-BH089 / 120718	NEL-BH088 / 120718	NEL-BH087 / 120718
Sample Matrix			Water	Water	Water	Water
Eurofins mgt Sample No.			M18-JI15454	M18-JI15455	M18-JI15456	M18-JI15457
Date Sampled			Jul 06, 2018	Jul 12, 2018	Jul 12, 2018	Jul 12, 2018
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	0.02	mg/L	-	0.19	< 0.02	< 0.02
TRH C10-C14	0.05	mg/L	-	< 0.05	< 0.05	< 0.05
TRH C15-C28	0.1	mg/L	-	< 0.1	< 0.1	< 0.1
TRH C29-C36	0.1	mg/L	-	< 0.1	< 0.1	< 0.1
TRH C10-36 (Total)	0.1	mg/L	-	< 0.1	< 0.1	< 0.1
BTEX						
Benzene	0.001	mg/L	-	0.053	< 0.001	< 0.001
Toluene	0.001	mg/L	-	0.003	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	-	0.019	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	-	0.024	< 0.002	< 0.002
o-Xylene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Xylenes - Total	0.003	mg/L	-	0.024	< 0.003	< 0.003
4-Bromofluorobenzene (surr.)	1	%	-	120	127	127
Volatile Organics						
1.1-Dichloroethane	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
1.1-Dichloroethene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
1.1.1-Trichloroethane	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
1.1.1.2-Tetrachloroethane	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
1.1.2-Trichloroethane	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
1.1.2.2-Tetrachloroethane	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
1.2-Dibromoethane	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
1.2-Dichlorobenzene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
1.2-Dichloroethane	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
1.2-Dichloropropane	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
1.2.3-Trichloropropane	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
1.2.4-Trimethylbenzene	0.001	mg/L	-	0.025	< 0.001	< 0.001
1.3-Dichlorobenzene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
1.3-Dichloropropane	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
1.3.5-Trimethylbenzene	0.001	mg/L	-	0.004	< 0.001	< 0.001
1.4-Dichlorobenzene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
2-Butanone (MEK)	0.001	mg/L	-	0.002	< 0.001	< 0.001
2-Propanone (Acetone)	0.001	mg/L	-	0.041	< 0.005	< 0.001
4-Chlorotoluene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
4-Methyl-2-pentanone (MIBK)	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Allyl chloride	0.001	mg/L	-	< 0.001	< 0.001	< 0.001

Client Sample ID			NEL-PB01A Water M18-JI15454 Jul 06, 2018	NEL-BH089 / 120718 Water M18-JI15455 Jul 12, 2018	NEL-BH088 / 120718 Water M18-JI15456 Jul 12, 2018	NEL-BH087 / 120718 Water M18-JI15457 Jul 12, 2018
Sample Matrix						
Eurofins mgt Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
Volatile Organics						
Benzene	0.001	mg/L	-	0.053	< 0.001	< 0.001
Bromobenzene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Bromochloromethane	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Bromodichloromethane	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Bromoform	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Bromomethane	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Carbon disulfide	0.001	mg/L	-	0.001	< 0.001	< 0.001
Carbon Tetrachloride	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Chlorobenzene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Chloroethane	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Chloroform	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
Chloromethane	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
cis-1,2-Dichloroethene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
cis-1,3-Dichloropropene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Dibromochloromethane	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Dibromomethane	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Dichlorodifluoromethane	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	-	0.019	< 0.001	< 0.001
Iodomethane	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Isopropyl benzene (Cumene)	0.001	mg/L	-	0.002	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	-	0.024	< 0.002	< 0.002
Methylene Chloride	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
o-Xylene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Styrene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Tetrachloroethene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	-	0.003	< 0.001	< 0.001
trans-1,2-Dichloroethene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
trans-1,3-Dichloropropene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Trichloroethene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Trichlorofluoromethane	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Vinyl chloride	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Xylenes - Total	0.003	mg/L	-	0.024	< 0.003	< 0.003
Total MAH*	0.003	mg/L	-	0.101	< 0.003	< 0.003
Vic EPA IWRG 621 CHC (Total)*	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
Vic EPA IWRG 621 Other CHC (Total)*	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
4-Bromofluorobenzene (surr.)	1	%	-	120	127	127
Toluene-d8 (surr.)	1	%	-	111	106	104
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.01	mg/L	-	< 0.01	< 0.01	< 0.01
TRH C6-C10	0.02	mg/L	-	0.23	< 0.02	< 0.02
TRH C6-C10 less BTEX (F1) ^{N04}	0.02	mg/L	-	0.13	< 0.02	< 0.02
TRH >C10-C16	0.05	mg/L	-	< 0.05	< 0.05	< 0.05
TRH >C10-C16 less Naphthalene (F2) ^{N01}	0.05	mg/L	-	< 0.05	< 0.05	< 0.05
TRH >C16-C34	0.1	mg/L	-	< 0.1	< 0.1	< 0.1
TRH >C34-C40	0.1	mg/L	-	< 0.1	< 0.1	< 0.1

Client Sample ID			NEL-PB01A Water M18-JI15454 Jul 06, 2018	NEL-BH089 / 120718 Water M18-JI15455 Jul 12, 2018	NEL-BH088 / 120718 Water M18-JI15456 Jul 12, 2018	NEL-BH087 / 120718 Water M18-JI15457 Jul 12, 2018
Sample Matrix						
Eurofins mgt Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Anthracene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Benz(a)anthracene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene ^{N07}	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Benzo(g,h,i)perylene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Chrysene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Dibenz(a,h)anthracene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Fluoranthene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Naphthalene	0.001	mg/L	-	0.001	< 0.001	< 0.001
Phenanthrene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Pyrene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Total PAH*	0.001	mg/L	-	0.001	< 0.001	< 0.001
2-Fluorobiphenyl (surr.)	1	%	-	98	102	103
p-Terphenyl-d14 (surr.)	1	%	-	84	83	90
Organochlorine Pesticides						
Chlordanes - Total	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
4.4'-DDD	0.0001	mg/L	-	< 0.0001	< 0.0001	< 0.0001
4.4'-DDE	0.0001	mg/L	-	< 0.0001	< 0.0001	< 0.0001
4.4'-DDT	0.0001	mg/L	-	< 0.0001	< 0.0001	< 0.0001
a-BHC	0.0001	mg/L	-	< 0.0001	< 0.0001	< 0.0001
Aldrin	0.0001	mg/L	-	< 0.0001	< 0.0001	< 0.0001
b-BHC	0.0001	mg/L	-	< 0.0001	< 0.0001	< 0.0001
d-BHC	0.0001	mg/L	-	< 0.0001	< 0.0001	< 0.0001
Dieldrin	0.0001	mg/L	-	< 0.0001	< 0.0001	< 0.0001
Endosulfan I	0.0001	mg/L	-	< 0.0001	< 0.0001	< 0.0001
Endosulfan II	0.0001	mg/L	-	< 0.0001	< 0.0001	< 0.0001
Endosulfan sulphate	0.0001	mg/L	-	< 0.0001	< 0.0001	< 0.0001
Endrin	0.0001	mg/L	-	< 0.0001	< 0.0001	< 0.0001
Endrin aldehyde	0.0001	mg/L	-	< 0.0001	< 0.0001	< 0.0001
Endrin ketone	0.0001	mg/L	-	< 0.0001	< 0.0001	< 0.0001
g-BHC (Lindane)	0.0001	mg/L	-	< 0.0001	< 0.0001	< 0.0001
Heptachlor	0.0001	mg/L	-	< 0.0001	< 0.0001	< 0.0001
Heptachlor epoxide	0.0001	mg/L	-	< 0.0001	< 0.0001	< 0.0001
Hexachlorobenzene	0.0001	mg/L	-	< 0.0001	< 0.0001	< 0.0001
Methoxychlor	0.0001	mg/L	-	< 0.0001	< 0.0001	< 0.0001
Toxaphene	0.01	mg/L	-	< 0.01	< 0.01	< 0.01
Aldrin and Dieldrin (Total)*	0.0001	mg/L	-	< 0.0001	< 0.0001	< 0.0001
DDT + DDE + DDD (Total)*	0.0001	mg/L	-	< 0.0001	< 0.0001	< 0.0001
Vic EPA IWRG 621 OCP (Total)*	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Vic EPA IWRG 621 Other OCP (Total)*	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Dibutylchloroendate (surr.)	1	%	-	88	77	115
Tetrachloro-m-xylene (surr.)	1	%	-	114	115	124

Client Sample ID			NEL-PB01A Water M18-JI15454 Jul 06, 2018	NEL-BH089 / 120718 Water M18-JI15455 Jul 12, 2018	NEL-BH088 / 120718 Water M18-JI15456 Jul 12, 2018	NEL-BH087 / 120718 Water M18-JI15457 Jul 12, 2018
Sample Matrix						
Eurofins mgt Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Azinphos-methyl	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Bolstar	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Chlorfenvinphos	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Chlorpyrifos	0.02	mg/L	-	< 0.02	< 0.02	< 0.02
Chlorpyrifos-methyl	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Coumaphos	0.02	mg/L	-	< 0.02	< 0.02	< 0.02
Demeton-S	0.02	mg/L	-	< 0.02	< 0.02	< 0.02
Demeton-O	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Diazinon	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Dichlorvos	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Dimethoate	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Disulfoton	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
EPN	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Ethion	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Ethoprop	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Ethyl parathion	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Fenitrothion	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Fensulfothion	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Fenthion	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Malathion	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Merphos	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Methyl parathion	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Mevinphos	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Monocrotophos	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Naled	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Omethoate	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Phorate	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Pirimiphos-methyl	0.02	mg/L	-	< 0.02	< 0.02	< 0.02
Pyrazophos	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Ronnel	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Terbufos	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Tetrachlorvinphos	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Tokuthion	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Trichloronate	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Triphenylphosphate (surr.)	1	%	-	108	104	110
Polychlorinated Biphenyls						
Aroclor-1016	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Aroclor-1221	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Aroclor-1232	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Aroclor-1242	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Aroclor-1248	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Aroclor-1254	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Aroclor-1260	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Total PCB*	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Dibutylchloredate (surr.)	1	%	-	88	77	115
Tetrachloro-m-xylene (surr.)	1	%	-	114	115	124

Client Sample ID			NEL-PB01A Water M18-JI15454 Jul 06, 2018	NEL-BH089 / 120718 Water M18-JI15455 Jul 12, 2018	NEL-BH088 / 120718 Water M18-JI15456 Jul 12, 2018	NEL-BH087 / 120718 Water M18-JI15457 Jul 12, 2018
Sample Matrix						
Eurofins mgt Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
Phenols (Halogenated)						
2-Chlorophenol	0.003	mg/L	-	< 0.003	< 0.003	< 0.003
2,4-Dichlorophenol	0.003	mg/L	-	< 0.003	< 0.003	< 0.003
2,4,5-Trichlorophenol	0.01	mg/L	-	< 0.01	< 0.01	< 0.01
2,4,6-Trichlorophenol	0.01	mg/L	-	< 0.01	< 0.01	< 0.01
2,6-Dichlorophenol	0.003	mg/L	-	< 0.003	< 0.003	< 0.003
4-Chloro-3-methylphenol	0.01	mg/L	-	< 0.01	< 0.01	< 0.01
Pentachlorophenol	0.01	mg/L	-	< 0.01	< 0.01	< 0.01
Tetrachlorophenols - Total	0.03	mg/L	-	< 0.03	< 0.03	< 0.03
Total Halogenated Phenol*	0.01	mg/L	-	< 0.01	< 0.01	< 0.01
Phenols (non-Halogenated)						
2-Cyclohexyl-4,6-dinitrophenol	0.1	mg/L	-	< 0.1	< 0.1	< 0.1
2-Methyl-4,6-dinitrophenol	0.03	mg/L	-	< 0.03	< 0.03	< 0.03
2-Methylphenol (o-Cresol)	0.003	mg/L	-	< 0.003	< 0.003	< 0.003
2-Nitrophenol	0.01	mg/L	-	< 0.01	< 0.01	< 0.01
2,4-Dimethylphenol	0.003	mg/L	-	< 0.003	< 0.003	< 0.003
2,4-Dinitrophenol	0.03	mg/L	-	< 0.03	< 0.03	< 0.03
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	-	< 0.006	< 0.006	< 0.006
4-Nitrophenol	0.03	mg/L	-	< 0.03	< 0.03	< 0.03
Dinoseb	0.1	mg/L	-	< 0.1	< 0.1	< 0.1
Phenol	0.003	mg/L	-	0.007	< 0.003	< 0.003
Total Non-Halogenated Phenol*	0.1	mg/L	-	< 0.1	< 0.1	< 0.1
Phenol-d6 (surr.)	1	%	-	88	89	69
Semivolatile Organics						
2-Methyl-4,6-dinitrophenol	0.03	mg/L	-	< 0.03	< 0.03	< 0.03
1-Chloronaphthalene	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
1-Naphthylamine	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
1,2-Dichlorobenzene	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
1,2,3-Trichlorobenzene	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
1,2,3,4-Tetrachlorobenzene	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
1,2,3,5-Tetrachlorobenzene	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
1,2,4-Trichlorobenzene	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
1,2,4,5-Tetrachlorobenzene	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
1,3-Dichlorobenzene	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
1,3,5-Trichlorobenzene	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
1,4-Dichlorobenzene	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
2-Chloronaphthalene	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
2-Chlorophenol	0.003	mg/L	-	< 0.003	< 0.003	< 0.003
2-Methylnaphthalene	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
2-Methylphenol (o-Cresol)	0.003	mg/L	-	< 0.003	< 0.003	< 0.003
2-Naphthylamine	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
2-Nitroaniline	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
2-Nitrophenol	0.01	mg/L	-	< 0.01	< 0.01	< 0.01
2-Picoline	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
2,3,4,6-Tetrachlorophenol	0.01	mg/L	-	< 0.01	< 0.01	< 0.01
2,4-Dichlorophenol	0.003	mg/L	-	< 0.003	< 0.003	< 0.003
2,4-Dimethylphenol	0.003	mg/L	-	< 0.003	< 0.003	< 0.003
2,4-Dinitrophenol	0.03	mg/L	-	< 0.03	< 0.03	< 0.03
2,4-Dinitrotoluene	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
2,4,5-Trichlorophenol	0.01	mg/L	-	< 0.01	< 0.01	< 0.01

Client Sample ID			NEL-PB01A Water M18-JI15454 Jul 06, 2018	NEL-BH089 / 120718 Water M18-JI15455 Jul 12, 2018	NEL-BH088 / 120718 Water M18-JI15456 Jul 12, 2018	NEL-BH087 / 120718 Water M18-JI15457 Jul 12, 2018
Sample Matrix						
Eurofins mgt Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
Semivolatile Organics						
2,4,6-Trichlorophenol	0.01	mg/L	-	< 0.01	< 0.01	< 0.01
2,6-Dichlorophenol	0.003	mg/L	-	< 0.003	< 0.003	< 0.003
2,6-Dinitrotoluene	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	-	< 0.006	< 0.006	< 0.006
3-Methylcholanthrene	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
3,3'-Dichlorobenzidine	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
4-Aminobiphenyl	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
4-Bromophenyl phenyl ether	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
4-Chloro-3-methylphenol	0.01	mg/L	-	< 0.01	< 0.01	< 0.01
4-Chlorophenyl phenyl ether	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
4-Nitrophenol	0.03	mg/L	-	< 0.03	< 0.03	< 0.03
4,4'-DDD	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
4,4'-DDE	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
4,4'-DDT	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
7,12-Dimethylbenz(a)anthracene	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
a-BHC	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
Acenaphthene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Acetophenone	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
Aldrin	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
Aniline	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
Anthracene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
b-BHC	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
Benz(a)anthracene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene ^{N07}	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Benzo(g,h,i)perylene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Benzyl chloride	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
Bis(2-chloroethoxy)methane	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
Bis(2-chloroisopropyl)ether	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
Bis(2-ethylhexyl)phthalate	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
Butyl benzyl phthalate	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
Chrysene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
d-BHC	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
Di-n-butyl phthalate	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
Di-n-octyl phthalate	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
Dibenz(a,h)anthracene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Dibenz(a,j)acridine	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
Dibenzofuran	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
Dieldrin	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
Diethyl phthalate	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
Dimethyl phthalate	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
Dimethylaminoazobenzene	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
Diphenylamine	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
Endosulfan I	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
Endosulfan II	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
Endosulfan sulphate	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
Endrin	0.005	mg/L	-	< 0.005	< 0.005	< 0.005

Client Sample ID			NEL-PB01A Water M18-JI15454 Jul 06, 2018	NEL-BH089 / 120718 Water M18-JI15455 Jul 12, 2018	NEL-BH088 / 120718 Water M18-JI15456 Jul 12, 2018	NEL-BH087 / 120718 Water M18-JI15457 Jul 12, 2018
Sample Matrix						
Eurofins mgt Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
Semivolatile Organics						
Endrin aldehyde	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
Endrin ketone	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
Fluoranthene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
g-BHC (Lindane)	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
Heptachlor	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
Heptachlor epoxide	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
Hexachlorobenzene	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
Hexachlorobutadiene	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
Hexachlorocyclopentadiene	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
Hexachloroethane	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
Indeno(1.2.3-cd)pyrene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Methoxychlor	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
N-Nitrosodibutylamine	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
N-Nitrosodipropylamine	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
N-Nitrosopiperidine	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
Naphthalene	0.001	mg/L	-	0.001	< 0.001	< 0.001
Nitrobenzene	0.05	mg/L	-	< 0.05	< 0.05	< 0.05
Pentachlorobenzene	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
Pentachloronitrobenzene	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
Pentachlorophenol	0.01	mg/L	-	< 0.01	< 0.01	< 0.01
Phenanthrene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Phenol	0.003	mg/L	-	0.007	< 0.003	< 0.003
Pronamide	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
Pyrene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Trifluralin	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
Phenol-d6 (surr.)	1	%	-	88	89	69
Nitrobenzene-d5 (surr.)	1	%	-	80	58	61
2-Fluorobiphenyl (surr.)	1	%	-	98	102	103
2.4.6-Tribromophenol (surr.)	1	%	-	51	42	25
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA) ^{N11}	0.05	ug/L	-	< 0.05	< 0.05	< 0.05
Perfluoropentanoic acid (PFPeA) ^{N11}	0.01	ug/L	-	< 0.01	< 0.01	< 0.01
Perfluorohexanoic acid (PFHxA) ^{N11}	0.01	ug/L	-	< 0.01	< 0.01	< 0.01
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.01	ug/L	-	< 0.01	< 0.01	< 0.01
Perfluorooctanoic acid (PFOA) ^{N11}	0.01	ug/L	-	< 0.01	< 0.01	< 0.01
Perfluorononanoic acid (PFNA) ^{N11}	0.01	ug/L	-	< 0.01	< 0.01	< 0.01
Perfluorodecanoic acid (PFDA) ^{N11}	0.01	ug/L	-	< 0.01	< 0.01	< 0.01
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.01	ug/L	-	< 0.01	< 0.01	< 0.01
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.01	ug/L	-	< 0.01	< 0.01	< 0.01
Perfluorotridecanoic acid (PFTTrDA) ^{N15}	0.01	ug/L	-	< 0.01	< 0.01	< 0.01
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.01	ug/L	-	< 0.01	< 0.01	< 0.01
13C4-PFBA (surr.)	1	%	-	82	101	109
13C5-PFPeA (surr.)	1	%	-	99	118	129
13C5-PFHxA (surr.)	1	%	-	98	106	109
13C4-PFHpA (surr.)	1	%	-	100	104	107
13C8-PFOA (surr.)	1	%	-	92	97	95
13C5-PFNA (surr.)	1	%	-	98	110	100
13C6-PFDA (surr.)	1	%	-	76	81	77

Client Sample ID			NEL-PB01A Water M18-JI15454 Jul 06, 2018	NEL-BH089 / 120718 Water M18-JI15455 Jul 12, 2018	NEL-BH088 / 120718 Water M18-JI15456 Jul 12, 2018	NEL-BH087 / 120718 Water M18-JI15457 Jul 12, 2018
Sample Matrix						
Eurofins mgt Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
13C2-PFUnDA (surr.)	1	%	-	65	73	71
13C2-PFDoDA (surr.)	1	%	-	68	81	76
13C2-PFTeDA (surr.)	1	%	-	63	77	72
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.05	ug/L	-	< 0.05	< 0.05	< 0.05
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.05	ug/L	-	< 0.05	< 0.05	< 0.05
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.05	ug/L	-	< 0.05	< 0.05	< 0.05
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) ^{N11}	0.05	ug/L	-	< 0.05	< 0.05	< 0.05
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE) ^{N11}	0.05	ug/L	-	< 0.05	< 0.05	< 0.05
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.05	ug/L	-	< 0.05	< 0.05	< 0.05
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.05	ug/L	-	< 0.05	< 0.05	< 0.05
13C8-FOSA (surr.)	1	%	-	72	83	75
D3-N-MeFOSA (surr.)	1	%	-	61	84	61
D5-N-EtFOSA (surr.)	1	%	-	80	115	82
D7-N-MeFOSE (surr.)	1	%	-	45	54	49
D9-N-EtFOSE (surr.)	1	%	-	47	51	49
D5-N-EtFOSAA (surr.)	1	%	-	53	64	57
D3-N-MeFOSAA (surr.)	1	%	-	51	60	54
Perfluoroalkyl sulfonic acids (PFSA's)						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.01	ug/L	-	< 0.01	< 0.01	< 0.01
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.01	ug/L	-	< 0.01	< 0.01	< 0.01
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.01	ug/L	-	< 0.01	< 0.01	< 0.01
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.01	ug/L	-	< 0.01	< 0.01	< 0.01
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.01	ug/L	-	< 0.01	< 0.01	< 0.01
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.01	ug/L	-	< 0.01	< 0.01	< 0.01
13C3-PFBS (surr.)	1	%	-	113	115	118
18O2-PFHxS (surr.)	1	%	-	128	131	137
13C8-PFOS (surr.)	1	%	-	105	108	106
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.01	ug/L	-	< 0.01	< 0.01	< 0.01
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA) ^{N11}	0.05	ug/L	-	< 0.05	< 0.05	< 0.05
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.01	ug/L	-	< 0.01	< 0.01	< 0.01
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N15}	0.01	ug/L	-	< 0.01	< 0.01	< 0.01
13C2-4:2 FTSA (surr.)	1	%	-	77	92	80
13C2-6:2 FTSA (surr.)	1	%	-	61	64	51
13C2-8:2 FTSA (surr.)	1	%	-	41	46	39
PFASs Summations						
Sum (PFHxS + PFOS)*	0.01	ug/L	-	< 0.01	< 0.01	< 0.01
Sum of US EPA PFAS (PFOS + PFOA)*	0.01	ug/L	-	< 0.01	< 0.01	< 0.01
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	-	< 0.01	< 0.01	< 0.01
Sum of WA DER PFAS (n=10)*	0.05	ug/L	-	< 0.05	< 0.05	< 0.05
Sum of PFASs (n=28)*	0.1	ug/L	-	< 0.1	< 0.1	< 0.1

Client Sample ID			NEL-PB01A	NEL-BH089 / 120718	NEL-BH088 / 120718	NEL-BH087 / 120718
Sample Matrix			Water	Water	Water	Water
Eurofins mgt Sample No.			M18-JI15454	M18-JI15455	M18-JI15456	M18-JI15457
Date Sampled			Jul 06, 2018	Jul 12, 2018	Jul 12, 2018	Jul 12, 2018
Test/Reference	LOR	Unit				
Ammonia (as N)	0.01	mg/L	2.7	< 0.01	< 0.01	< 0.01
Carbon Dioxide (free)	5	mg/L	-	41	41	25
Chloride	1	mg/L	100	2500	2300	2600
Conductivity (at 25°C)	1	uS/cm	1200	10000	10000	11000
Nitrate & Nitrite (as N)	0.05	mg/L	< 0.05	< 0.05	0.18	< 0.05
Nitrate (as N)	0.02	mg/L	< 0.02	< 0.02	0.13	< 0.02
Nitrite (as N)	0.02	mg/L	< 0.02	< 0.02	0.05	< 0.02
pH (at 25°C)	0.1	pH Units	7.1	7.4	7.7	7.8
Phosphate total (as P)	0.05	mg/L	0.12	0.16	0.07	0.09
Phosphorus reactive (as P)	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
Sulphate (as SO ₄)	5	mg/L	< 5	250	120	320
Total Dissolved Solids	10	mg/L	790	6800	6100	6300
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	4.7	0.4	< 0.2	< 0.2
Total Nitrogen (as N)	0.2	mg/L	4.7	0.4	< 0.2	< 0.2
Total Organic Carbon	5	mg/L	21	27	< 5	13
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO ₃)	20	mg/L	550	820	1100	790
Carbonate Alkalinity (as CaCO ₃)	10	mg/L	< 10	< 10	< 10	< 10
Hydroxide Alkalinity (as CaCO ₃)	20	mg/L	< 20	< 20	< 20	< 20
Total Alkalinity (as CaCO ₃)	20	mg/L	550	820	1100	790
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	-	0.003	< 0.001	< 0.001
Beryllium (filtered)	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Boron (filtered)	0.05	mg/L	-	0.07	0.20	0.17
Cadmium (filtered)	0.0002	mg/L	-	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	-	< 0.001	0.001	< 0.001
Cobalt (filtered)	0.001	mg/L	-	0.003	0.003	0.003
Copper (filtered)	0.001	mg/L	-	0.013	0.022	0.012
Iron (filtered)	0.05	mg/L	-	1.4	0.05	0.07
Lead (filtered)	0.001	mg/L	-	0.001	0.002	< 0.001
Manganese (filtered)	0.005	mg/L	-	0.77	0.051	0.17
Mercury (filtered)	0.0001	mg/L	-	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	-	0.11	0.053	0.036
Selenium (filtered)	0.001	mg/L	-	< 0.001	0.012	< 0.001
Zinc (filtered)	0.005	mg/L	-	0.041	0.063	0.032
Alkali Metals						
Calcium	0.5	mg/L	41	34	59	65
Magnesium	0.5	mg/L	61	190	190	230
Potassium	0.5	mg/L	2.6	51	43	43
Sodium	0.5	mg/L	120	1900	1900	2000

Client Sample ID			NEL-BH086 / 120718	QC1 / 120718	ENC-BH014 / 130718	RB01 / 120718
Sample Matrix			Water	Water	Water	Water
Eurofins mgt Sample No.			M18-JI15458	M18-JI15459	M18-JI15460	M18-JI15461
Date Sampled			Jul 12, 2018	Jul 12, 2018	Jul 13, 2018	Jul 12, 2018
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C10-36 (Total)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
BTEX						
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Xylenes - Total	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
4-Bromofluorobenzene (surr.)	1	%	126	123	127	131
Volatile Organics						
1.1-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.1-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.1.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.2-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.2.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dibromoethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2.3-Trichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2.4-Trimethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3.5-Trimethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.4-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Butanone (MEK)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Propanone (Acetone)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
4-Chlorotoluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
4-Methyl-2-pentanone (MIBK)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Allyl chloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromodichloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromoform	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Carbon disulfide	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Carbon Tetrachloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chloroform	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
cis-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
cis-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001

Client Sample ID			NEL-BH086 / 120718	QC1 / 120718	ENC-BH014 / 130718	RB01 / 120718
Sample Matrix			Water	Water	Water	Water
Eurofins mgt Sample No.			M18-JI15458	M18-JI15459	M18-JI15460	M18-JI15461
Date Sampled			Jul 12, 2018	Jul 12, 2018	Jul 13, 2018	Jul 12, 2018
Test/Reference	LOR	Unit				
Volatile Organics						
Dibromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibromomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dichlorodifluoromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Iodomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Isopropyl benzene (Cumene)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Methylene Chloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Styrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Tetrachloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
trans-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
trans-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trichlorofluoromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Vinyl chloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Xylenes - Total	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Total MAH*	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Vic EPA IWRG 621 CHC (Total)*	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Vic EPA IWRG 621 Other CHC (Total)*	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Bromofluorobenzene (surr.)	1	%	126	123	127	131
Toluene-d8 (surr.)	1	%	107	105	108	108
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C6-C10 less BTEX (F1) ^{N04}	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C10-C16 less Naphthalene (F2) ^{N01}	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene ^{N07}	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g,h,i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibenz(a,h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001

Client Sample ID			NEL-BH086 / 120718	QC1 / 120718	ENC-BH014 / 130718	RB01 / 120718
Sample Matrix			Water	Water	Water	Water
Eurofins mgt Sample No.			M18-JI15458	M18-JI15459	M18-JI15460	M18-JI15461
Date Sampled			Jul 12, 2018	Jul 12, 2018	Jul 13, 2018	Jul 12, 2018
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
2-Fluorobiphenyl (surr.)	1	%	107	84	86	97
p-Terphenyl-d14 (surr.)	1	%	92	107	95	79
Organochlorine Pesticides						
Chlordanes - Total	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
4,4'-DDD	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
4,4'-DDE	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
4,4'-DDT	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
a-BHC	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Aldrin	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
b-BHC	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
d-BHC	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Dieldrin	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endosulfan I	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endosulfan II	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endosulfan sulphate	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endrin	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endrin aldehyde	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endrin ketone	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
g-BHC (Lindane)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Heptachlor	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Heptachlor epoxide	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Hexachlorobenzene	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Methoxychlor	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Toxaphene	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Aldrin and Dieldrin (Total)*	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
DDT + DDE + DDD (Total)*	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Vic EPA IWRG 621 OCP (Total)*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Vic EPA IWRG 621 Other OCP (Total)*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibutylchlorodate (surr.)	1	%	87	71	62	75
Tetrachloro-m-xylene (surr.)	1	%	119	100	112	106
Organophosphorus Pesticides						
Azinphos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Bolstar	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Chlorfenvinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Chlorpyrifos	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Chlorpyrifos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Coumaphos	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Demeton-S	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Demeton-O	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Diazinon	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dichlorvos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dimethoate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Disulfoton	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
EPN	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethoprop	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fenitrothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fensulfothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002

Client Sample ID			NEL-BH086 / 120718	QC1 / 120718	ENC-BH014 / 130718	RB01 / 120718
Sample Matrix			Water	Water	Water	Water
Eurofins mgt Sample No.			M18-JI15458	M18-JI15459	M18-JI15460	M18-JI15461
Date Sampled			Jul 12, 2018	Jul 12, 2018	Jul 13, 2018	Jul 12, 2018
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Fenthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Malathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Merphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Methyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Mevinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Monocrotophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Naled	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Omethoate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Phorate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Pirimiphos-methyl	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Pyrazophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ronnel	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Terbufos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Tetrachlorvinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Tokuthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Trichloronate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Triphenylphosphate (surr.)	1	%	113	148	128	105
Polychlorinated Biphenyls						
Aroclor-1016	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1221	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1232	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1242	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1248	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1254	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1260	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Total PCB*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibutylchlorendate (surr.)	1	%	87	71	62	75
Tetrachloro-m-xylene (surr.)	1	%	119	100	112	106
Phenols (Halogenated)						
2-Chlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2,4-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2,4,5-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2,4,6-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2,6-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
4-Chloro-3-methylphenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Pentachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Tetrachlorophenols - Total	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
Total Halogenated Phenol*	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Phenols (non-Halogenated)						
2-Cyclohexyl-4,6-dinitrophenol	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
2-Methyl-4,6-dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
2-Methylphenol (o-Cresol)	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2-Nitrophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2,4-Dimethylphenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2,4-Dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	< 0.006	< 0.006	< 0.006	< 0.006
4-Nitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
Dinoseb	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
Phenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003

Client Sample ID			NEL-BH086 / 120718	QC1 / 120718	ENC-BH014 / 130718	RB01 / 120718
Sample Matrix			Water	Water	Water	Water
Eurofins mgt Sample No.			M18-JI15458	M18-JI15459	M18-JI15460	M18-JI15461
Date Sampled			Jul 12, 2018	Jul 12, 2018	Jul 13, 2018	Jul 12, 2018
Test/Reference	LOR	Unit				
Phenols (non-Halogenated)						
Total Non-Halogenated Phenol*	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
Phenol-d6 (surr.)	1	%	Q09;int	Q09;int	Q09;int	89
Semivolatile Organics						
2-Methyl-4,6-dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
1-Chloronaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1-Naphthylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1,2-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1,2,3-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1,2,3,4-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1,2,3,5-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1,2,4-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1,2,4,5-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1,3-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1,3,5-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1,4-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Chloronaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Chlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2-Methylnaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Methylphenol (o-Cresol)	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2-Naphthylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Nitroaniline	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2-Nitrophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2-Picoline	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2,3,4,6-Tetrachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2,4-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2,4-Dimethylphenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2,4-Dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
2,4-Dinitrotoluene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
2,4,5-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2,4,6-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2,6-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2,6-Dinitrotoluene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	< 0.006	< 0.006	< 0.006	< 0.006
3-Methylcholanthrene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
3,3'-Dichlorobenzidine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Aminobiphenyl	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Bromophenyl phenyl ether	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Chloro-3-methylphenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
4-Chlorophenyl phenyl ether	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Nitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
4,4'-DDD	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4,4'-DDE	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4,4'-DDT	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
7,12-Dimethylbenz(a)anthracene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
a-BHC	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acetophenone	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aldrin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005

Client Sample ID			NEL-BH086 / 120718	QC1 / 120718	ENC-BH014 / 130718	RB01 / 120718
Sample Matrix			Water	Water	Water	Water
Eurofins mgt Sample No.			M18-JI15458	M18-JI15459	M18-JI15460	M18-JI15461
Date Sampled			Jul 12, 2018	Jul 12, 2018	Jul 13, 2018	Jul 12, 2018
Test/Reference	LOR	Unit				
Semivolatile Organics						
Aniline	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
b-BHC	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene ^{N07}	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g,h,i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzyl chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-chloroethoxy)methane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-chloroisopropyl)ether	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-ethylhexyl)phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Butyl benzyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
d-BHC	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Di-n-butyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Di-n-octyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dibenz(a,h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibenz(a,j)acridine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dibenzofuran	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dieldrin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Diethyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dimethyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dimethylaminoazobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Diphenylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan I	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan II	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan sulphate	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endrin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endrin aldehyde	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Endrin ketone	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
g-BHC (Lindane)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Heptachlor	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Heptachlor epoxide	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobutadiene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorocyclopentadiene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Hexachloroethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Methoxychlor	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosodibutylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosodipropylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosopiperidine	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Nitrobenzene	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
Pentachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Pentachloronitrobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005

Client Sample ID			NEL-BH086 / 120718	QC1 / 120718	ENC-BH014 / 130718	RB01 / 120718
Sample Matrix			Water	Water	Water	Water
Eurofins mgt Sample No.			M18-JI15458	M18-JI15459	M18-JI15460	M18-JI15461
Date Sampled			Jul 12, 2018	Jul 12, 2018	Jul 13, 2018	Jul 12, 2018
Test/Reference	LOR	Unit				
Semivolatile Organics						
Pentachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Phenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Pronamide	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trifluralin	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Phenol-d6 (surr.)	1	%	Q09;int	Q09;int	Q09;int	89
Nitrobenzene-d5 (surr.)	1	%	92	61	75	51
2-Fluorobiphenyl (surr.)	1	%	107	84	86	97
2,4,6-Tribromophenol (surr.)	1	%	Q09;int	Q09;int	Q09;int	41
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
Perfluoropentanoic acid (PFPeA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	0.02	< 0.01
Perfluorohexanoic acid (PFHxA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	0.01	< 0.01
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorooctanoic acid (PFOA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorononanoic acid (PFNA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorodecanoic acid (PFDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorotridecanoic acid (PFTeDA) ^{N15}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
13C4-PFBA (surr.)	1	%	102	101	109	123
13C5-PFPeA (surr.)	1	%	124	119	119	134
13C5-PFHxA (surr.)	1	%	105	102	106	112
13C4-PFHpA (surr.)	1	%	102	100	108	109
13C8-PFOA (surr.)	1	%	91	92	103	103
13C5-PFNA (surr.)	1	%	103	97	120	127
13C6-PFDA (surr.)	1	%	79	71	92	105
13C2-PFUnDA (surr.)	1	%	72	64	79	90
13C2-PFDoDA (surr.)	1	%	76	70	87	98
13C2-PFTeDA (surr.)	1	%	76	71	81	92
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
13C8-FOSA (surr.)	1	%	77	75	88	89
D3-N-MeFOSA (surr.)	1	%	65	87	86	77
D5-N-EtFOSA (surr.)	1	%	91	120	117	101
D7-N-MeFOSE (surr.)	1	%	51	51	60	65
D9-N-EtFOSE (surr.)	1	%	53	50	58	62

Page 17 of 44
Report Number: 607533-W

Client Sample ID			NEL-BH086 / 120718	QC1 / 120718	ENC-BH014 / 130718	RB01 / 120718
Sample Matrix			Water	Water	Water	Water
Eurofins mgt Sample No.			M18-JI15458	M18-JI15459	M18-JI15460	M18-JI15461
Date Sampled			Jul 12, 2018	Jul 12, 2018	Jul 13, 2018	Jul 12, 2018
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	0.001	mg/L	-	-	-	< 0.001
Arsenic (filtered)	0.001	mg/L	< 0.001	< 0.001	0.002	-
Beryllium	0.001	mg/L	-	-	-	< 0.001
Beryllium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Boron	0.05	mg/L	-	-	-	< 0.05
Boron (filtered)	0.05	mg/L	0.17	0.20	0.53	-
Cadmium	0.0002	mg/L	-	-	-	< 0.0002
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	-
Chromium	0.001	mg/L	-	-	-	< 0.001
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Cobalt	0.001	mg/L	-	-	-	< 0.001
Cobalt (filtered)	0.001	mg/L	0.001	0.002	< 0.001	-
Copper	0.001	mg/L	-	-	-	< 0.001
Copper (filtered)	0.001	mg/L	0.006	0.086	0.021	-
Iron	0.05	mg/L	-	-	-	< 0.05
Iron (filtered)	0.05	mg/L	< 0.05	< 0.05	< 0.05	-
Lead	0.001	mg/L	-	-	-	< 0.001
Lead (filtered)	0.001	mg/L	< 0.001	0.003	0.002	-
Manganese	0.005	mg/L	-	-	-	< 0.005
Manganese (filtered)	0.005	mg/L	0.074	0.081	0.013	-
Mercury	0.0001	mg/L	-	-	-	< 0.0001
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	-
Nickel	0.001	mg/L	-	-	-	< 0.001
Nickel (filtered)	0.001	mg/L	0.070	0.085	0.062	-
Selenium	0.001	mg/L	-	-	-	< 0.001
Selenium (filtered)	0.001	mg/L	< 0.001	< 0.001	0.002	-
Zinc	0.005	mg/L	-	-	-	< 0.005
Zinc (filtered)	0.005	mg/L	0.007	0.14	0.041	-
Alkali Metals						
Calcium	0.5	mg/L	70	70	14	< 0.5
Magnesium	0.5	mg/L	400	400	26	< 0.5
Potassium	0.5	mg/L	48	50	6.4	< 0.5
Sodium	0.5	mg/L	2600	2600	420	< 0.5

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.

A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C36	Melbourne	Jul 17, 2018	7 Day
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: TRH C6-C40 - LTM-ORG-2010	Melbourne	Jul 13, 2018	7 Day
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: TRH C6-C40 - LTM-ORG-2010	Melbourne	Jul 17, 2018	7 Day
BTEX and Naphthalene			
BTEX - Method: TRH C6-C40 - LTM-ORG-2010	Melbourne	Jul 13, 2018	14 Day
Volatile Organics - Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices	Melbourne	Jul 13, 2018	7 Days
Semivolatile Organics - Method: LTM-ORG-2190 SVOC in Water & Soil by GC-MS	Melbourne	Jul 17, 2018	7 Day
Polycyclic Aromatic Hydrocarbons - Method: LTM-ORG-2130 PAH and Phenols in Soil and Water	Melbourne	Jul 17, 2018	7 Day
Organochlorine Pesticides - Method: LTM-ORG-2220 OCP & PCB in Soil and Water	Melbourne	Jul 17, 2018	7 Day
Organophosphorus Pesticides - Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS	Melbourne	Jul 17, 2018	7 Day
Polychlorinated Biphenyls - Method: LTM-ORG-2220 OCP & PCB in Soil and Water	Melbourne	Jul 17, 2018	7 Days
Carbon Dioxide (free) - Method: APHA 4500-CO2 C. Free Carbon Dioxide by Titration	Melbourne	Jul 13, 2018	24 Hours
Conductivity (at 25°C) - Method: LTM-INO-4030 Conductivity	Melbourne	Jul 13, 2018	28 Day
pH (at 25°C) - Method: LTM-GEN-7090 pH in water by ISE	Melbourne	Jul 13, 2018	0 Hours
Total Dissolved Solids - Method: LTM-INO-4170 Total Dissolved Solids in Water	Melbourne	Jul 13, 2018	7 Day
Total Organic Carbon - Method: APHA 5310B Total Organic Carbon	Melbourne	Jul 16, 2018	28 Day
NEPM 2013 Metals without Cr6+ (As, Be, B, Cd, Co, Cr, Cu, Hg, Pb, Ni, Mn, Se, Zn) - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Melbourne	Jul 13, 2018	180 Days
NEPM 2013 Filtered Metals without Cr6+ (As, Be, B, Cd, Co, Cr, Cu, Hg, Pb, Ni, Mn, Se, Zn) - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Melbourne	Jul 13, 2018	28 Day
Heavy Metals - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Melbourne	Jul 17, 2018	180 Day
Heavy Metals (filtered) - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Melbourne	Jul 17, 2018	180 Day
Eurofins mgt Suite B11C: Na/K/Ca/Mg - Method: LTM-MET-3010 Alkali Metals by ICP-AES	Melbourne	Jul 13, 2018	180 Day
Phenols (IWRG 621)			
Phenols (Halogenated) - Method: LTM-ORG-2130 PAH and Phenols in Soil and Water	Melbourne	Jul 17, 2018	7 Days
Phenols (non-Halogenated) - Method: LTM-ORG-2130 PAH and Phenols in Soil and Water	Melbourne	Jul 17, 2018	7 Day
Per- and Polyfluoroalkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Jul 16, 2018	14 Day

Description	Testing Site	Extracted	Holding Time
Perfluoroalkyl sulfonamido substances	Brisbane	Jul 16, 2018	14 Day
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonic acids (PFASs)	Brisbane	Jul 16, 2018	14 Day
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)	Brisbane	Jul 16, 2018	14 Day
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Eurofins mgt Suite B19E: Total N, TKN, NOx, NO2, NO3, NH3, Total P, Reactive P			
Ammonia (as N)	Melbourne	Jul 13, 2018	28 Day
- Method: APHA 4500-NH3 Ammonia Nitrogen by FIA			
Nitrate & Nitrite (as N)	Melbourne	Jul 13, 2018	28 Day
- Method: APHA 4500-NO3/NO2 Nitrate-Nitrite Nitrogen by FIA			
Nitrate (as N)	Melbourne	Jul 13, 2018	28 Day
- Method: APHA 4500-NO3 Nitrate Nitrogen by FIA			
Nitrite (as N)	Melbourne	Jul 13, 2018	2 Day
- Method: APHA 4500-NO2 Nitrite Nitrogen by FIA			
Phosphate total (as P)	Melbourne	Jul 13, 2018	28 Day
- Method: APHA 4500-P E. Phosphorous			
Phosphorus reactive (as P)	Melbourne	Jul 13, 2018	2 Day
- Method: APHA4500-PO4			
Total Kjeldahl Nitrogen (as N)	Melbourne	Jul 13, 2018	7 Day
- Method: LTM-INO-4310 TKN in Waters & Soils by FIA			
Eurofins mgt Suite B11E: Cl/SO4/Alkalinity			
Chloride	Melbourne	Jul 13, 2018	28 Day
- Method: LTM-INO-4090 Chloride by Discrete Analyser			
Sulphate (as SO4)	Melbourne	Jul 13, 2018	28 Day
- Method: LTM-INO-4110 Sulfate by Discrete Analyser			
Alkalinity (speciated)	Melbourne	Jul 13, 2018	14 Day
- Method: APHA 2320 Alkalinity by Titration			

CHAIN OF CUSTODY

# OBSERVATIONS	SAMPLE DATE	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DEPTH (m)	No. OF CONTAINERS	Major Anions	Major Cations	Nutrient Screen	Physio-Chemical Parameters (pH, EC, TDS, TOC)	NEPM Metals Suite	TRH C6 - C40	BTEXN	PAH	Phenols	OC / OP / PCB	VOCs / SVOCs	PFAS suite	SRB	Free CO ₂	Alkalinity (hydroxide as CaCO ₃ , total as CaCO ₃ , bicarbonate alkalinity as	HOLD
	06.07.2018	NEL-PB01A	WATER	-	1	X	X	X	X												
	12.07.2018	NEL-BH089 / 120718	WATER	-	9 10	X	X	X	X	X	X	X	X	X	X	X	X		X	X	
	12.07.2018	NEL-BH088 / 120718	WATER	-	9 10	X	X	X	X	X	X	X	X	X	X	X	X		X	X	
	12.07.2018	NEL-BH087 / 120718	WATER	-	9 10	X	X	X	X	X	X	X	X	X	X	X	X		X	X	
	12.07.2018	NEL-BH086 / 120718	WATER	-	9 10	X	X	X	X	X	X	X	X	X	X	X	X		X	X	
	12.07.2018	QC1 / 120718	WATER	-	9 10	X	X	X	X	X	X	X	X	X	X	X	X		X	X	
	13.07.2018	ENV-BH014 / 130718	WATER	-	9 10	X	X	X	X	X	X	X	X	X	X	X	X		X	X	
	12.07.2018	RB1 / 120718	RB	-	9 10	X	X	X	X	X	X	X	X	X	X	X	X		X	X	
	13.07.2018	RD2 / 130718	RD	-	10	X	X	X	X	X	X	X	X	X	X	X	X		X	X	

Special Instructions:

As per quote #180206GHDV, dated 6 February 2018

TURN AROUND TIME REQUIRED

☐ 1 Working Day ☐ 2 Working Days ☐ 3 Working Days ☐ 4 Working Days ☒ 5 Working Days (standard) Other _____

SAMPLE RECEIPT				DELIVERED BY:		SAMPLE STATUS	
Relinquished by:	Matthew Moore	Date:	13.07.2018	Received by:	Jalpa Patel	Date:	13/7/18
Organisation:	GHD	Time:	11:00	Organisation:	more	Time:	12:46PM
ANALYTICAL SCHEDULE				RECEIVED BY:		SAMPLE STATUS	
Relinquished by:	Matthew Moore	Date:	13.07.2018	Received by:		Date:	
Organisation:	GHD	Time:	11:00	Organisation:		Time:	
RECEIVING LABORATORY TO CONFIRM RECEIPT OF ANALYTICAL SCHEDULE BY EMAIL TO: matthew.moore5@ghd.com				FAX		SAMPLE STATUS	
				HAND		SAMPLE STATUS	

Checked By: _____ Date: _____

607533

Sample Receipt Advice

Company name: **GHD Pty Ltd VIC**
Contact name: **Matthew Moore**
Project name: **BULLEEN VIC 3105**
Project ID: **31/35006/0813**
COC number: **Not provided**
Turn around time: **5 Day**
Date/Time received: **Jul 13, 2018 12:46 PM**
Eurofins | mgt reference: **607533**

Sample information

- ☒ A detailed list of analytes logged into our LIMS, is included in the attached summary table.
- ☒ All samples have been received as described on the above COC.
- ☒ COC has been completed correctly.
- ☒ Attempt to chill was evident.
- ☒ Appropriately preserved sample containers have been used.
- ☒ All samples were received in good condition.
- ☒ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
- ☒ Appropriate sample containers have been used.
- ☒ Sample containers for volatile analysis received with zero headspace.
- ☒ Split sample sent to requested external lab.
- ☒ Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

Contact notes

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

Natalie Krasselt on Phone : +61 3 8564 5000 or by e.mail: NatalieKrasselt@eurofins.com

Results will be delivered electronically via e.mail to Matthew Moore - matthew.moore5@ghd.com.

Company Name: GHD Pty Ltd VIC
Address: Level 8, 180 Lonsdale St
Melbourne
VIC 3000

Project Name: BULLEEN VIC 3105
Project ID: 31/35006/0813

Order No.:
Report #: 607533
Phone: 8687 8000
Fax: 8687 8111

Received: Jul 13, 2018 12:46 PM
Due: Jul 20, 2018
Priority: 5 Day
Contact Name: Matthew Moore

Eurofins | mgt Analytical Services Manager : Natalie Krasselt

Sample Detail						Carbon Dioxide (free)	Conductivity (at 25°C)	pH (at 25°C)	Total Dissolved Solids	Total Organic Carbon	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Organophosphorus Pesticides	Polychlorinated Biphenyls	Phenols (IWRG 621)	BTEX and Naphthalene	Total Recoverable Hydrocarbons	Eurofins mgt Suite SVV: SVOC/VOC	NEPM 2013 Metals without Cr+6 (As, Be, B, Cd, Co, Cr, Cu, Hg, Pb, Ni, Mn, Se, Zn)	Eurofins mgt Suite B11E: C/SCd/Alkalinity	Eurofins mgt Suite B19E: Total N, TKN, NOx, NO2, NO3, NH3, Total P, Reactive P	Per- and Polyfluoralkyl Substances (PFASs)	NEPM 2013 Filtered Metals without Cr+6 (As, Be, B, Cd, Co, Cr, Cu, Hg, Pb, Ni, Mn, Se, Zn)	Eurofins mgt Suite B11C: Na/K/Ca/Mg
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X
Sydney Laboratory - NATA Site # 18217																								
Brisbane Laboratory - NATA Site # 20794																						X		
Perth Laboratory - NATA Site # 23736																								
External Laboratory																								
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID																			
1	NEL-PB01A	Jul 06, 2018		Water	M18-JI15454		X	X	X	X										X	X			X
2	NEL-BH089 / 120718	Jul 12, 2018		Water	M18-JI15455	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
3	NEL-BH088 / 120718	Jul 12, 2018		Water	M18-JI15456	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
4	NEL-BH087 / 120718	Jul 12, 2018		Water	M18-JI15457	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
5	NEL-BH086 / 120718	Jul 12, 2018		Water	M18-JI15458	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
6	QC1 / 120718	Jul 12, 2018		Water	M18-JI15459	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
7	ENC-BH014 /	Jul 13, 2018		Water	M18-JI15460	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X

Company Name: GHD Pty Ltd VIC
Address: Level 8, 180 Lonsdale St
Melbourne
VIC 3000

Project Name: BULLEEN VIC 3105
Project ID: 31/35006/0813

Order No.:
Report #: 607533
Phone: 8687 8000
Fax: 8687 8111

Received: Jul 13, 2018 12:46 PM
Due: Jul 20, 2018
Priority: 5 Day
Contact Name: Matthew Moore

Eurofins | mgt Analytical Services Manager : Natalie Krasselt

Sample Detail						Carbon Dioxide (free)	Conductivity (at 25°C)	pH (at 25°C)	Total Dissolved Solids	Total Organic Carbon	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Organophosphorus Pesticides	Polychlorinated Biphenyls	Phenols (IWRG 621)	BTEX and Naphthalene	Total Recoverable Hydrocarbons	Eurofins mgt Suite SVV: SVOC/VOC	NEPM 2013 Metals without Cr6+ (As, Be, B, Cd, Co, Cr, Cu, Hg, Pb, Ni, Mn, Se, Zn)	Eurofins mgt Suite B11E: Total N, TKN, NOx, NO2, NO3, NH3, Total P, Reactive P	Eurofins mgt Suite B11E: C/SO4/Alkalinity	Per- and Polyfluoroalkyl Substances (PFASs)	NEPM 2013 Filtered Metals without Cr6+ (As, Be, B, Cd, Co, Cr, Cu, Hg, Pb, Ni, Mn, Se, Zn)	Eurofins mgt Suite B11C: Na/K/Ca/Mg	
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	
Sydney Laboratory - NATA Site # 18217																									
Brisbane Laboratory - NATA Site # 20794																						X			
Perth Laboratory - NATA Site # 23736																									
	130718																								
8	RB01 / 120718	Jul 12, 2018		Water	M18-JI15461	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	
Test Counts						7	8	8	8	8	7	7	7	7	7	7	7	7	7	1	8	8	7	6	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.

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							
Phenols (Halogenated)							
2-Chlorophenol	mg/L	< 0.003			0.003	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
2,4-Dichlorophenol	mg/L	< 0.003			0.003	Pass	
2,4,5-Trichlorophenol	mg/L	< 0.01			0.01	Pass	
2,4,6-Trichlorophenol	mg/L	< 0.01			0.01	Pass	
2,6-Dichlorophenol	mg/L	< 0.003			0.003	Pass	
4-Chloro-3-methylphenol	mg/L	< 0.01			0.01	Pass	
Pentachlorophenol	mg/L	< 0.01			0.01	Pass	
Tetrachlorophenols - Total	mg/L	< 0.03			0.03	Pass	
Method Blank							
Phenols (non-Halogenated)							
2-Cyclohexyl-4,6-dinitrophenol	mg/L	< 0.1			0.1	Pass	
2-Methyl-4,6-dinitrophenol	mg/L	< 0.03			0.03	Pass	
2-Methylphenol (o-Cresol)	mg/L	< 0.003			0.003	Pass	
2-Nitrophenol	mg/L	< 0.01			0.01	Pass	
2,4-Dimethylphenol	mg/L	< 0.003			0.003	Pass	
2,4-Dinitrophenol	mg/L	< 0.03			0.03	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/L	< 0.006			0.006	Pass	
4-Nitrophenol	mg/L	< 0.03			0.03	Pass	
Dinoseb	mg/L	< 0.1			0.1	Pass	
Phenol	mg/L	< 0.003			0.003	Pass	
Method Blank							
Semivolatile Organics							
1-Chloronaphthalene	mg/L	< 0.005			0.005	Pass	
1-Naphthylamine	mg/L	< 0.005			0.005	Pass	
1,2-Dichlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,3-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,3,4-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,3,5-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,4-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,4,5-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1,3-Dichlorobenzene	mg/L	< 0.005			0.005	Pass	
1,3,5-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1,4-Dichlorobenzene	mg/L	< 0.005			0.005	Pass	
2-Chloronaphthalene	mg/L	< 0.005			0.005	Pass	
2-Methylnaphthalene	mg/L	< 0.005			0.005	Pass	
2-Naphthylamine	mg/L	< 0.005			0.005	Pass	
2-Nitroaniline	mg/L	< 0.005			0.005	Pass	
2-Picoline	mg/L	< 0.005			0.005	Pass	
2,3,4,6-Tetrachlorophenol	mg/L	< 0.01			0.01	Pass	
2,4-Dinitrotoluene	mg/L	< 0.005			0.005	Pass	
2,6-Dinitrotoluene	mg/L	< 0.005			0.005	Pass	
3-Methylcholanthrene	mg/L	< 0.005			0.005	Pass	
3,3'-Dichlorobenzidine	mg/L	< 0.005			0.005	Pass	
4-Aminobiphenyl	mg/L	< 0.005			0.005	Pass	
4-Bromophenyl phenyl ether	mg/L	< 0.005			0.005	Pass	
4-Chlorophenyl phenyl ether	mg/L	< 0.005			0.005	Pass	
4,4'-DDD	mg/L	< 0.005			0.005	Pass	
4,4'-DDE	mg/L	< 0.005			0.005	Pass	
4,4'-DDT	mg/L	< 0.005			0.005	Pass	
7,12-Dimethylbenz(a)anthracene	mg/L	< 0.005			0.005	Pass	
a-BHC	mg/L	< 0.005			0.005	Pass	
Acetophenone	mg/L	< 0.005			0.005	Pass	
Aldrin	mg/L	< 0.005			0.005	Pass	
Aniline	mg/L	< 0.005			0.005	Pass	
b-BHC	mg/L	< 0.005			0.005	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Benzyl chloride	mg/L	< 0.005			0.005	Pass	
Bis(2-chloroethoxy)methane	mg/L	< 0.005			0.005	Pass	
Bis(2-chloroisopropyl)ether	mg/L	< 0.005			0.005	Pass	
Bis(2-ethylhexyl)phthalate	mg/L	< 0.005			0.005	Pass	
Butyl benzyl phthalate	mg/L	< 0.005			0.005	Pass	
d-BHC	mg/L	< 0.005			0.005	Pass	
Di-n-butyl phthalate	mg/L	< 0.005			0.005	Pass	
Di-n-octyl phthalate	mg/L	< 0.005			0.005	Pass	
Dibenz(a,j)acridine	mg/L	< 0.005			0.005	Pass	
Dibenzofuran	mg/L	< 0.005			0.005	Pass	
Dieldrin	mg/L	< 0.005			0.005	Pass	
Diethyl phthalate	mg/L	< 0.005			0.005	Pass	
Dimethyl phthalate	mg/L	< 0.005			0.005	Pass	
Dimethylaminoazobenzene	mg/L	< 0.005			0.005	Pass	
Diphenylamine	mg/L	< 0.005			0.005	Pass	
Endosulfan I	mg/L	< 0.005			0.005	Pass	
Endosulfan II	mg/L	< 0.005			0.005	Pass	
Endosulfan sulphate	mg/L	< 0.005			0.005	Pass	
Endrin	mg/L	< 0.005			0.005	Pass	
Endrin aldehyde	mg/L	< 0.005			0.005	Pass	
Endrin ketone	mg/L	< 0.005			0.005	Pass	
g-BHC (Lindane)	mg/L	< 0.005			0.005	Pass	
Heptachlor	mg/L	< 0.005			0.005	Pass	
Heptachlor epoxide	mg/L	< 0.005			0.005	Pass	
Hexachlorobenzene	mg/L	< 0.005			0.005	Pass	
Hexachlorobutadiene	mg/L	< 0.005			0.005	Pass	
Hexachlorocyclopentadiene	mg/L	< 0.005			0.005	Pass	
Hexachloroethane	mg/L	< 0.005			0.005	Pass	
Methoxychlor	mg/L	< 0.005			0.005	Pass	
N-Nitrosodibutylamine	mg/L	< 0.005			0.005	Pass	
N-Nitrosodipropylamine	mg/L	< 0.005			0.005	Pass	
N-Nitrosopiperidine	mg/L	< 0.005			0.005	Pass	
Nitrobenzene	mg/L	< 0.05			0.05	Pass	
Pentachlorobenzene	mg/L	< 0.005			0.005	Pass	
Pentachloronitrobenzene	mg/L	< 0.005			0.005	Pass	
Pronamide	mg/L	< 0.005			0.005	Pass	
Trifluralin	mg/L	< 0.005			0.005	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.05			0.05	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.01			0.01	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.01			0.01	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.01			0.01	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.01			0.01	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.01			0.01	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.01			0.01	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.01			0.01	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.01			0.01	Pass	
Perfluorotridecanoic acid (PFTTrDA)	ug/L	< 0.01			0.01	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.01			0.01	Pass	
Method Blank							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.05			0.05	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.05			0.05	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	ug/L	< 0.05			0.05	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	ug/L	< 0.05			0.05	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.05			0.05	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.05			0.05	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSA's)							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.01			0.01	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.01			0.01	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.01			0.01	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.01			0.01	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.01			0.01	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.01			0.01	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.01			0.01	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	ug/L	< 0.05			0.05	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.01			0.01	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.01			0.01	Pass	
Method Blank							
Ammonia (as N)	mg/L	< 0.01			0.01	Pass	
Chloride	mg/L	< 1			1	Pass	
Nitrate & Nitrite (as N)	mg/L	< 0.05			0.05	Pass	
Nitrate (as N)	mg/L	< 0.02			0.02	Pass	
Nitrite (as N)	mg/L	< 0.02			0.02	Pass	
Phosphate total (as P)	mg/L	< 0.05			0.05	Pass	
Phosphorus reactive (as P)	mg/L	< 0.05			0.05	Pass	
Sulphate (as SO ₄)	mg/L	< 5			5	Pass	
Total Dissolved Solids	mg/L	< 10			10	Pass	
Total Kjeldahl Nitrogen (as N)	mg/L	< 0.2			0.2	Pass	
Total Organic Carbon	mg/L	< 5			5	Pass	
Method Blank							
Alkalinity (speciated)							
Bicarbonate Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Carbonate Alkalinity (as CaCO ₃)	mg/L	< 10			10	Pass	
Hydroxide Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Total Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/L	< 0.001			0.001	Pass	
Arsenic (filtered)	mg/L	< 0.001			0.001	Pass	
Beryllium	mg/L	< 0.001			0.001	Pass	
Beryllium (filtered)	mg/L	< 0.001			0.001	Pass	
Boron	mg/L	< 0.05			0.05	Pass	
Boron (filtered)	mg/L	< 0.05			0.05	Pass	
Cadmium	mg/L	< 0.0002			0.0002	Pass	
Cadmium (filtered)	mg/L	< 0.0002			0.0002	Pass	
Chromium	mg/L	< 0.001			0.001	Pass	
Chromium (filtered)	mg/L	< 0.001			0.001	Pass	
Cobalt	mg/L	< 0.001			0.001	Pass	
Cobalt (filtered)	mg/L	< 0.001			0.001	Pass	
Copper	mg/L	< 0.001			0.001	Pass	
Copper (filtered)	mg/L	< 0.001			0.001	Pass	
Iron	mg/L	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Iron (filtered)	mg/L	< 0.05			0.05	Pass	
Lead	mg/L	< 0.001			0.001	Pass	
Lead (filtered)	mg/L	< 0.001			0.001	Pass	
Manganese	mg/L	< 0.005			0.005	Pass	
Manganese (filtered)	mg/L	< 0.005			0.005	Pass	
Mercury	mg/L	< 0.0001			0.0001	Pass	
Mercury (filtered)	mg/L	< 0.0001			0.0001	Pass	
Nickel	mg/L	< 0.001			0.001	Pass	
Nickel (filtered)	mg/L	< 0.001			0.001	Pass	
Selenium	mg/L	< 0.001			0.001	Pass	
Selenium (filtered)	mg/L	< 0.001			0.001	Pass	
Zinc	mg/L	< 0.005			0.005	Pass	
Zinc (filtered)	mg/L	< 0.005			0.005	Pass	
Method Blank							
Alkali Metals							
Calcium	mg/L	< 0.5			0.5	Pass	
Magnesium	mg/L	< 0.5			0.5	Pass	
Potassium	mg/L	< 0.5			0.5	Pass	
Sodium	mg/L	< 0.5			0.5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	126			70-130	Pass	
TRH C10-C14	%	80			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	108			70-130	Pass	
Toluene	%	112			70-130	Pass	
Ethylbenzene	%	119			70-130	Pass	
m&p-Xylenes	%	116			70-130	Pass	
Xylenes - Total	%	116			70-130	Pass	
LCS - % Recovery							
Volatile Organics							
1.1-Dichloroethene	%	100			70-130	Pass	
1.1.1-Trichloroethane	%	120			70-130	Pass	
1.2-Dichlorobenzene	%	100			70-130	Pass	
1.2-Dichloroethane	%	116			70-130	Pass	
Trichloroethene	%	115			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	92			70-130	Pass	
TRH C6-C10	%	129			70-130	Pass	
TRH >C10-C16	%	91			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	99			70-130	Pass	
Acenaphthylene	%	77			70-130	Pass	
Anthracene	%	105			70-130	Pass	
Benz(a)anthracene	%	122			70-130	Pass	
Benzo(a)pyrene	%	120			70-130	Pass	
Benzo(b&j)fluoranthene	%	125			70-130	Pass	
Benzo(g,h,i)perylene	%	106			70-130	Pass	
Benzo(k)fluoranthene	%	121			70-130	Pass	
Chrysene	%	125			70-130	Pass	
Dibenz(a,h)anthracene	%	103			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Fluoranthene	%	92			70-130	Pass	
Fluorene	%	100			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	106			70-130	Pass	
Naphthalene	%	85			70-130	Pass	
Phenanthrene	%	99			70-130	Pass	
Pyrene	%	94			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	91			70-130	Pass	
4.4'-DDD	%	99			70-130	Pass	
4.4'-DDE	%	107			70-130	Pass	
4.4'-DDT	%	112			70-130	Pass	
a-BHC	%	92			70-130	Pass	
Aldrin	%	94			70-130	Pass	
b-BHC	%	110			70-130	Pass	
d-BHC	%	112			70-130	Pass	
Dieldrin	%	114			70-130	Pass	
Endosulfan I	%	107			70-130	Pass	
Endosulfan II	%	122			70-130	Pass	
Endosulfan sulphate	%	121			70-130	Pass	
Endrin	%	122			70-130	Pass	
Endrin aldehyde	%	114			70-130	Pass	
Endrin ketone	%	120			70-130	Pass	
g-BHC (Lindane)	%	119			70-130	Pass	
Heptachlor	%	74			70-130	Pass	
Heptachlor epoxide	%	87			70-130	Pass	
Hexachlorobenzene	%	82			70-130	Pass	
Methoxychlor	%	85			70-130	Pass	
LCS - % Recovery							
Organophosphorus Pesticides							
Diazinon	%	104			70-130	Pass	
Dimethoate	%	94			70-130	Pass	
Ethion	%	107			70-130	Pass	
Fenitrothion	%	129			70-130	Pass	
Methyl parathion	%	97			70-130	Pass	
Mevinphos	%	89			70-130	Pass	
LCS - % Recovery							
Phenols (Halogenated)							
2-Chlorophenol	%	62			30-130	Pass	
2.4-Dichlorophenol	%	38			30-130	Pass	
2.4.5-Trichlorophenol	%	39			30-130	Pass	
2.4.6-Trichlorophenol	%	42			30-130	Pass	
2.6-Dichlorophenol	%	37			30-130	Pass	
4-Chloro-3-methylphenol	%	53			30-130	Pass	
Pentachlorophenol	%	36			30-130	Pass	
Tetrachlorophenols - Total	%	36			30-130	Pass	
LCS - % Recovery							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	%	41			30-130	Pass	
2-Methyl-4.6-dinitrophenol	%	43			30-130	Pass	
2-Methylphenol (o-Cresol)	%	58			30-130	Pass	
2-Nitrophenol	%	45			30-130	Pass	
2.4-Dimethylphenol	%	56			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	%	110			30-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
4-Nitrophenol	%	38			30-130	Pass	
Dinoseb	%	43			30-130	Pass	
Phenol	%	76			30-130	Pass	
LCS - % Recovery							
Semivolatile Organics							
1,2,4-Trichlorobenzene	%	104			70-130	Pass	
1,4-Dichlorobenzene	%	90			70-130	Pass	
2,4-Dinitrotoluene	%	128			70-130	Pass	
N-Nitrosodipropylamine	%	108			70-130	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	90			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	71			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	88			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	88			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	89			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	85			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	88			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	89			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	85			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	131			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	83			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	85			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	85			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	81			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	%	84			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	%	84			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	84			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	75			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSA's)							
Perfluorobutanesulfonic acid (PFBS)	%	123			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	78			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	80			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	84			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	81			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	117			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	86			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	%	80			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	82			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	75			50-150	Pass	
LCS - % Recovery							
Ammonia (as N)	%	98			70-130	Pass	
Chloride	%	102			70-130	Pass	
Nitrate & Nitrite (as N)	%	100			70-130	Pass	
Nitrate (as N)	%	100			70-130	Pass	
Nitrite (as N)	%	106			70-130	Pass	
Phosphate total (as P)	%	88			70-130	Pass	
Phosphorus reactive (as P)	%	110			70-130	Pass	
Sulphate (as SO ₄)	%	107			70-130	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Total Dissolved Solids			%	88			70-130	Pass	
Total Kjeldahl Nitrogen (as N)			%	104			70-130	Pass	
Total Organic Carbon			%	95			70-130	Pass	
LCS - % Recovery									
Alkalinity (speciated)									
Carbonate Alkalinity (as CaCO ₃)			%	104			70-130	Pass	
Total Alkalinity (as CaCO ₃)			%	104			70-130	Pass	
LCS - % Recovery									
Heavy Metals									
Arsenic			%	99			80-120	Pass	
Arsenic (filtered)			%	95			80-120	Pass	
Beryllium			%	92			80-120	Pass	
Boron			%	98			80-120	Pass	
Boron (filtered)			%	109			80-120	Pass	
Cadmium			%	86			80-120	Pass	
Cadmium (filtered)			%	84			80-120	Pass	
Chromium			%	102			80-120	Pass	
Chromium (filtered)			%	97			80-120	Pass	
Cobalt			%	99			80-120	Pass	
Cobalt (filtered)			%	95			80-120	Pass	
Copper			%	83			80-120	Pass	
Copper (filtered)			%	86			80-120	Pass	
Iron			%	97			80-120	Pass	
Iron (filtered)			%	108			80-120	Pass	
Lead			%	92			80-120	Pass	
Lead (filtered)			%	95			80-120	Pass	
Manganese			%	104			80-120	Pass	
Manganese (filtered)			%	98			80-120	Pass	
Mercury			%	86			75-125	Pass	
Mercury (filtered)			%	85			70-130	Pass	
Nickel			%	97			80-120	Pass	
Nickel (filtered)			%	93			80-120	Pass	
Selenium			%	98			80-120	Pass	
Selenium (filtered)			%	95			80-120	Pass	
Zinc			%	100			80-120	Pass	
Zinc (filtered)			%	96			80-120	Pass	
LCS - % Recovery									
Alkali Metals									
Calcium			%	93			70-130	Pass	
Magnesium			%	97			70-130	Pass	
Potassium			%	84			70-130	Pass	
Sodium			%	111			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-JI15751	NCP	%	93			70-130	Pass	
Nitrate & Nitrite (as N)	M18-JI15751	NCP	%	99			70-130	Pass	
Nitrate (as N)	M18-JI15751	NCP	%	98			70-130	Pass	
Nitrite (as N)	M18-JI15751	NCP	%	102			70-130	Pass	
Phosphate total (as P)	M18-JI16246	NCP	%	90			70-130	Pass	
Phosphorus reactive (as P)	M18-JI13259	NCP	%	78			70-130	Pass	
Total Kjeldahl Nitrogen (as N)	M18-JI16246	NCP	%	88			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					

Test	Lab Sample ID	QA Source	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
TRH C10-C14	M18-JI16662	NCP	%	90		70-130	Pass	
Spike - % Recovery								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1				
TRH >C10-C16	M18-JI16662	NCP	%	97		70-130	Pass	
Spike - % Recovery								
Polycyclic Aromatic Hydrocarbons				Result 1				
Acenaphthene	M18-JI19520	NCP	%	92		70-130	Pass	
Acenaphthylene	M18-JI19520	NCP	%	76		70-130	Pass	
Anthracene	M18-JI19520	NCP	%	77		70-130	Pass	
Benz(a)anthracene	M18-JI19520	NCP	%	119		70-130	Pass	
Benzo(a)pyrene	M18-JI19520	NCP	%	94		70-130	Pass	
Benzo(b&j)fluoranthene	M18-JI19520	NCP	%	118		70-130	Pass	
Benzo(g,h,i)perylene	M18-JI19520	NCP	%	79		70-130	Pass	
Benzo(k)fluoranthene	M18-JI19520	NCP	%	120		70-130	Pass	
Chrysene	M18-JI19520	NCP	%	118		70-130	Pass	
Dibenz(a,h)anthracene	M18-JI19520	NCP	%	99		70-130	Pass	
Fluoranthene	M18-JI19520	NCP	%	78		70-130	Pass	
Fluorene	M18-JI19520	NCP	%	71		70-130	Pass	
Indeno(1,2,3-cd)pyrene	M18-JI19520	NCP	%	84		70-130	Pass	
Naphthalene	M18-JI19520	NCP	%	76		70-130	Pass	
Phenanthrene	M18-JI19520	NCP	%	71		70-130	Pass	
Pyrene	M18-JI19520	NCP	%	82		70-130	Pass	
Spike - % Recovery								
Phenols (Halogenated)				Result 1				
2-Chlorophenol	M18-JI19520	NCP	%	94		30-130	Pass	
2,4-Dichlorophenol	M18-JI19520	NCP	%	69		30-130	Pass	
2,4,5-Trichlorophenol	M18-JI19520	NCP	%	67		30-130	Pass	
2,4,6-Trichlorophenol	M18-JI19520	NCP	%	79		30-130	Pass	
2,6-Dichlorophenol	M18-JI19520	NCP	%	61		30-130	Pass	
4-Chloro-3-methylphenol	M18-JI19520	NCP	%	108		30-130	Pass	
Pentachlorophenol	M18-JI19520	NCP	%	49		30-130	Pass	
Tetrachlorophenols - Total	M18-JI19520	NCP	%	35		30-130	Pass	
Spike - % Recovery								
Phenols (non-Halogenated)				Result 1				
2-Cyclohexyl-4,6-dinitrophenol	M18-JI19520	NCP	%	86		30-130	Pass	
2-Methyl-4,6-dinitrophenol	M18-JI19520	NCP	%	38		30-130	Pass	
2-Methylphenol (o-Cresol)	M18-JI19520	NCP	%	92		30-130	Pass	
2-Nitrophenol	M18-JI19520	NCP	%	80		30-130	Pass	
2,4-Dimethylphenol	M18-JI19520	NCP	%	108		30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	M18-JI19520	NCP	%	80		30-130	Pass	
4-Nitrophenol	M18-JI19520	NCP	%	35		30-130	Pass	
Dinoseb	M18-JI19520	NCP	%	74		30-130	Pass	
Phenol	M18-JI19520	NCP	%	114		30-130	Pass	
Spike - % Recovery								
Heavy Metals				Result 1				
Arsenic (filtered)	M18-JI15455	CP	%	115		70-130	Pass	
Beryllium (filtered)	M18-JI15455	CP	%	102		75-125	Pass	
Boron (filtered)	M18-JI15455	CP	%	127		75-125	Fail	Q08
Cadmium (filtered)	M18-JI15455	CP	%	91		70-130	Pass	
Chromium (filtered)	M18-JI15455	CP	%	115		70-130	Pass	
Cobalt (filtered)	M18-JI15455	CP	%	108		75-125	Pass	
Copper (filtered)	M18-JI15455	CP	%	86		70-130	Pass	
Iron (filtered)	M18-JI17132	NCP	%	90		70-130	Pass	
Lead (filtered)	M18-JI15455	CP	%	98		70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Manganese (filtered)	M18-JI15745	NCP	%	110		70-130	Pass	
Mercury (filtered)	M18-JI15745	NCP	%	81		70-130	Pass	
Nickel (filtered)	M18-JI15455	CP	%	107		70-130	Pass	
Selenium (filtered)	M18-JI15455	CP	%	117		70-130	Pass	
Zinc (filtered)	M18-JI15455	CP	%	106		70-130	Pass	
Spike - % Recovery								
Organochlorine Pesticides				Result 1				
4,4'-DDD	M18-JI15457	CP	%	80		70-130	Pass	
4,4'-DDE	M18-JI15457	CP	%	95		70-130	Pass	
4,4'-DDT	M18-JI15457	CP	%	83		70-130	Pass	
a-BHC	M18-JI15457	CP	%	114		70-130	Pass	
Aldrin	M18-JI15457	CP	%	87		70-130	Pass	
b-BHC	M18-JI15457	CP	%	121		70-130	Pass	
d-BHC	M18-JI15457	CP	%	114		70-130	Pass	
Dieldrin	M18-JI15457	CP	%	105		70-130	Pass	
Endosulfan I	M18-JI15457	CP	%	94		70-130	Pass	
Endosulfan II	M18-JI15457	CP	%	120		70-130	Pass	
Endosulfan sulphate	M18-JI15457	CP	%	100		70-130	Pass	
Endrin	M18-JI15457	CP	%	113		70-130	Pass	
Endrin aldehyde	M18-JI15457	CP	%	82		70-130	Pass	
Endrin ketone	M18-JI15457	CP	%	89		70-130	Pass	
g-BHC (Lindane)	M18-JI15457	CP	%	114		70-130	Pass	
Heptachlor	M18-JI15457	CP	%	71		70-130	Pass	
Heptachlor epoxide	M18-JI15457	CP	%	71		70-130	Pass	
Hexachlorobenzene	M18-JI15457	CP	%	118		70-130	Pass	
Methoxychlor	M18-JI15457	CP	%	84		70-130	Pass	
Spike - % Recovery								
				Result 1				
Sulphate (as SO ₄)	M18-JI15457	CP	%	71		70-130	Pass	
Spike - % Recovery								
Alkali Metals				Result 1				
Calcium	M18-JI15457	CP	%	99		70-130	Pass	
Magnesium	M18-JI15457	CP	%	105		70-130	Pass	
Potassium	M18-JI15457	CP	%	89		70-130	Pass	
Sodium	M18-JI15457	CP	%	114		70-130	Pass	
Spike - % Recovery								
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1				
Perfluorobutanoic acid (PFBA)	M18-JI15461	CP	%	91		50-150	Pass	
Perfluoropentanoic acid (PFPeA)	M18-JI15461	CP	%	77		50-150	Pass	
Perfluorohexanoic acid (PFHxA)	M18-JI15461	CP	%	89		50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	M18-JI15461	CP	%	88		50-150	Pass	
Perfluorooctanoic acid (PFOA)	M18-JI15461	CP	%	89		50-150	Pass	
Perfluorononanoic acid (PFNA)	M18-JI15461	CP	%	89		50-150	Pass	
Perfluorodecanoic acid (PFDA)	M18-JI15461	CP	%	92		50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	M18-JI15461	CP	%	89		50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	M18-JI15461	CP	%	92		50-150	Pass	
Perfluorotridecanoic acid (PFTeDA)	M18-JI15461	CP	%	118		50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	M18-JI15461	CP	%	94		50-150	Pass	
Spike - % Recovery								
Perfluoroalkyl sulfonamido substances				Result 1				
Perfluorooctane sulfonamide (FOSA)	M18-JI15461	CP	%	88		50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	M18-JI15461	CP	%	90			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	M18-JI15461	CP	%	90			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	M18-JI15461	CP	%	90			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	M18-JI15461	CP	%	90			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	M18-JI15461	CP	%	87			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	M18-JI15461	CP	%	78			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSA's)				Result 1					
Perfluorobutanesulfonic acid (PFBS)	M18-JI15461	CP	%	109			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	M18-JI15461	CP	%	85			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	M18-JI15461	CP	%	84			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	M18-JI15461	CP	%	87			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	M18-JI15461	CP	%	85			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	M18-JI15461	CP	%	115			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	M18-JI15461	CP	%	93			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	M18-JI15461	CP	%	91			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	M18-JI15461	CP	%	86			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	M18-JI15461	CP	%	80			50-150	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S18-JI14677	NCP	%	98			75-125	Pass	
Beryllium	S18-JI14677	NCP	%	98			75-125	Pass	
Boron	S18-JI14677	NCP	%	107			75-125	Pass	
Cadmium	S18-JI14677	NCP	%	99			75-125	Pass	
Chromium	S18-JI14677	NCP	%	101			75-125	Pass	
Cobalt	S18-JI14677	NCP	%	100			75-125	Pass	
Copper	S18-JI14677	NCP	%	101			75-125	Pass	
Iron	S18-JI14677	NCP	%	109			75-125	Pass	
Lead	S18-JI14677	NCP	%	104			75-125	Pass	
Manganese	S18-JI14677	NCP	%	102			75-125	Pass	
Mercury	S18-JI14677	NCP	%	93			70-130	Pass	
Nickel	S18-JI14677	NCP	%	100			75-125	Pass	
Selenium	S18-JI14677	NCP	%	96			75-125	Pass	
Zinc	S18-JI14677	NCP	%	101			75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1	Result 2	RPD	Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
				Result 1	Result 2	RPD			
Ammonia (as N)	M18-JI15751	NCP	mg/L	0.06	0.06	1.0	30%	Pass	
Nitrate & Nitrite (as N)	M18-JI15751	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
Nitrate (as N)	M18-JI15751	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Nitrite (as N)	M18-JI15751	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
pH (at 25°C)	M18-JI16215	NCP	pH Units	8.6	8.5	pass	30%	Pass	
Phosphate total (as P)	M18-JI15464	NCP	mg/L	0.39	0.35	12	30%	Pass	
Total Kjeldahl Nitrogen (as N)	M18-JI15464	NCP	mg/L	0.4	0.4	5.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Conductivity (at 25°C)	M18-JI15455	CP	uS/cm	10000	13000	1.0	30%	Pass	
Phosphorus reactive (as P)	M18-JI15455	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
Duplicate									
Alkalinity (speciated)				Result 1	Result 2	RPD			
Bicarbonate Alkalinity (as CaCO ₃)	M18-JI15455	CP	mg/L	820	820	1.0	30%	Pass	
Carbonate Alkalinity (as CaCO ₃)	M18-JI15455	CP	mg/L	< 10	< 10	<1	30%	Pass	
Hydroxide Alkalinity (as CaCO ₃)	M18-JI15455	CP	mg/L	< 20	< 20	<1	30%	Pass	
Total Alkalinity (as CaCO ₃)	M18-JI15455	CP	mg/L	820	820	1.0	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic (filtered)	M18-JI15455	CP	mg/L	0.003	0.003	4.0	30%	Pass	
Beryllium (filtered)	M18-JI15455	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Boron (filtered)	M18-JI15455	CP	mg/L	0.07	0.08	9.0	30%	Pass	
Cadmium (filtered)	M18-JI15455	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium (filtered)	M18-JI15455	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cobalt (filtered)	M18-JI15455	CP	mg/L	0.003	0.003	1.0	30%	Pass	
Copper (filtered)	M18-JI15455	CP	mg/L	0.013	0.012	8.0	30%	Pass	
Iron (filtered)	M18-JI15455	CP	mg/L	1.4	1.4	1.0	30%	Pass	
Lead (filtered)	M18-JI15455	CP	mg/L	0.001	0.001	7.0	30%	Pass	
Manganese (filtered)	M18-JI15455	CP	mg/L	0.77	0.78	1.0	30%	Pass	
Mercury (filtered)	M18-JI15455	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel (filtered)	M18-JI15455	CP	mg/L	0.11	0.11	1.0	30%	Pass	
Selenium (filtered)	M18-JI15455	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Zinc (filtered)	M18-JI15455	CP	mg/L	0.041	0.040	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C10-C14	M18-JI15456	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH C15-C28	M18-JI15456	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36	M18-JI15456	CP	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-JI15456	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH >C16-C34	M18-JI15456	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH >C34-C40	M18-JI15456	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	M18-JI15456	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Acenaphthylene	M18-JI15456	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Anthracene	M18-JI15456	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benz(a)anthracene	M18-JI15456	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(a)pyrene	M18-JI15456	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(b&j)fluoranthene	M18-JI15456	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(g,h,i)perylene	M18-JI15456	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	

Duplicate								
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD		
Benzo(k)fluoranthene	M18-JI15456	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Chrysene	M18-JI15456	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Dibenz(a,h)anthracene	M18-JI15456	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Fluoranthene	M18-JI15456	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Fluorene	M18-JI15456	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Indeno(1.2.3-cd)pyrene	M18-JI15456	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Naphthalene	M18-JI15456	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Phenanthrene	M18-JI15456	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Pyrene	M18-JI15456	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Duplicate								
Organochlorine Pesticides				Result 1	Result 2	RPD		
Chlordanes - Total	M18-JI15456	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
4,4'-DDD	M18-JI15456	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
4,4'-DDE	M18-JI15456	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
4,4'-DDT	M18-JI15456	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
a-BHC	M18-JI15456	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Aldrin	M18-JI15456	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
b-BHC	M18-JI15456	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
d-BHC	M18-JI15456	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Dieldrin	M18-JI15456	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Endosulfan I	M18-JI15456	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Endosulfan II	M18-JI15456	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Endosulfan sulphate	M18-JI15456	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Endrin	M18-JI15456	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Endrin aldehyde	M18-JI15456	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Endrin ketone	M18-JI15456	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
g-BHC (Lindane)	M18-JI15456	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Heptachlor	M18-JI15456	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Heptachlor epoxide	M18-JI15456	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Hexachlorobenzene	M18-JI15456	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Methoxychlor	M18-JI15456	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Duplicate								
Organophosphorus Pesticides				Result 1	Result 2	RPD		
Azinphos-methyl	M18-JI15456	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Bolstar	M18-JI15456	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Chlorfenvinphos	M18-JI15456	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Chlorpyrifos	M18-JI15456	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass
Chlorpyrifos-methyl	M18-JI15456	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Coumaphos	M18-JI15456	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass
Demeton-S	M18-JI15456	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass
Demeton-O	M18-JI15456	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Diazinon	M18-JI15456	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Dichlorvos	M18-JI15456	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Dimethoate	M18-JI15456	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Disulfoton	M18-JI15456	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass
EPN	M18-JI15456	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Ethion	M18-JI15456	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Ethoprop	M18-JI15456	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Ethyl parathion	M18-JI15456	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Fenitrothion	M18-JI15456	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Fensulfthion	M18-JI15456	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Fenthion	M18-JI15456	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Malathion	M18-JI15456	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Merphos	M18-JI15456	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass

Duplicate								
Organophosphorus Pesticides				Result 1	Result 2	RPD		
Methyl parathion	M18-JI15456	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Mevinphos	M18-JI15456	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Monocrotophos	M18-JI15456	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Naled	M18-JI15456	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Omethoate	M18-JI15456	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Phorate	M18-JI15456	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Pirimiphos-methyl	M18-JI15456	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass
Pyrazophos	M18-JI15456	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Ronnel	M18-JI15456	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Terbufos	M18-JI15456	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Tetrachlorvinphos	M18-JI15456	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Tokuthion	M18-JI15456	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Trichloronate	M18-JI15456	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Duplicate								
Phenols (Halogenated)				Result 1	Result 2	RPD		
2-Chlorophenol	M18-JI15456	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass
2,4-Dichlorophenol	M18-JI15456	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass
2,4,5-Trichlorophenol	M18-JI15456	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass
2,4,6-Trichlorophenol	M18-JI15456	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass
2,6-Dichlorophenol	M18-JI15456	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass
4-Chloro-3-methylphenol	M18-JI15456	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass
Pentachlorophenol	M18-JI15456	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass
Tetrachlorophenols - Total	M18-JI15456	CP	mg/L	< 0.03	< 0.03	<1	30%	Pass
Duplicate								
Phenols (non-Halogenated)				Result 1	Result 2	RPD		
2-Cyclohexyl-4,6-dinitrophenol	M18-JI15456	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass
2-Methyl-4,6-dinitrophenol	M18-JI15456	CP	mg/L	< 0.03	< 0.03	<1	30%	Pass
2-Methylphenol (o-Cresol)	M18-JI15456	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass
2-Nitrophenol	M18-JI15456	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass
2,4-Dimethylphenol	M18-JI15456	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass
2,4-Dinitrophenol	M18-JI15456	CP	mg/L	< 0.03	< 0.03	<1	30%	Pass
3&4-Methylphenol (m&p-Cresol)	M18-JI15456	CP	mg/L	< 0.006	< 0.006	<1	30%	Pass
4-Nitrophenol	M18-JI15456	CP	mg/L	< 0.03	< 0.03	<1	30%	Pass
Dinoseb	M18-JI15456	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass
Phenol	M18-JI15456	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass
Duplicate								
Semivolatile Organics				Result 1	Result 2	RPD		
1-Chloronaphthalene	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1-Naphthylamine	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,2-Dichlorobenzene	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,2,3-Trichlorobenzene	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,2,3,4-Tetrachlorobenzene	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,2,3,5-Tetrachlorobenzene	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,2,4-Trichlorobenzene	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,2,4,5-Tetrachlorobenzene	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,3-Dichlorobenzene	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,3,5-Trichlorobenzene	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,4-Dichlorobenzene	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
2-Chloronaphthalene	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
2-Methylnaphthalene	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
2-Naphthylamine	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
2-Nitroaniline	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
2-Picoline	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
2,3,4,6-Tetrachlorophenol	M18-JI15456	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass

Duplicate								
Semivolatile Organics				Result 1	Result 2	RPD		
2,4-Dinitrotoluene	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
2,6-Dinitrotoluene	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
3-Methylcholanthrene	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
3,3'-Dichlorobenzidine	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
4-Aminobiphenyl	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
4-Bromophenyl phenyl ether	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
4-Chlorophenyl phenyl ether	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
4,4'-DDD	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
4,4'-DDE	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
4,4'-DDT	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
7,12-Dimethylbenz(a)anthracene	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
a-BHC	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Acetophenone	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Aldrin	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Aniline	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
b-BHC	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Benzyl chloride	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Bis(2-chloroethoxy)methane	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Bis(2-chloroisopropyl)ether	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Bis(2-ethylhexyl)phthalate	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Butyl benzyl phthalate	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
d-BHC	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Di-n-butyl phthalate	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Di-n-octyl phthalate	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Dibenz(a,j)acridine	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Dibenzofuran	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Dieldrin	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Diethyl phthalate	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Dimethyl phthalate	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Dimethylaminoazobenzene	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Diphenylamine	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Endosulfan I	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Endosulfan II	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Endosulfan sulphate	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Endrin	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Endrin aldehyde	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Endrin ketone	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
g-BHC (Lindane)	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Heptachlor	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Heptachlor epoxide	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Hexachlorobenzene	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Hexachlorobutadiene	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Hexachlorocyclopentadiene	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Hexachloroethane	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Methoxychlor	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
N-Nitrosodibutylamine	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
N-Nitrosodipropylamine	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
N-Nitrosopiperidine	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Nitrobenzene	M18-JI15456	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass
Pentachlorobenzene	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Pentachloronitrobenzene	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Pronamide	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Trifluralin	M18-JI15456	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass

Duplicate								
				Result 1	Result 2	RPD		
Chloride	M18-JI15457	CP	mg/L	2600	2400	4.0	30%	Pass
Sulphate (as SO ₄)	M18-JI15457	CP	mg/L	320	330	2.0	30%	Pass
Duplicate								
Alkali Metals				Result 1	Result 2	RPD		
Calcium	M18-JI15457	CP	mg/L	65	60	9.0	30%	Pass
Magnesium	M18-JI15457	CP	mg/L	230	210	8.0	30%	Pass
Potassium	M18-JI15457	CP	mg/L	43	38	11	30%	Pass
Sodium	M18-JI15457	CP	mg/L	2000	1900	7.0	30%	Pass
Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD		
Perfluorobutanoic acid (PFBA)	M18-JI15459	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
Perfluoropentanoic acid (PFPeA)	M18-JI15459	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorohexanoic acid (PFHxA)	M18-JI15459	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoroheptanoic acid (PFHpA)	M18-JI15459	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorooctanoic acid (PFOA)	M18-JI15459	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorononanoic acid (PFNA)	M18-JI15459	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorodecanoic acid (PFDA)	M18-JI15459	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoroundecanoic acid (PFUnDA)	M18-JI15459	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorododecanoic acid (PFDoDA)	M18-JI15459	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorotridecanoic acid (PFTTrDA)	M18-JI15459	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorotetradecanoic acid (PFTeDA)	M18-JI15459	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD		
Perfluorooctane sulfonamide (FOSA)	M18-JI15459	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	M18-JI15459	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	M18-JI15459	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	M18-JI15459	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	M18-JI15459	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	M18-JI15459	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	M18-JI15459	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	M18-JI15459	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	M18-JI15459	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	M18-JI15459	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	M18-JI15459	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	M18-JI15459	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	M18-JI15459	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass

Duplicate								
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)				Result 1	Result 2	RPD		
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	M18-JI15459	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	M18-JI15459	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	M18-JI15459	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	M18-JI15459	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
Total Dissolved Solids	M18-JI15459	CP	mg/L	10000	10000	6.0	30%	Pass
Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD		
Perfluorobutanoic acid (PFBA)	M18-JI15460	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
Perfluoropentanoic acid (PFPeA)	M18-JI15460	CP	ug/L	0.02	0.02	6.0	30%	Pass
Perfluorohexanoic acid (PFHxA)	M18-JI15460	CP	ug/L	0.01	0.01	1.0	30%	Pass
Perfluoroheptanoic acid (PFHpA)	M18-JI15460	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorooctanoic acid (PFOA)	M18-JI15460	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorononanoic acid (PFNA)	M18-JI15460	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorodecanoic acid (PFDA)	M18-JI15460	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoroundecanoic acid (PFUnDA)	M18-JI15460	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorododecanoic acid (PFDoDA)	M18-JI15460	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorotridecanoic acid (PFTrDA)	M18-JI15460	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorotetradecanoic acid (PFTeDA)	M18-JI15460	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD		
Perfluorooctane sulfonamide (FOSA)	M18-JI15460	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	M18-JI15460	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	M18-JI15460	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	M18-JI15460	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	M18-JI15460	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	M18-JI15460	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	M18-JI15460	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	M18-JI15460	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	M18-JI15460	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	M18-JI15460	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	M18-JI15460	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	M18-JI15460	CP	ug/L	0.02	0.02	3.0	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	M18-JI15460	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass

Duplicate								
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)				Result 1	Result 2	RPD		
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	M18-JI15460	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	M18-JI15460	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	M18-JI15460	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	M18-JI15460	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
Total Organic Carbon	M18-JI15461	CP	mg/L	< 5	< 5	<1	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	S18-JI14677	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Beryllium	S18-JI14677	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Boron	S18-JI14677	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass
Cadmium	S18-JI14677	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Chromium	S18-JI14677	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Cobalt	S18-JI14677	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Copper	S18-JI14677	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Iron	S18-JI14677	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass
Lead	S18-JI14677	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Manganese	S18-JI14677	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Mercury	S18-JI14677	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Nickel	S18-JI14677	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Selenium	S18-JI14677	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Zinc	S18-JI14677	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	No
Appropriate sample containers have been used	No
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
N09	Quantification of linear and branched isomers has been conducted as a single total response using the relative response factor for the corresponding linear/branched standard.
N11	Isotope dilution is used for calibration of each native compound for which an exact labelled analogue is available (Isotope Dilution Quantitation). The isotopically labelled analogues allow identification and recovery correction of the concentration of the associated native PFAS compounds.
N15	Where the native PFAS compound does not have labelled analogue then the quantification is made using the Extracted Internal Standard Analyte with the closest retention time to the analyte and no recovery correction has been made (Internal Standard Quantitation).
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
Q09	The Surrogate recovery is outside of the recommended acceptance criteria due to matrix interference. Acceptance criteria were met for all other QC
Q15	The RPD reported passes Eurofins mgt's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised By

Natalie Krasselt	Analytical Services Manager
Alex Petridis	Senior Analyst-Metal (VIC)
Harry Bacalis	Senior Analyst-Volatile (VIC)
Jonathon Angell	Senior Analyst-Organic (QLD)
Joseph Edouard	Senior Analyst-Organic (VIC)
Michael Brancati	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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CERTIFICATE OF ANALYSIS

Work Order : **EM1811208**
Client : **GHD PTY LTD**
Contact : **MR MATTHEW MOORE**
Address : **LEVEL 8, 180 LONSDALE ST**
MELBOURNE VIC, AUSTRALIA 3001
Telephone : **----**
Project : **31350060813**
Order number : **----**
C-O-C number : **----**
Sampler : **CM, MM**
Site : **Bulleen, VIC 3105**
Quote number : **ME/124/18 - North East Link**
No. of samples received : **7**
No. of samples analysed : **7**

Page : 1 of 16
Laboratory : Environmental Division Melbourne
Contact : Shirley LeCornu
Address : 4 Westall Rd Springvale VIC Australia 3171
Telephone : +61-3-8549 9630
Date Samples Received : 13-Jul-2018 11:40
Date Analysis Commenced : 13-Jul-2018
Issue Date : 24-Jul-2018 09:36



Accreditation No. 825
 Accredited for compliance with
 ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Franco Lentini		Sydney Organics, Smithfield, NSW
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Samantha Smith	Laboratory Coordinator	WRG Subcontracting, Springvale, VIC



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

Ø = ALS is not NATA accredited for these tests.

~ = Indicates an estimated value.

- EP075: Poor surrogate recovery for sample EM1811208-007 due to sample matrix interference.
- EA010-P: Electrical Conductivity @ 25°C was analysed by manual method (EA010).
- SRB (MM669) is conducted by ALS Scoresby NATA accreditation no. 992, site no. 989. NATA accreditation does not cover performance of this method.
- EP231X: Sample "QC2/120718" required dilution prior to extraction due to high conductivity. LOR values have been adjusted accordingly
- Ionic balances were calculated using: major anions - chloride, alkalinity and sulfate; and major cations - calcium, magnesium, potassium and sodium.
- ED045G: The presence of thiocyanate can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.
- EG035F: EM1811187 #3 Poor matrix spike recovery for mercury due to sample matrix. Confirmed by re-extraction and re-analysis.
- EP075: 'Sum of PAH' is the sum of the USEPA 16 priority PAHs
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a,h)anthracene (1.0), Benzo(g,h,i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.



Analytical Results

Sub-Matrix: **WATER**
 (Matrix: **WATER**)

Client sample ID

				NEL-BH089/120718	NEL-BH088/120718	NEL-BH087/120718	NEL-BH086/120718	ENV-BH014/130718
Client sampling date / time				12-Jul-2018 00:00	12-Jul-2018 00:00	12-Jul-2018 00:00	12-Jul-2018 00:00	13-Jul-2018 00:00
Compound	CAS Number	LOR	Unit	EM1811208-001	EM1811208-002	EM1811208-003	EM1811208-004	EM1811208-005
				Result	Result	Result	Result	Result
MM669: Sulphate Reducing Bacteria								
Sulphate Reducing Bacteria Population Estimate	----	20	pac/mL	120000	120000	120000	320	120000
Aggressivity	----	1	-	High	High	High	Moderate	High



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	QC1/120718	QC2/120718	----	----	----
Client sampling date / time					12-Jul-2018 00:00	12-Jul-2018 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EM1811208-006	EM1811208-007	-----	-----	-----
					Result	Result	----	----	----
EA005P: pH by PC Titrator									
pH Value	----	0.01	pH Unit		----	7.29	----	----	----
EA010P: Conductivity by PC Titrator									
Electrical Conductivity @ 25°C	----	1	µS/cm		----	16000	----	----	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C									
Total Dissolved Solids @180°C	----	10	mg/L		----	9480	----	----	----
EA165: CO₂ - Free and Total									
Free Carbon Dioxide as CO ₂	85540-96-1	1	mg/L		----	228	----	----	----
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO ₃	DMO-210-001	1	mg/L		----	<1	----	----	----
Carbonate Alkalinity as CaCO ₃	3812-32-6	1	mg/L		----	<1	----	----	----
Bicarbonate Alkalinity as CaCO ₃	71-52-3	1	mg/L		----	737	----	----	----
Total Alkalinity as CaCO ₃	----	1	mg/L		----	737	----	----	----
ED041G: Sulfate (Turbidimetric) as SO₄ 2- by DA									
Sulfate as SO ₄ - Turbidimetric	14808-79-8	1	mg/L		----	612	----	----	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		----	5510	----	----	----
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		----	62	----	----	----
Magnesium	7439-95-4	1	mg/L		----	421	----	----	----
Sodium	7440-23-5	1	mg/L		----	2590	----	----	----
Potassium	7440-09-7	1	mg/L		----	54	----	----	----
EG020F: Dissolved Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		----	<0.001	----	----	----
Boron	7440-42-8	0.05	mg/L		----	0.15	----	----	----
Barium	7440-39-3	0.001	mg/L		----	0.033	----	----	----
Beryllium	7440-41-7	0.001	mg/L		----	<0.001	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		----	<0.0001	----	----	----
Cobalt	7440-48-4	0.001	mg/L		----	0.001	----	----	----
Chromium	7440-47-3	0.001	mg/L		----	<0.001	----	----	----
Copper	7440-50-8	0.001	mg/L		----	0.005	----	----	----
Manganese	7439-96-5	0.001	mg/L		----	0.066	----	----	----
Nickel	7440-02-0	0.001	mg/L		----	0.075	----	----	----
Lead	7439-92-1	0.001	mg/L		----	<0.001	----	----	----
Selenium	7782-49-2	0.01	mg/L		----	<0.01	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	QC1/120718	QC2/120718	----	----	----
Client sampling date / time					12-Jul-2018 00:00	12-Jul-2018 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EM1811208-006	EM1811208-007	-----	-----	-----
					Result	Result	----	----	----
EG020F: Dissolved Metals by ICP-MS - Continued									
Vanadium	7440-62-2	0.01	mg/L		----	<0.01	----	----	----
Zinc	7440-66-6	0.005	mg/L		----	0.008	----	----	----
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		----	<0.0001	----	----	----
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		----	0.18	----	----	----
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L		----	<0.01	----	----	----
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L		----	0.03	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		----	0.03	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L		----	0.4	----	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L		----	0.4	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L		----	0.15	----	----	----
EN055: Ionic Balance									
Total Anions	----	0.01	meq/L		----	183	----	----	----
Total Cations	----	0.01	meq/L		----	152	----	----	----
Ionic Balance	----	0.01	%		----	9.30	----	----	----
EP005: Total Organic Carbon (TOC)									
Total Organic Carbon	----	1	mg/L		----	2	----	----	----
EP066: Polychlorinated Biphenyls (PCB)									
^ Total Polychlorinated biphenyls	----	1	µg/L		----	<1	----	----	----
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.5	µg/L		----	<0.5	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L		----	<0.5	----	----	----
beta-BHC	319-85-7	0.5	µg/L		----	<0.5	----	----	----
gamma-BHC	58-89-9	0.5	µg/L		----	<0.5	----	----	----
delta-BHC	319-86-8	0.5	µg/L		----	<0.5	----	----	----
Heptachlor	76-44-8	0.5	µg/L		----	<0.5	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	QC1/120718	QC2/120718	----	----	----
Client sampling date / time					12-Jul-2018 00:00	12-Jul-2018 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EM1811208-006	EM1811208-007	-----	-----	-----
					Result	Result	----	----	----
EP068A: Organochlorine Pesticides (OC) - Continued									
Aldrin	309-00-2	0.5	µg/L		----	<0.5	----	----	----
Heptachlor epoxide	1024-57-3	0.5	µg/L		----	<0.5	----	----	----
trans-Chlordane	5103-74-2	0.5	µg/L		----	<0.5	----	----	----
alpha-Endosulfan	959-98-8	0.5	µg/L		----	<0.5	----	----	----
cis-Chlordane	5103-71-9	0.5	µg/L		----	<0.5	----	----	----
Dieldrin	60-57-1	0.5	µg/L		----	<0.5	----	----	----
4,4'-DDE	72-55-9	0.5	µg/L		----	<0.5	----	----	----
Endrin	72-20-8	0.5	µg/L		----	<0.5	----	----	----
beta-Endosulfan	33213-65-9	0.5	µg/L		----	<0.5	----	----	----
4,4'-DDD	72-54-8	0.5	µg/L		----	<0.5	----	----	----
Endrin aldehyde	7421-93-4	0.5	µg/L		----	<0.5	----	----	----
Endosulfan sulfate	1031-07-8	0.5	µg/L		----	<0.5	----	----	----
4,4'-DDT	50-29-3	2.0	µg/L		----	<2.0	----	----	----
Endrin ketone	53494-70-5	0.5	µg/L		----	<0.5	----	----	----
Methoxychlor	72-43-5	2.0	µg/L		----	<2.0	----	----	----
^ Total Chlordane (sum)	----	0.5	µg/L		----	<0.5	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.5	µg/L		----	<0.5	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.5	µg/L		----	<0.5	----	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.5	µg/L		----	<0.5	----	----	----
Demeton-S-methyl	919-86-8	0.5	µg/L		----	<0.5	----	----	----
Monocrotophos	6923-22-4	2.0	µg/L		----	<2.0	----	----	----
Dimethoate	60-51-5	0.5	µg/L		----	<0.5	----	----	----
Diazinon	333-41-5	0.5	µg/L		----	<0.5	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L		----	<0.5	----	----	----
Parathion-methyl	298-00-0	2.0	µg/L		----	<2.0	----	----	----
Malathion	121-75-5	0.5	µg/L		----	<0.5	----	----	----
Fenthion	55-38-9	0.5	µg/L		----	<0.5	----	----	----
Chlorpyrifos	2921-88-2	0.5	µg/L		----	<0.5	----	----	----
Parathion	56-38-2	2.0	µg/L		----	<2.0	----	----	----
Pirimphos-ethyl	23505-41-1	0.5	µg/L		----	<0.5	----	----	----
Chlorfenvinphos	470-90-6	0.5	µg/L		----	<0.5	----	----	----
Bromophos-ethyl	4824-78-6	0.5	µg/L		----	<0.5	----	----	----
Fenamiphos	22224-92-6	0.5	µg/L		----	<0.5	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	QC1/120718	QC2/120718	----	----	----
Client sampling date / time					12-Jul-2018 00:00	12-Jul-2018 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EM1811208-006	EM1811208-007	-----	-----	-----
					Result	Result	----	----	----
EP068B: Organophosphorus Pesticides (OP) - Continued									
Prothiofos	34643-46-4	0.5	µg/L		----	<0.5	----	----	----
Ethion	563-12-2	0.5	µg/L		----	<0.5	----	----	----
Carbophenothion	786-19-6	0.5	µg/L		----	<0.5	----	----	----
Azinphos Methyl	86-50-0	0.5	µg/L		----	<0.5	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons									
Styrene	100-42-5	5	µg/L		----	<5	----	----	----
Isopropylbenzene	98-82-8	5	µg/L		----	<5	----	----	----
n-Propylbenzene	103-65-1	5	µg/L		----	<5	----	----	----
1,3,5-Trimethylbenzene	108-67-8	5	µg/L		----	<5	----	----	----
sec-Butylbenzene	135-98-8	5	µg/L		----	<5	----	----	----
1,2,4-Trimethylbenzene	95-63-6	5	µg/L		----	<5	----	----	----
tert-Butylbenzene	98-06-6	5	µg/L		----	<5	----	----	----
p-Isopropyltoluene	99-87-6	5	µg/L		----	<5	----	----	----
n-Butylbenzene	104-51-8	5	µg/L		----	<5	----	----	----
EP074B: Oxygenated Compounds									
Vinyl Acetate	108-05-4	50	µg/L		----	<50	----	----	----
2-Butanone (MEK)	78-93-3	50	µg/L		----	<50	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L		----	<50	----	----	----
2-Hexanone (MBK)	591-78-6	50	µg/L		----	<50	----	----	----
EP074C: Sulfonated Compounds									
Carbon disulfide	75-15-0	5	µg/L		----	<5	----	----	----
EP074D: Fumigants									
2,2-Dichloropropane	594-20-7	5	µg/L		----	<5	----	----	----
1,2-Dichloropropane	78-87-5	5	µg/L		----	<5	----	----	----
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L		----	<5	----	----	----
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L		----	<5	----	----	----
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L		----	<5	----	----	----
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	50	µg/L		----	<50	----	----	----
Chloromethane	74-87-3	50	µg/L		----	<50	----	----	----
Vinyl chloride	75-01-4	50	µg/L		----	<50	----	----	----
Bromomethane	74-83-9	50	µg/L		----	<50	----	----	----
Chloroethane	75-00-3	50	µg/L		----	<50	----	----	----
Trichlorofluoromethane	75-69-4	50	µg/L		----	<50	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	QC1/120718	QC2/120718	----	----	----
Client sampling date / time					12-Jul-2018 00:00	12-Jul-2018 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EM1811208-006	EM1811208-007	-----	-----	-----
					Result	Result	----	----	----
EP074E: Halogenated Aliphatic Compounds - Continued									
1,1-Dichloroethene	75-35-4	5	µg/L		----	<5	----	----	----
Iodomethane	74-88-4	5	µg/L		----	<5	----	----	----
trans-1,2-Dichloroethene	156-60-5	5	µg/L		----	<5	----	----	----
1,1-Dichloroethane	75-34-3	5	µg/L		----	<5	----	----	----
cis-1,2-Dichloroethene	156-59-2	5	µg/L		----	<5	----	----	----
1,1,1-Trichloroethane	71-55-6	5	µg/L		----	<5	----	----	----
1,1-Dichloropropylene	563-58-6	5	µg/L		----	<5	----	----	----
Carbon Tetrachloride	56-23-5	5	µg/L		----	<5	----	----	----
1,2-Dichloroethane	107-06-2	5	µg/L		----	<5	----	----	----
Trichloroethene	79-01-6	5	µg/L		----	<5	----	----	----
Dibromomethane	74-95-3	5	µg/L		----	<5	----	----	----
1,1,2-Trichloroethane	79-00-5	5	µg/L		----	<5	----	----	----
1,3-Dichloropropane	142-28-9	5	µg/L		----	<5	----	----	----
Tetrachloroethene	127-18-4	5	µg/L		----	<5	----	----	----
1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L		----	<5	----	----	----
trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L		----	<5	----	----	----
cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L		----	<5	----	----	----
1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L		----	<5	----	----	----
1,2,3-Trichloropropane	96-18-4	5	µg/L		----	<5	----	----	----
Pentachloroethane	76-01-7	5	µg/L		----	<5	----	----	----
1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L		----	<5	----	----	----
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	5	µg/L		----	<5	----	----	----
Bromobenzene	108-86-1	5	µg/L		----	<5	----	----	----
2-Chlorotoluene	95-49-8	5	µg/L		----	<5	----	----	----
4-Chlorotoluene	106-43-4	5	µg/L		----	<5	----	----	----
1,2,3-Trichlorobenzene	87-61-6	5	µg/L		----	<5	----	----	----
EP074G: Trihalomethanes									
Chloroform	67-66-3	5	µg/L		----	<5	----	----	----
Bromodichloromethane	75-27-4	5	µg/L		----	<5	----	----	----
Dibromochloromethane	124-48-1	5	µg/L		----	<5	----	----	----
Bromoform	75-25-2	5	µg/L		----	<5	----	----	----
EP075A: Phenolic Compounds									
Phenol	108-95-2	2	µg/L		----	<2	----	----	----



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Client sample ID

				QC1/120718	QC2/120718	----	----	----
Client sampling date / time				12-Jul-2018 00:00	12-Jul-2018 00:00	----	----	----
Compound	CAS Number	LOR	Unit	EM1811208-006	EM1811208-007	-----	-----	-----
				Result	Result	----	----	----

EP075A: Phenolic Compounds - Continued

2-Chlorophenol	95-57-8	2	µg/L	----	<2	----	----	----
2-Methylphenol	95-48-7	2	µg/L	----	<2	----	----	----
3- & 4-Methylphenol	1319-77-3	4	µg/L	----	<4	----	----	----
2-Nitrophenol	88-75-5	2	µg/L	----	<2	----	----	----
2,4-Dimethylphenol	105-67-9	2	µg/L	----	<2	----	----	----
2,4-Dichlorophenol	120-83-2	2	µg/L	----	<2	----	----	----
2,6-Dichlorophenol	87-65-0	2	µg/L	----	<2	----	----	----
4-Chloro-3-methylphenol	59-50-7	2	µg/L	----	<2	----	----	----
2,4,6-Trichlorophenol	88-06-2	2	µg/L	----	<2	----	----	----
2,4,5-Trichlorophenol	95-95-4	2	µg/L	----	<2	----	----	----
Pentachlorophenol	87-86-5	4	µg/L	----	<4	----	----	----

EP075B: Polynuclear Aromatic Hydrocarbons

Naphthalene	91-20-3	2	µg/L	----	<2	----	----	----
2-Methylnaphthalene	91-57-6	2	µg/L	----	<2	----	----	----
2-Chloronaphthalene	91-58-7	2	µg/L	----	<2	----	----	----
Acenaphthylene	208-96-8	2	µg/L	----	<2	----	----	----
Acenaphthene	83-32-9	2	µg/L	----	<2	----	----	----
Fluorene	86-73-7	2	µg/L	----	<2	----	----	----
Phenanthrene	85-01-8	2	µg/L	----	<2	----	----	----
Anthracene	120-12-7	2	µg/L	----	<2	----	----	----
Fluoranthene	206-44-0	2	µg/L	----	<2	----	----	----
Pyrene	129-00-0	2	µg/L	----	<2	----	----	----
N-2-Fluorenyl Acetamide	53-96-3	2	µg/L	----	<2	----	----	----
Benz(a)anthracene	56-55-3	2	µg/L	----	<2	----	----	----
Chrysene	218-01-9	2	µg/L	----	<2	----	----	----
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	4	µg/L	----	<4	----	----	----
7,12-Dimethylbenz(a)anthracene	57-97-6	2	µg/L	----	<2	----	----	----
Benzo(a)pyrene	50-32-8	2	µg/L	----	<2	----	----	----
3-Methylcholanthrene	56-49-5	2	µg/L	----	<2	----	----	----
Indeno(1,2,3.cd)pyrene	193-39-5	2	µg/L	----	<2	----	----	----
Dibenz(a,h)anthracene	53-70-3	2	µg/L	----	<2	----	----	----
Benzo(g,h,i)perylene	191-24-2	2	µg/L	----	<2	----	----	----
^ Sum of PAHs	----	2	µg/L	----	<2	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	2	µg/L	----	<2	----	----	----



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Client sample ID

				QC1/120718	QC2/120718	----	----	----
Client sampling date / time				12-Jul-2018 00:00	12-Jul-2018 00:00	----	----	----
Compound	CAS Number	LOR	Unit	EM1811208-006	EM1811208-007	-----	-----	-----
				Result	Result	----	----	----
EP075C: Phthalate Esters								
Dimethyl phthalate	131-11-3	2	µg/L	----	<2	----	----	----
Diethyl phthalate	84-66-2	2	µg/L	----	<2	----	----	----
Di-n-butyl phthalate	84-74-2	2	µg/L	----	<2	----	----	----
Butyl benzyl phthalate	85-68-7	2	µg/L	----	<2	----	----	----
bis(2-ethylhexyl) phthalate	117-81-7	10	µg/L	----	<10	----	----	----
Di-n-octylphthalate	117-84-0	2	µg/L	----	<2	----	----	----
EP075D: Nitrosamines								
N-Nitrosomethylethylamine	10595-95-6	2	µg/L	----	<2	----	----	----
N-Nitrosodiethylamine	55-18-5	2	µg/L	----	<2	----	----	----
N-Nitrosopyrrolidine	930-55-2	4	µg/L	----	<4	----	----	----
N-Nitrosomorpholine	59-89-2	2	µg/L	----	<2	----	----	----
N-Nitrosodi-n-propylamine	621-64-7	2	µg/L	----	<2	----	----	----
N-Nitrosopiperidine	100-75-4	2	µg/L	----	<2	----	----	----
N-Nitrosodibutylamine	924-16-3	2	µg/L	----	<2	----	----	----
N-Nitrosodiphenyl & Diphenylamine	86-30-6 122-39-4	4	µg/L	----	<4	----	----	----
Methapyrilene	91-80-5	2	µg/L	----	<2	----	----	----
EP075E: Nitroaromatics and Ketones								
2-Picoline	109-06-8	2	µg/L	----	<2	----	----	----
Acetophenone	98-86-2	2	µg/L	----	<2	----	----	----
Nitrobenzene	98-95-3	2	µg/L	----	<2	----	----	----
Isophorone	78-59-1	2	µg/L	----	<2	----	----	----
2,6-Dinitrotoluene	606-20-2	4	µg/L	----	<4	----	----	----
2,4-Dinitrotoluene	121-14-2	4	µg/L	----	<4	----	----	----
1-Naphthylamine	134-32-7	2	µg/L	----	<2	----	----	----
4-Nitroquinoline-N-oxide	56-57-5	2	µg/L	----	<2	----	----	----
5-Nitro-o-toluidine	99-55-8	2	µg/L	----	<2	----	----	----
Azobenzene	103-33-3	2	µg/L	----	<2	----	----	----
1,3,5-Trinitrobenzene	99-35-4	2	µg/L	----	<2	----	----	----
Phenacetin	62-44-2	2	µg/L	----	<2	----	----	----
4-Aminobiphenyl	92-67-1	2	µg/L	----	<2	----	----	----
Pentachloronitrobenzene	82-68-8	2	µg/L	----	<2	----	----	----
Pronamide	23950-58-5	2	µg/L	----	<2	----	----	----
Dimethylaminoazobenzene	60-11-7	2	µg/L	----	<2	----	----	----
Chlorobenzilate	510-15-6	2	µg/L	----	<2	----	----	----



Analytical Results

Sub-Matrix: **WATER**
 (Matrix: **WATER**)

Client sample ID

				QC1/120718	QC2/120718	----	----	----
Client sampling date / time				12-Jul-2018 00:00	12-Jul-2018 00:00	----	----	----
Compound	CAS Number	LOR	Unit	EM1811208-006	EM1811208-007	-----	-----	-----
				Result	Result	----	----	----

EP075E: Nitroaromatics and Ketones - Continued

EP075F: Haloethers

Bis(2-chloroethyl) ether	111-44-4	2	µg/L	----	<2	----	----	----
Bis(2-chloroethoxy) methane	111-91-1	2	µg/L	----	<2	----	----	----
4-Chlorophenyl phenyl ether	7005-72-3	2	µg/L	----	<2	----	----	----
4-Bromophenyl phenyl ether	101-55-3	2	µg/L	----	<2	----	----	----

EP075G: Chlorinated Hydrocarbons

1,3-Dichlorobenzene	541-73-1	2	µg/L	----	<2	----	----	----
1,4-Dichlorobenzene	106-46-7	2	µg/L	----	<2	----	----	----
1,2-Dichlorobenzene	95-50-1	2	µg/L	----	<2	----	----	----
Hexachloroethane	67-72-1	2	µg/L	----	<2	----	----	----
1,2,4-Trichlorobenzene	120-82-1	2	µg/L	----	<2	----	----	----
Hexachloropropylene	1888-71-7	2	µg/L	----	<2	----	----	----
Hexachlorobutadiene	87-68-3	2	µg/L	----	<2	----	----	----
Hexachlorocyclopentadiene	77-47-4	10	µg/L	----	<10	----	----	----
Pentachlorobenzene	608-93-5	2	µg/L	----	<2	----	----	----
Hexachlorobenzene (HCB)	118-74-1	4	µg/L	----	<4	----	----	----

EP075H: Anilines and Benzidines

Aniline	62-53-3	2	µg/L	----	<2	----	----	----
4-Chloroaniline	106-47-8	2	µg/L	----	<2	----	----	----
2-Nitroaniline	88-74-4	4	µg/L	----	<4	----	----	----
3-Nitroaniline	99-09-2	4	µg/L	----	<4	----	----	----
Dibenzofuran	132-64-9	2	µg/L	----	<2	----	----	----
4-Nitroaniline	100-01-6	2	µg/L	----	<2	----	----	----
Carbazole	86-74-8	2	µg/L	----	<2	----	----	----
3,3'-Dichlorobenzidine	91-94-1	2	µg/L	----	<2	----	----	----

EP075I: Organochlorine Pesticides

alpha-BHC	319-84-6	2	µg/L	----	<2	----	----	----
beta-BHC	319-85-7	2	µg/L	----	<2	----	----	----
gamma-BHC	58-89-9	2	µg/L	----	<2	----	----	----
delta-BHC	319-86-8	2	µg/L	----	<2	----	----	----
Heptachlor	76-44-8	2	µg/L	----	<2	----	----	----
Aldrin	309-00-2	2	µg/L	----	<2	----	----	----
Heptachlor epoxide	1024-57-3	2	µg/L	----	<2	----	----	----
alpha-Endosulfan	959-98-8	2	µg/L	----	<2	----	----	----



Analytical Results

Sub-Matrix: **WATER**
 (Matrix: **WATER**)

Client sample ID

				QC1/120718	QC2/120718	----	----	----
Client sampling date / time				12-Jul-2018 00:00	12-Jul-2018 00:00	----	----	----
Compound	CAS Number	LOR	Unit	EM1811208-006	EM1811208-007	-----	-----	-----
				Result	Result	----	----	----

EP075I: Organochlorine Pesticides - Continued

4,4'-DDE	72-55-9	2	µg/L	----	<2	----	----	----
Dieldrin	60-57-1	2	µg/L	----	<2	----	----	----
Endrin	72-20-8	2	µg/L	----	<2	----	----	----
beta-Endosulfan	33213-65-9	2	µg/L	----	<2	----	----	----
4,4'-DDD	72-54-8	2	µg/L	----	<2	----	----	----
Endosulfan sulfate	1031-07-8	2	µg/L	----	<2	----	----	----
4,4'-DDT	50-29-3	4	µg/L	----	<4	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	4	µg/L	----	<4	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	4	µg/L	----	<4	----	----	----

EP075J: Organophosphorus Pesticides

Dichlorvos	62-73-7	2	µg/L	----	<2	----	----	----
Dimethoate	60-51-5	2	µg/L	----	<2	----	----	----
Diazinon	333-41-5	2	µg/L	----	<2	----	----	----
Chlorpyrifos-methyl	5598-13-0	2	µg/L	----	<2	----	----	----
Malathion	121-75-5	2	µg/L	----	<2	----	----	----
Fenthion	55-38-9	2	µg/L	----	<2	----	----	----
Chlorpyrifos	2921-88-2	2	µg/L	----	<2	----	----	----
Pirimphos-ethyl	23505-41-1	2	µg/L	----	<2	----	----	----
Chlorfenvinphos	470-90-6	2	µg/L	----	<2	----	----	----
Prothiofos	34643-46-4	2	µg/L	----	<2	----	----	----
Ethion	563-12-2	2	µg/L	----	<2	----	----	----

EP080/071: Total Petroleum Hydrocarbons

C6 - C9 Fraction	----	20	µg/L	----	<20	----	----	----
C10 - C14 Fraction	----	50	µg/L	----	<50	----	----	----
C15 - C28 Fraction	----	100	µg/L	----	<100	----	----	----
C29 - C36 Fraction	----	50	µg/L	----	<50	----	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L	----	<50	----	----	----

EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions

C6 - C10 Fraction	C6_C10	20	µg/L	----	<20	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	----	<20	----	----	----
>C10 - C16 Fraction	----	100	µg/L	----	<100	----	----	----
>C16 - C34 Fraction	----	100	µg/L	----	<100	----	----	----
>C34 - C40 Fraction	----	100	µg/L	----	<100	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	QC1/120718	QC2/120718	----	----	----
Client sampling date / time					12-Jul-2018 00:00	12-Jul-2018 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EM1811208-006	EM1811208-007	-----	-----	-----
				Result	Result		----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
^ >C10 - C40 Fraction (sum)	----	100	µg/L		----	<100	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L		----	<100	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		----	<1	----	----	----
Toluene	108-88-3	2	µg/L		----	<2	----	----	----
Ethylbenzene	100-41-4	2	µg/L		----	<2	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		----	<2	----	----	----
ortho-Xylene	95-47-6	2	µg/L		----	<2	----	----	----
^ Total Xylenes	----	2	µg/L		----	<2	----	----	----
^ Sum of BTEX	----	1	µg/L		----	<1	----	----	----
Naphthalene	91-20-3	5	µg/L		----	<5	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		----	<0.05	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		----	<0.05	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L		----	<0.05	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		----	<0.05	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		----	<0.05	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		----	<0.05	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		----	<0.2	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		----	<0.05	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		----	<0.05	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		----	<0.05	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		----	<0.05	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		----	<0.05	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		----	<0.05	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		----	<0.05	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	QC1/120718	QC2/120718	----	----	----
Client sampling date / time					12-Jul-2018 00:00	12-Jul-2018 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EM1811208-006	EM1811208-007	-----	-----	-----
					Result	Result	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		----	<0.05	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		----	<0.05	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		----	<0.12	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		----	<0.05	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		----	<0.12	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		----	<0.12	----	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		----	<0.12	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		----	<0.12	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		----	<0.05	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		----	<0.05	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		----	<0.05	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		----	<0.05	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		----	<0.05	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		----	<0.05	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		----	<0.05	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		----	<0.05	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	QC1/120718	QC2/120718	----	----	----
Client sampling date / time					12-Jul-2018 00:00	12-Jul-2018 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EM1811208-006	EM1811208-007	-----	-----	-----
					Result	Result	----	----	----
EP231P: PFAS Sums - Continued									
Sum of PFAS (WA DER List)	----	0.01	µg/L		----	<0.05	----	----	----
MM669: Sulphate Reducing Bacteria									
Sulphate Reducing Bacteria Population Estimate	----	20	pac/mL		320	320	----	----	----
Aggressivity	----	1	-		Moderate	Moderate	----	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	1	%		----	89.4	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.5	%		----	86.9	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.5	%		----	80.5	----	----	----
EP074S: VOC Surrogates									
1,2-Dichloroethane-D4	17060-07-0	5	%		----	98.9	----	----	----
Toluene-D8	2037-26-5	5	%		----	83.0	----	----	----
4-Bromofluorobenzene	460-00-4	5	%		----	98.9	----	----	----
EP075S: Acid Extractable Surrogates									
2-Fluorophenol	367-12-4	2	%		----	1.72	----	----	----
Phenol-d6	13127-88-3	2	%		----	3.28	----	----	----
2-Chlorophenol-D4	93951-73-6	2	%		----	36.7	----	----	----
2,4,6-Tribromophenol	118-79-6	2	%		----	41.1	----	----	----
EP075T: Base/Neutral Extractable Surrogates									
Nitrobenzene-D5	4165-60-0	2	%		----	77.7	----	----	----
1,2-Dichlorobenzene-D4	2199-69-1	2	%		----	63.9	----	----	----
2-Fluorobiphenyl	321-60-8	2	%		----	65.9	----	----	----
Anthracene-d10	1719-06-8	2	%		----	80.6	----	----	----
4-Terphenyl-d14	1718-51-0	2	%		----	95.8	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	2	%		----	89.7	----	----	----
Toluene-D8	2037-26-5	2	%		----	73.8	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		----	98.0	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		----	70.9	----	----	----
13C8-PFOA	----	0.02	%		----	116	----	----	----



Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	41	125
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	117
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	51	127
EP074S: VOC Surrogates			
1,2-Dichloroethane-D4	17060-07-0	72	132
Toluene-D8	2037-26-5	77	132
4-Bromofluorobenzene	460-00-4	67	131
EP075S: Acid Extractable Surrogates			
2-Fluorophenol	367-12-4	10	75
Phenol-d6	13127-88-3	10	65
2-Chlorophenol-D4	93951-73-6	21	103
2,4,6-Tribromophenol	118-79-6	22	120
EP075T: Base/Neutral Extractable Surrogates			
Nitrobenzene-D5	4165-60-0	24	116
1,2-Dichlorobenzene-D4	2199-69-1	23	99
2-Fluorobiphenyl	321-60-8	32	114
Anthracene-d10	1719-06-8	47	119
4-Terphenyl-d14	1718-51-0	44	124
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	73	129
Toluene-D8	2037-26-5	70	125
4-Bromofluorobenzene	460-00-4	71	129
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	130
13C8-PFOA	----	60	130



Page 1
of 1

Job Number	31/35006/0813
Job Location:	Bulleen, VIC 3105
Laboratory Issued To:	ALS
Order No.:	
Sampled By:	M.Moore and C.Millis
Job Contact:	Matthew Moore (0490 784 218), Tim Anderson (03 8687 8208)
Contact Email:	matthew.moore5@ghd.com timothy.anderson@ghd.com

[illegible]

Environmental Division
Melbourne

Work Order Reference
EM1811208



• **Old Style :** - 41-3-8543 3000

Special Instructions:

TURN AROUND TIME REQUIRED

☐ 1 Working Day ☐ 2 Working Days ☐ 3 Working Days ☐ 4 Working Days ☒ 5 Working Days (standard) Other _____

SAMPLE RECEIPT				DELIVERED BY:		SAMPLE STATUS	
Relinquished by:	Matthew Moore	Date:	13.07.2018	Received by:	<i>R. I. Am...</i>	Date:	13/7/18
Organisation:	GHD	Time:	11:00	Organisation:		Time:	11:00
				COURIER/LAB		<input checked="" type="checkbox"/>	
				GHD		<input type="checkbox"/>	
ANALYTICAL SCHEDULE				RECEIVED BY:		<input checked="" type="checkbox"/> Security Sealed	
Relinquished by:	Matthew Moore	Date:	13.07.2018	Received by:		Date:	
Organisation:	GHD	Time:	11:00	Organisation:		Time:	
				FAX		<input type="checkbox"/>	
				HAND		<input checked="" type="checkbox"/> Chilled	
						<input type="checkbox"/> Frozen	
						<input type="checkbox"/> Ambient	

RECEIVING LABORATORY TO CONFIRM RECEIPT OF ANALYTICAL SCHEDULE BY EMAIL TO: matthew.moore50@dohd.com

Checked By: _____ Date: _____

QUALITY CONTROL REPORT

Work Order	: EM1811208	Page	: 1 of 20
Client	: GHD PTY LTD	Laboratory	: Environmental Division Melbourne
Contact	: MR MATTHEW MOORE	Contact	: Shirley LeCornu
Address	: LEVEL 8, 180 LONSDALE ST MELBOURNE VIC, AUSTRALIA 3001	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +61-3-8549 9630
Project	: 31350060813	Date Samples Received	: 13-Jul-2018
Order number	:	Date Analysis Commenced	: 13-Jul-2018
C-O-C number	: ----	Issue Date	: 24-Jul-2018
Sampler	: CM, MM		
Site	: Bulleen, VIC 3105		
Quote number	: ME/124/18 - North East Link		
No. of samples received	: 7		
No. of samples analysed	: 7		



This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Franco Lentini		Sydney Organics, Smithfield, NSW
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Samantha Smith	Laboratory Coordinator	WRG Subcontracting, Springvale, VIC



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key :
 Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
 CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
 LOR = Limit of reporting
 RPD = Relative Percentage Difference
 # = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EA005P: pH by PC Titrator (QC Lot: 1801892)									
EM1811206-001	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	5.98	6.00	0.334	0% - 20%
EM1811169-008	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	6.68	6.73	0.731	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 1801891)									
EM1811178-002	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	10700	10700	0.374	0% - 20%
EM1811169-008	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	1350	1370	1.39	0% - 20%
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QC Lot: 1799678)									
EM1811192-005	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	<10	<10	0.00	No Limit
EM1811220-001	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	737	717	2.75	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 1801894)									
EM1811185-009	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.00	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.00	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	16	15	0.00	0% - 50%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	16	15	0.00	0% - 50%
EM1811206-001	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.00	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.00	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	52	52	0.00	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	52	52	0.00	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 1799471)									
EM1811200-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	2	2	0.00	No Limit
ED045G: Chloride by Discrete Analyser (QC Lot: 1799470)									
EM1811200-001	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	107	108	0.00	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 1801346)									
EM1811173-001	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	69	71	2.86	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	6	6	0.00	No Limit



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
ED093F: Dissolved Major Cations (QC Lot: 1801346) - continued									
EM1811173-001	Anonymous	ED093F: Sodium	7440-23-5	1	mg/L	29	29	0.00	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	<1	<1	0.00	No Limit
EM1811184-003	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	18	18	0.00	0% - 50%
		ED093F: Magnesium	7439-95-4	1	mg/L	30	30	0.00	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	163	163	0.00	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	9	9	0.00	No Limit
EG020F: Dissolved Metals by ICP-MS (QC Lot: 1801350)									
EM1811157-019	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.024	0.022	6.49	0% - 20%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.019	0.020	0.00	0% - 50%
		EG020A-F: Lead	7439-92-1	0.001	mg/L	0.002	0.002	0.00	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.011	0.010	0.00	0% - 50%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.061	0.061	0.00	0% - 20%
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.040	0.038	3.91	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-F: Boron	7440-42-8	0.05	mg/L	0.34	0.34	0.00	No Limit
EM1811184-003	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.004	0.004	0.00	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.020	0.020	0.00	0% - 20%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	0.016	0.016	0.00	0% - 50%
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.004	0.004	0.00	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.068	0.067	0.00	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.028	0.027	0.00	0% - 20%
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.046	0.044	4.71	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-F: Boron	7440-42-8	0.05	mg/L	0.19	0.19	0.00	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 1801351)									
EM1811187-002	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EM1811245-002	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 1802795)									
EM1811024-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.08	0.10	27.9	0% - 50%

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 1802795) - continued									
EM1811206-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	1.77	1.76	0.597	0% - 20%
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 1799469)									
EM1811200-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 1802796)									
EM1811024-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.18	0.20	8.64	0% - 50%
EM1811206-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.04	0.03	32.2	No Limit
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 1802725)									
EM1811151-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	264	266	0.673	0% - 20%
EM1811134-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	487	513	5.17	0% - 20%
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 1802726)									
EM1811151-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	60.5	63.6	5.01	0% - 20%
EM1811134-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	5.42	6.07	11.3	No Limit
EP005: Total Organic Carbon (TOC) (QC Lot: 1814743)									
EM1811208-007	QC2/120718	EP005: Total Organic Carbon	----	1	mg/L	2	<1	82.7	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 1801799)									
EM1811150-066	Anonymous	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.00	No Limit
EP074B: Oxygenated Compounds (QC Lot: 1801799)									
EM1811150-066	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.00	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.00	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.00	No Limit
EP074C: Sulfonated Compounds (QC Lot: 1801799)									
EM1811150-066	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.00	No Limit
EP074D: Fumigants (QC Lot: 1801799)									
EM1811150-066	Anonymous	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.00	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 1801799)									



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074E: Halogenated Aliphatic Compounds (QC Lot: 1801799) - continued									
EM1811150-066	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.00	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.00	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.00	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.00	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.00	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.00	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 1801799)									
EM1811150-066	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.00	No Limit
EP074G: Trihalomethanes (QC Lot: 1801799)									
EM1811150-066	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1801798)									
EM1811192-005	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1801798) - continued									
EM1811150-066	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1801798)									
EM1811192-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EM1811150-066	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 1801798)									
EM1811192-005	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.00	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
EM1811150-066	Anonymous	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
		EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.00	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit		
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 1808507)									
EB1816995-001	Anonymous	EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.00	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.00	No Limit
ES1820710-001	Anonymous	EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.20	0.17	15.0	0% - 20%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	9.22	9.08	1.42	0% - 20%
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.00	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 1808507)									
EB1816995-001	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.00	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.00	No Limit



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 1808507) - continued									
EB1816995-001	Anonymous	EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.00	No Limit
ES1820710-001	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.03	0.04	34.9	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	3.34	2.98	11.6	0% - 20%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	2.00	1.92	4.03	0% - 20%
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.00	No Limit
		EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 1808507)							
EB1816995-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.00	No Limit
ES1820710-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.00	No Limit

Page : 8 of 20
 Work Order : EM1811208
 Client : GHD PTY LTD
 Project : 31350060813



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 1808507) - continued									
ES1820710-001	Anonymous	EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.00	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 1808507)									
EB1816995-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.00	No Limit
ES1820710-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	0.27	0.29	7.51	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	613	538	13.0	0% - 20%
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	0.06	0.07	0.00	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.00	No Limit
EP231P: PFAS Sums (QC Lot: 1808507)									
EB1816995-001	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.00	No Limit
ES1820710-001	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	628	552	12.8	0% - 20%



Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EA010P: Conductivity by PC Titrator (QCLot: 1801891)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	1412 µS/cm	101	85	119
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QCLot: 1799678)								
EA015H: Total Dissolved Solids @180°C	----	10	mg/L	<10	2000 mg/L	100	90	110
				<10	293 mg/L	98.6	90	110
ED037P: Alkalinity by PC Titrator (QCLot: 1801894)								
ED037-P: Total Alkalinity as CaCO3	----	----	mg/L	----	200 mg/L	101	88	109
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 1799471)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	103	92	115
				<1	100 mg/L	95.4	92	115
ED045G: Chloride by Discrete Analyser (QCLot: 1799470)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	10 mg/L	108	88	118
				<1	1000 mg/L	111	88	118
ED093F: Dissolved Major Cations (QCLot: 1801346)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	5 mg/L	99.0	93	110
ED093F: Magnesium	7439-95-4	1	mg/L	<1	5 mg/L	98.9	91	110
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	100	90	109
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	97.6	89	109
EG020F: Dissolved Metals by ICP-MS (QCLot: 1801350)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	98.2	91	107
EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	94.6	82	113
EG020A-F: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	94.2	84	106
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	87.2	84	104
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	89.7	83	103
EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	94.4	83	106
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	91.2	82	103
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	92.4	83	105
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	93.6	83	105
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	91.3	82	106
EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	94.9	82	109
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	91.6	83	106
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	97.4	85	109
EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	0.5 mg/L	91.0	84	116
EG035F: Dissolved Mercury by FIMS (QCLot: 1801351)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	104	81	114



Sub-Matrix: **WATER**

Method Blank (MB) Report				Laboratory Control Spike (LCS) Report				
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
					LCS	Low	High	
Method: Compound	CAS Number	LOR	Unit	Result				
EK055G: Ammonia as N by Discrete Analyser (QCLot: 1802795)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	103	80	115
EK057G: Nitrite as N by Discrete Analyser (QCLot: 1799469)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	102	94	107
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 1802796)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	103	89	114
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 1802725)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	5 mg/L	92.0	70	117
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 1802726)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	2.21 mg/L	94.3	70	120
EP005: Total Organic Carbon (TOC) (QCLot: 1814743)								
EP005: Total Organic Carbon	----	1	mg/L	<1	100 mg/L	104	81	109
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 1799476)								
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	10 µg/L	95.2	54	132
EP068A: Organochlorine Pesticides (OC) (QCLot: 1799477)								
EP068: alpha-BHC	319-84-6	0.5	µg/L	<0.5	5 µg/L	96.6	51	122
EP068: Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	5 µg/L	87.8	51	118
EP068: beta-BHC	319-85-7	0.5	µg/L	<0.5	5 µg/L	100	57	119
EP068: gamma-BHC	58-89-9	0.5	µg/L	<0.5	5 µg/L	97.6	51	121
EP068: delta-BHC	319-86-8	0.5	µg/L	<0.5	5 µg/L	100	58	114
EP068: Heptachlor	76-44-8	0.5	µg/L	<0.5	5 µg/L	103	47	113
EP068: Aldrin	309-00-2	0.5	µg/L	<0.5	5 µg/L	99.0	53	118
EP068: Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	5 µg/L	101	53	117
EP068: trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	5 µg/L	100	50	126
EP068: alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	5 µg/L	98.9	55	121
EP068: cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	5 µg/L	101	54	120
EP068: Dieldrin	60-57-1	0.5	µg/L	<0.5	5 µg/L	100	50	121
EP068: 4,4'-DDE	72-55-9	0.5	µg/L	<0.5	5 µg/L	99.9	54	120
EP068: Endrin	72-20-8	0.5	µg/L	<0.5	5 µg/L	121	45	122
EP068: beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	5 µg/L	100	55	120
EP068: 4,4'-DDD	72-54-8	0.5	µg/L	<0.5	5 µg/L	103	53	126
EP068: Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	5 µg/L	104	52	123
EP068: Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	5 µg/L	104	48	121
EP068: 4,4'-DDT	50-29-3	2	µg/L	<2.0	5 µg/L	112	46	120
EP068: Endrin ketone	53494-70-5	0.5	µg/L	<0.5	5 µg/L	98.9	56	118
EP068: Methoxychlor	72-43-5	2	µg/L	<2.0	5 µg/L	118	42	123
EP068B: Organophosphorus Pesticides (OP) (QCLot: 1799477)								
EP068: Dichlorvos	62-73-7	0.5	µg/L	<0.5	5 µg/L	93.2	45	123



Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result			Low	High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 1799477) - continued								
EP068: Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	5 µg/L	109	42	129
EP068: Monocrotophos	6923-22-4	2	µg/L	<2.0	5 µg/L	13.4	10	43
EP068: Dimethoate	60-51-5	0.5	µg/L	<0.5	5 µg/L	107	38	115
EP068: Diazinon	333-41-5	0.5	µg/L	<0.5	5 µg/L	104	54	121
EP068: Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	5 µg/L	102	56	118
EP068: Parathion-methyl	298-00-0	2	µg/L	<2.0	5 µg/L	# 116	43	115
EP068: Malathion	121-75-5	0.5	µg/L	<0.5	5 µg/L	108	50	120
EP068: Fenthion	55-38-9	0.5	µg/L	<0.5	5 µg/L	99.2	55	119
EP068: Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	5 µg/L	98.8	50	122
EP068: Parathion	56-38-2	2	µg/L	<2.0	5 µg/L	109	44	114
EP068: Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	5 µg/L	101	52	117
EP068: Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	5 µg/L	111	42	126
EP068: Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	5 µg/L	100	50	117
EP068: Fenamiphos	22224-92-6	0.5	µg/L	<0.5	5 µg/L	106	45	127
EP068: Prothiofos	34643-46-4	0.5	µg/L	<0.5	5 µg/L	102	52	120
EP068: Ethion	563-12-2	0.5	µg/L	<0.5	5 µg/L	109	49	118
EP068: Carbophenothion	786-19-6	0.5	µg/L	<0.5	5 µg/L	106	52	119
EP068: Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	5 µg/L	106	21	120
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 1801799)								
EP074: Styrene	100-42-5	5	µg/L	<5	20 µg/L	103	79	114
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	20 µg/L	96.9	72	116
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	20 µg/L	99.2	71	115
EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	20 µg/L	98.4	72	114
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	20 µg/L	97.0	72	114
EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	20 µg/L	97.7	74	112
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	20 µg/L	96.5	73	114
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	20 µg/L	101	70	115
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	20 µg/L	101	62	116
EP074B: Oxygenated Compounds (QCLot: 1801799)								
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	200 µg/L	99.5	73	126
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	200 µg/L	102	68	136
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	200 µg/L	104	76	127
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	200 µg/L	99.6	71	131
EP074C: Sulfonated Compounds (QCLot: 1801799)								
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	20 µg/L	88.7	55	123
EP074D: Fumigants (QCLot: 1801799)								
EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	20 µg/L	99.9	67	122
EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	20 µg/L	97.7	78	120

Method Blank (MB) Report

Spike

Spike Recovery (%)

Recovery Limits (%)

Method: Compound

CAS Number

LOR

Unit

Result

Concentration

LCS

Low

High

EP074D: Fumigants (QCLot: 1801799) - continued

EP074E: Halogenated Aliphatic Compounds (QCLot: 1801799)

EP074F: Halogenated Aromatic Compounds (QCLot: 1801799)

EP074: Chlorobenzene	108-90-7	5	µg/L	<5	20 µg/L	98.7	82	114
EP074: Bromobenzene	108-86-1	5	µg/L	<5	20 µg/L	102	74	117
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	20 µg/L	101	71	114
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	20 µg/L	102	71	112
EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	20 µg/L	112	74	118

EP074G: Trihalomethanes (QCLot: 1801799)



Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result			Low	High
EP074G: Trihalomethanes (QCLot: 1801799) - continued								
EP074: Chloroform	67-66-3	5	µg/L	<5	20 µg/L	99.4	79	119
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	20 µg/L	102	70	112
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	20 µg/L	91.7	68	107
EP074: Bromoform	75-25-2	5	µg/L	<5	20 µg/L	89.5	62	108
EP075A: Phenolic Compounds (QCLot: 1799478)								
EP075: Phenol	108-95-2	2	µg/L	<2	10 µg/L	37.1	19	47
EP075: 2-Chlorophenol	95-57-8	2	µg/L	<2	10 µg/L	84.5	44	100
EP075: 2-Methylphenol	95-48-7	2	µg/L	<2	10 µg/L	77.2	38	94
EP075: 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2	10 µg/L	# 110	33	88
EP075: 2-Nitrophenol	88-75-5	2	µg/L	<2	10 µg/L	85.9	40	111
EP075: 2,4-Dimethylphenol	105-67-9	2	µg/L	<2	10 µg/L	83.2	44	110
EP075: 2,4-Dichlorophenol	120-83-2	2	µg/L	<2	10 µg/L	89.7	43	110
EP075: 2,6-Dichlorophenol	87-65-0	2	µg/L	<2	10 µg/L	93.5	49	104
EP075: 4-Chloro-3-methylphenol	59-50-7	2	µg/L	<2	10 µg/L	92.2	50	103
EP075: 2,4,6-Trichlorophenol	88-06-2	2	µg/L	<2	10 µg/L	93.9	48	107
EP075: 2,4,5-Trichlorophenol	95-95-4	2	µg/L	<2	10 µg/L	93.6	48	110
EP075: Pentachlorophenol	87-86-5	4	µg/L	<4	10 µg/L	81.7	25	113
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 1799478)								
EP075: Naphthalene	91-20-3	2	µg/L	<2	10 µg/L	92.6	51	102
EP075: 2-Methylnaphthalene	91-57-6	2	µg/L	<2	10 µg/L	94.3	50	107
EP075: 2-Chloronaphthalene	91-58-7	2	µg/L	<2	10 µg/L	94.4	47	111
EP075: Acenaphthylene	208-96-8	2	µg/L	<2	10 µg/L	95.8	49	110
EP075: Acenaphthene	83-32-9	2	µg/L	<2	10 µg/L	92.8	54	105
EP075: Fluorene	86-73-7	2	µg/L	<2	10 µg/L	93.4	54	108
EP075: Phenanthrene	85-01-8	2	µg/L	<2	10 µg/L	94.6	57	108
EP075: Anthracene	120-12-7	2	µg/L	<2	10 µg/L	94.1	57	108
EP075: Fluoranthene	206-44-0	2	µg/L	<2	10 µg/L	95.7	57	111
EP075: Pyrene	129-00-0	2	µg/L	<2	10 µg/L	96.8	58	110
EP075: N-2-Fluorenyl Acetamide	53-96-3	2	µg/L	<2	10 µg/L	97.7	48	117
EP075: Benz(a)anthracene	56-55-3	2	µg/L	<2	10 µg/L	94.5	55	112
EP075: Chrysene	218-01-9	2	µg/L	<2	10 µg/L	94.6	55	113
EP075: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	4	µg/L	<4	20 µg/L	95.5	56	111
EP075: 7,12-Dimethylbenz(a)anthracene	57-97-6	2	µg/L	<2	10 µg/L	97.1	55	140
EP075: Benzo(a)pyrene	50-32-8	2	µg/L	<2	10 µg/L	95.7	57	129
EP075: 3-Methylcholanthrene	56-49-5	2	µg/L	<2	10 µg/L	89.8	47	135
EP075: Indeno(1,2,3-cd)pyrene	193-39-5	2	µg/L	<2	10 µg/L	87.4	59	125
EP075: Dibenzo(a,h)anthracene	53-70-3	2	µg/L	<2	10 µg/L	93.2	58	126
EP075: Benzo(g,h,i)perylene	191-24-2	2	µg/L	<2	10 µg/L	97.0	59	127



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EP075C: Phthalate Esters (QCLot: 1799478)								
EP075: Dimethyl phthalate	131-11-3	2	µg/L	<2	10 µg/L	96.3	57	121
EP075: Diethyl phthalate	84-66-2	2	µg/L	<2	10 µg/L	95.0	62	128
EP075: Di-n-butyl phthalate	84-74-2	2	µg/L	<2	10 µg/L	100.0	65	129
EP075: Butyl benzyl phthalate	85-68-7	2	µg/L	<2	10 µg/L	96.6	63	127
EP075: bis(2-ethylhexyl) phthalate	117-81-7	10	µg/L	<10	10 µg/L	101	56	131
EP075: Di-n-octylphthalate	117-84-0	2	µg/L	<2	10 µg/L	95.9	57	129
EP075D: Nitrosamines (QCLot: 1799478)								
EP075: N-Nitrosomethylethylamine	10595-95-6	2	µg/L	<2	10 µg/L	71.1	19	102
EP075: N-Nitrosodiethylamine	55-18-5	2	µg/L	<2	10 µg/L	101	38	113
EP075: N-Nitrosopyrrolidine	930-55-2	4	µg/L	<4	10 µg/L	67.4	29	88
EP075: N-Nitrosomorpholine	59-89-2	2	µg/L	<2	10 µg/L	58.2	27	90
EP075: N-Nitrosodi-n-propylamine	621-64-7	2	µg/L	<2	10 µg/L	91.8	43	119
EP075: N-Nitrosopiperidine	100-75-4	2	µg/L	<2	10 µg/L	87.9	43	112
EP075: N-Nitrosodibutylamine	924-16-3	2	µg/L	<2	10 µg/L	96.3	49	119
EP075: N-Nitrosodiphenyl & Diphenylamine	86-30-6 122-39-4	4	µg/L	<4	10 µg/L	93.2	59	119
EP075: Methapyrilene	91-80-5	2	µg/L	<2	10 µg/L	55.9	55	157
EP075E: Nitroaromatics and Ketones (QCLot: 1799478)								
EP075: 2-Picoline	109-06-8	2	µg/L	<2	10 µg/L	64.3	17	120
EP075: Acetophenone	98-86-2	2	µg/L	<2	10 µg/L	94.2	51	108
EP075: Nitrobenzene	98-95-3	2	µg/L	<2	10 µg/L	95.0	46	109
EP075: Isophorone	78-59-1	2	µg/L	<2	10 µg/L	92.9	49	114
EP075: 2,6-Dinitrotoluene	606-20-2	4	µg/L	<4	10 µg/L	96.8	56	120
EP075: 2,4-Dinitrotoluene	121-14-2	4	µg/L	<4	10 µg/L	92.4	57	121
EP075: 1-Naphthylamine	134-32-7	2	µg/L	<2	10 µg/L	92.1	11	119
EP075: 4-Nitroquinoline-N-oxide	56-57-5	2	µg/L	<2	10 µg/L	109	30	160
EP075: 5-Nitro-o-toluidine	99-55-8	2	µg/L	<2	10 µg/L	95.5	50	124
EP075: Azobenzene	103-33-3	2	µg/L	<2	10 µg/L	93.2	56	120
EP075: 1,3,5-Trinitrobenzene	99-35-4	2	µg/L	<2	10 µg/L	90.2	36	132
EP075: Phenacetin	62-44-2	2	µg/L	<2	10 µg/L	80.3	46	110
EP075: 4-Aminobiphenyl	92-67-1	2	µg/L	<2	10 µg/L	98.6	24	149
EP075: Pentachloronitrobenzene	82-68-8	2	µg/L	<2	10 µg/L	93.1	57	127
EP075: Pronamide	23950-58-5	2	µg/L	<2	10 µg/L	95.2	63	125
EP075: Dimethylaminoazobenzene	60-11-7	2	µg/L	<2	10 µg/L	92.3	57	123
EP075: Chlorobenzilate	510-15-6	2	µg/L	<2	10 µg/L	94.9	61	131
EP075F: Haloethers (QCLot: 1799478)								
EP075: Bis(2-chloroethyl) ether	111-44-4	2	µg/L	<2	10 µg/L	90.1	44	109
EP075: Bis(2-chloroethoxy) methane	111-91-1	2	µg/L	<2	10 µg/L	92.3	46	114



Sub-Matrix: **WATER**

Method: Compound				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
						LCS	Low	High
CAS Number	LOR	Unit	Result					
EP075F: Haloethers (QCLot: 1799478) - continued								
EP075: 4-Chlorophenyl phenyl ether	7005-72-3	2	µg/L	<2	10 µg/L	93.6	55	119
EP075: 4-Bromophenyl phenyl ether	101-55-3	2	µg/L	<2	10 µg/L	94.6	57	119
EP075G: Chlorinated Hydrocarbons (QCLot: 1799478)								
EP075: 1,4-Dichlorobenzene	106-46-7	2	µg/L	<2	10 µg/L	88.8	46	102
EP075: 1,3-Dichlorobenzene	541-73-1	2	µg/L	<2	10 µg/L	86.6	45	101
EP075: 1,2-Dichlorobenzene	95-50-1	2	µg/L	<2	10 µg/L	89.3	47	101
EP075: Hexachloroethane	67-72-1	2	µg/L	<2	10 µg/L	87.1	44	104
EP075: 1,2,4-Trichlorobenzene	120-82-1	2	µg/L	<2	10 µg/L	90.9	46	107
EP075: Hexachloropropylene	1888-71-7	2	µg/L	<2	10 µg/L	92.4	35	109
EP075: Hexachlorobutadiene	87-68-3	2	µg/L	<2	10 µg/L	92.4	48	103
EP075: Hexachlorocyclopentadiene	77-47-4	10	µg/L	<10	10 µg/L	102	34	112
EP075: Pentachlorobenzene	608-93-5	2	µg/L	<2	10 µg/L	94.0	53	117
EP075: Hexachlorobenzene (HCB)	118-74-1	4	µg/L	<4	20 µg/L	93.6	55	121
EP075H: Anilines and Benzidines (QCLot: 1799478)								
EP075: Aniline	62-53-3	2	µg/L	<2	10 µg/L	78.0	14	110
EP075: 4-Chloroaniline	106-47-8	2	µg/L	<2	10 µg/L	89.3	32	114
EP075: 2-Nitroaniline	88-74-4	4	µg/L	<4	10 µg/L	94.7	51	119
EP075: 3-Nitroaniline	99-09-2	4	µg/L	<4	10 µg/L	91.2	50	116
EP075: Dibenzofuran	132-64-9	2	µg/L	<2	10 µg/L	93.7	53	117
EP075: 4-Nitroaniline	100-01-6	2	µg/L	<2	10 µg/L	89.0	48	114
EP075: Carbazole	86-74-8	2	µg/L	<2	10 µg/L	93.8	63	125
EP075: 3,3'-Dichlorobenzidine	91-94-1	2	µg/L	<2	10 µg/L	90.1	59	137
EP075I: Organochlorine Pesticides (QCLot: 1799478)								
EP075: alpha-BHC	319-84-6	2	µg/L	<2	10 µg/L	94.7	58	124
EP075: beta-BHC	319-85-7	2	µg/L	<2	10 µg/L	95.2	57	127
EP075: gamma-BHC	58-89-9	2	µg/L	<2	10 µg/L	96.4	57	125
EP075: delta-BHC	319-86-8	2	µg/L	<2	10 µg/L	96.4	62	128
EP075: Heptachlor	76-44-8	2	µg/L	<2	10 µg/L	95.6	53	112
EP075: Aldrin	309-00-2	2	µg/L	<2	10 µg/L	95.4	57	110
EP075: Heptachlor epoxide	1024-57-3	2	µg/L	<2	10 µg/L	96.9	55	112
EP075: alpha-Endosulfan	959-98-8	2	µg/L	<2	10 µg/L	95.9	50	124
EP075: 4,4'-DDE	72-55-9	2	µg/L	<2	10 µg/L	98.1	55	110
EP075: Dieldrin	60-57-1	2	µg/L	<2	10 µg/L	97.1	61	131
EP075: Endrin	72-20-8	2	µg/L	<2	10 µg/L	96.6	59	133
EP075: beta-Endosulfan	33213-65-9	2	µg/L	<2	10 µg/L	94.0	60	130
EP075: 4,4'-DDD	72-54-8	2	µg/L	<2	10 µg/L	96.1	61	129
EP075: Endosulfan sulfate	1031-07-8	2	µg/L	<2	10 µg/L	97.7	58	136
EP075: 4,4'-DDT	50-29-3	4	µg/L	<4	10 µg/L	97.3	51	137



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EP075J: Organophosphorus Pesticides (QCLot: 1799478)								
EP075: Dichlorvos	62-73-7	2	µg/L	<2	10 µg/L	93.3	50	116
EP075: Dimethoate	60-51-5	2	µg/L	<2	10 µg/L	79.0	49	111
EP075: Diazinon	333-41-5	2	µg/L	<2	10 µg/L	95.3	62	126
EP075: Chlorpyrifos-methyl	5598-13-0	2	µg/L	<2	10 µg/L	94.1	60	126
EP075: Malathion	121-75-5	2	µg/L	<2	10 µg/L	100.0	61	131
EP075: Fenthion	55-38-9	2	µg/L	<2	10 µg/L	97.5	62	128
EP075: Chlorpyrifos	2921-88-2	2	µg/L	<2	10 µg/L	96.0	61	127
EP075: Pirimphos-ethyl	23505-41-1	2	µg/L	<2	10 µg/L	96.7	61	129
EP075: Chlorfenvinphos	470-90-6	2	µg/L	<2	10 µg/L	96.8	61	131
EP075: Prothiofos	34643-46-4	2	µg/L	<2	10 µg/L	96.5	61	125
EP075: Ethion	563-12-2	2	µg/L	<2	10 µg/L	95.2	62	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1799475)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	4331 µg/L	108	58	134
EP071: C15 - C28 Fraction	----	100	µg/L	<100	16952 µg/L	110	60	133
EP071: C29 - C36 Fraction	----	50	µg/L	<50	8695 µg/L	110	54	137
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1801798)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	360 µg/L	86.6	68	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1799475)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	6292 µg/L	108	58	122
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	22143 µg/L	109	56	132
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	1677 µg/L	110	58	137
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1801798)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	83.9	66	123
EP080: BTEXN (QCLot: 1801798)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	95.2	74	123
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	95.1	77	128
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	95.5	73	126
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	99.0	72	131
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	106	74	131
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	92.7	74	124
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 1808507)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.5 µg/L	84.0	70	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.5 µg/L	95.6	70	130
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L	<0.02	0.5 µg/L	103	70	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.5 µg/L	70.8	70	130
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.5 µg/L	74.2	70	130
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.5 µg/L	73.4	70	130



Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result			Low	High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 1808507)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	2.5 µg/L	91.5	70	130
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.5 µg/L	94.0	70	130
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.5 µg/L	94.2	70	130
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.5 µg/L	104	70	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.5 µg/L	102	70	130
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.5 µg/L	105	70	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.5 µg/L	96.8	70	130
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.5 µg/L	98.6	70	130
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.5 µg/L	121	70	130
EP231X: Perfluorotridecanoic acid (PFTriDA)	72629-94-8	0.02	µg/L	<0.02	0.5 µg/L	111	70	130
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	1.25 µg/L	129	70	150
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 1808507)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.5 µg/L	102	70	130
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	1.25 µg/L	109	70	150
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	1.25 µg/L	80.5	70	150
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	1.25 µg/L	114	70	150
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	1.25 µg/L	114	70	150
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.5 µg/L	84.0	70	130
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.5 µg/L	102	70	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 1808507)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.5 µg/L	108	70	130
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.5 µg/L	104	70	130
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.5 µg/L	119	70	130
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.5 µg/L	102	70	130

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery (%) MS	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number			Low	High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 1799471)							
EM1811206-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	# Not Determined	70	130



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
ED045G: Chloride by Discrete Analyser (QCLot: 1799470)							
EM1811206-001	Anonymous	ED045G: Chloride	16887-00-6	400 mg/L	95.9	70	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 1801350)							
EM1811157-019	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	102	85	131
		EG020A-F: Beryllium	7440-41-7	0.2 mg/L	89.5	73	141
		EG020A-F: Barium	7440-39-3	0.2 mg/L	97.0	75	127
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	88.4	81	133
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	86.2	71	135
		EG020A-F: Cobalt	7440-48-4	0.2 mg/L	95.2	78	132
		EG020A-F: Copper	7440-50-8	0.2 mg/L	91.9	76	130
		EG020A-F: Lead	7439-92-1	0.2 mg/L	87.1	75	133
		EG020A-F: Manganese	7439-96-5	0.2 mg/L	87.4	64	134
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	90.7	73	131
		EG020A-F: Vanadium	7440-62-2	0.2 mg/L	88.6	73	131
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	93.8	75	131
EG035F: Dissolved Mercury by FIMS (QCLot: 1801351)							
EM1811187-003	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	# 29.9	70	120
EK055G: Ammonia as N by Discrete Analyser (QCLot: 1802795)							
EM1811173-004	Anonymous	EK055G: Ammonia as N	7664-41-7	1 mg/L	103	70	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 1799469)							
EM1811206-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	94.0	80	114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 1802796)							
EM1811173-004	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	85.6	70	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 1802725)							
EM1811139-002	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	83.9	70	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 1802726)							
EM1811139-002	Anonymous	EK067G: Total Phosphorus as P	----	1 mg/L	113	70	130
EP005: Total Organic Carbon (TOC) (QCLot: 1814743)							
EM1811376-001	Anonymous	EP005: Total Organic Carbon	----	100 mg/L	109	80	114
EP074E: Halogenated Aliphatic Compounds (QCLot: 1801799)							
EM1811213-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	20 µg/L	90.2	40	124
		EP074: Trichloroethene	79-01-6	20 µg/L	85.3	54	126
EP074F: Halogenated Aromatic Compounds (QCLot: 1801799)							
EM1811213-001	Anonymous	EP074: Chlorobenzene	108-90-7	20 µg/L	95.7	68	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1801798)							
EM1811213-001	Anonymous	EP080: C6 - C9 Fraction	----	280 µg/L	82.8	43	125



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	Spike Recovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1801798)							
EM1811213-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	330 µg/L	80.3	44	122
EP080: BTEXN (QCLot: 1801798)							
EM1811213-001	Anonymous	EP080: Benzene	71-43-2	20 µg/L	98.7	68	130
		EP080: Toluene	108-88-3	20 µg/L	100	72	132
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 1808507)							
EB1816995-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.5 µg/L	80.8	50	130
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.5 µg/L	102	50	130
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.5 µg/L	99.6	50	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.5 µg/L	65.6	50	130
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.5 µg/L	67.2	50	130
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.5 µg/L	69.8	50	130
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 1808507)							
EB1816995-001	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	2.5 µg/L	71.6	50	130
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.5 µg/L	94.8	50	130
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.5 µg/L	93.4	50	130
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.5 µg/L	95.0	50	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.5 µg/L	100	50	130
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.5 µg/L	99.4	50	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.5 µg/L	94.8	50	130
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.5 µg/L	89.8	50	130
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.5 µg/L	122	50	130
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.5 µg/L	111	50	130
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	1.25 µg/L	129	50	150
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 1808507)							
EB1816995-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.5 µg/L	96.6	50	130
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	1.25 µg/L	101	50	150
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	1.25 µg/L	84.6	50	150
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	1.25 µg/L	114	50	150
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	1.25 µg/L	100	50	150
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.5 µg/L	80.2	50	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.5 µg/L	86.0	50	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 1808507)							
EB1816995-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.5 µg/L	105	50	130



Sub-Matrix: WATER

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 1808507) - continued							
EB1816995-001	Anonymous	EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.5 µg/L	103	50	130
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.5 µg/L	105	50	130
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.5 µg/L	78.6	50	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: EM1811208	Page	: 1 of 12
Client	: GHD PTY LTD	Laboratory	: Environmental Division Melbourne
Contact	: MR MATTHEW MOORE	Telephone	: +61-3-8549 9630
Project	: 31350060813	Date Samples Received	: 13-Jul-2018
Site	: Bulleen, VIC 3105	Issue Date	: 24-Jul-2018
Sampler	: CM, MM	No. of samples received	: 7
Order number	:	No. of samples analysed	: 7

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO** Method Blank value outliers occur.
- **NO** Duplicate outliers occur.
- Laboratory Control outliers exist - please see following pages for full details.
- Matrix Spike outliers exist - please see following pages for full details.
- Surrogate recovery outliers exist for all regular sample matrices - please see following pages for full details.

Outliers : Analysis Holding Time Compliance

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- Quality Control Sample Frequency Outliers exist - please see following pages for full details.



Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Laboratory Control Spike (LCS) Recoveries							
EP068B: Organophosphorus Pesticides (OP)	QC-1799477-001	----	Parathion-methyl	298-00-0	116 %	43-115%	Recovery greater than upper control limit
EP075A: Phenolic Compounds	QC-1799478-001	----	3- & 4-Methylphenol	1319-77-3	110 %	33-88%	Recovery greater than upper control limit
Matrix Spike (MS) Recoveries							
ED041G: Sulfate (Turbidimetric) as SO ₄ 2- by DA	EM1811206--001	Anonymous	Sulfate as SO ₄ - Turbidimetric	14808-79-8	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EG035F: Dissolved Mercury by FIMS	EM1811187--003	Anonymous	Mercury	7439-97-6	29.9 %	70-120%	Recovery less than lower data quality objective

Regular Sample Surrogates

Sub-Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Samples Submitted							
EP075S: Acid Extractable Surrogates	EM1811208-007	QC2/120718	2-Fluorophenol	367-12-4	1.72 %	10-75 %	Recovery less than lower data quality objective
EP075S: Acid Extractable Surrogates	EM1811208-007	QC2/120718	Phenol-d6	13127-88-3	3.28 %	10-65 %	Recovery less than lower data quality objective

Outliers : Analysis Holding Time Compliance

Matrix: **WATER**

Method	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA005P: pH by PC Titrator						
Clear Plastic Bottle - Natural QC2/120718	----	----	----	16-Jul-2018	12-Jul-2018	4

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
Pesticides by GCMS	0	5	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	0	6	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	0	1	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	8	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Pesticides by GCMS	0	5	0.00	5.00	NEPM 2013 B3 & ALS QC Standard



Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
Matrix Spikes (MS) - Continued					
Polychlorinated Biphenyls (PCB)	0	6	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	0	1	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	8	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Holding time broken	Analysis		Within holding time
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation		Date analysed	Due for analysis	
EA005P: pH by PC Titrator								
Clear Plastic Bottle - Natural (EA005-P) QC2/120718	12-Jul-2018	----	----	----	16-Jul-2018	12-Jul-2018		✗
EA010P: Conductivity by PC Titrator								
Clear Plastic Bottle - Natural (EA010-P) QC2/120718	12-Jul-2018	----	----	----	16-Jul-2018	09-Aug-2018		✓
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Clear Plastic Bottle - Natural (EA015H) QC2/120718	12-Jul-2018	----	----	----	17-Jul-2018	19-Jul-2018		✓
ED037P: Alkalinity by PC Titrator								
Clear Plastic Bottle - Natural (ED037-P) QC2/120718	12-Jul-2018	----	----	----	16-Jul-2018	26-Jul-2018		✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Clear Plastic Bottle - Natural (ED041G) QC2/120718	12-Jul-2018	----	----	----	16-Jul-2018	09-Aug-2018		✓
ED045G: Chloride by Discrete Analyser								
Clear Plastic Bottle - Natural (ED045G) QC2/120718	12-Jul-2018	----	----	----	16-Jul-2018	09-Aug-2018		✓
ED093F: Dissolved Major Cations								
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) QC2/120718	12-Jul-2018	----	----	----	16-Jul-2018	09-Aug-2018		✓
EG020F: Dissolved Metals by ICP-MS								
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) QC2/120718	12-Jul-2018	----	----	----	16-Jul-2018	08-Jan-2019		✓



Matrix: **WATER**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) QC2/120718	12-Jul-2018	----	----	----	16-Jul-2018	09-Aug-2018	✓
EK055G: Ammonia as N by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK055G) QC2/120718	12-Jul-2018	----	----	----	17-Jul-2018	09-Aug-2018	✓
EK057G: Nitrite as N by Discrete Analyser							
Clear Plastic Bottle - Natural (EK057G) QC2/120718	12-Jul-2018	----	----	----	13-Jul-2018	14-Jul-2018	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK059G) QC2/120718	12-Jul-2018	----	----	----	17-Jul-2018	09-Aug-2018	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK061G) QC2/120718	12-Jul-2018	17-Jul-2018	09-Aug-2018	✓	17-Jul-2018	09-Aug-2018	✓
EK067G: Total Phosphorus as P by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK067G) QC2/120718	12-Jul-2018	17-Jul-2018	09-Aug-2018	✓	17-Jul-2018	09-Aug-2018	✓
EP005: Total Organic Carbon (TOC)							
Amber TOC Vial - Sulfuric Acid (EP005) QC2/120718	12-Jul-2018	----	----	----	19-Jul-2018	09-Aug-2018	✓
EP066: Polychlorinated Biphenyls (PCB)							
Amber Glass Bottle - Unpreserved (EP066) QC2/120718	12-Jul-2018	13-Jul-2018	19-Jul-2018	✓	16-Jul-2018	22-Aug-2018	✓
EP068A: Organochlorine Pesticides (OC)							
Amber Glass Bottle - Unpreserved (EP068) QC2/120718	12-Jul-2018	13-Jul-2018	19-Jul-2018	✓	16-Jul-2018	22-Aug-2018	✓
EP068B: Organophosphorus Pesticides (OP)							
Amber Glass Bottle - Unpreserved (EP068) QC2/120718	12-Jul-2018	13-Jul-2018	19-Jul-2018	✓	16-Jul-2018	22-Aug-2018	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP074) QC2/120718	12-Jul-2018	16-Jul-2018	26-Jul-2018	✓	17-Jul-2018	26-Jul-2018	✓
EP074B: Oxygenated Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) QC2/120718	12-Jul-2018	16-Jul-2018	26-Jul-2018	✓	17-Jul-2018	26-Jul-2018	✓
EP074C: Sulfonated Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) QC2/120718	12-Jul-2018	16-Jul-2018	26-Jul-2018	✓	17-Jul-2018	26-Jul-2018	✓



Matrix: **WATER**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074D: Fumigants							
Amber VOC Vial - Sulfuric Acid (EP074) QC2/120718	12-Jul-2018	16-Jul-2018	26-Jul-2018	✓	17-Jul-2018	26-Jul-2018	✓
EP074E: Halogenated Aliphatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) QC2/120718	12-Jul-2018	16-Jul-2018	26-Jul-2018	✓	17-Jul-2018	26-Jul-2018	✓
EP074F: Halogenated Aromatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) QC2/120718	12-Jul-2018	16-Jul-2018	26-Jul-2018	✓	17-Jul-2018	26-Jul-2018	✓
EP074G: Trihalomethanes							
Amber VOC Vial - Sulfuric Acid (EP074) QC2/120718	12-Jul-2018	16-Jul-2018	26-Jul-2018	✓	17-Jul-2018	26-Jul-2018	✓
EP075A: Phenolic Compounds							
Amber Glass Bottle - Unpreserved (EP075) QC2/120718	12-Jul-2018	13-Jul-2018	19-Jul-2018	✓	16-Jul-2018	22-Aug-2018	✓
EP075B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075) QC2/120718	12-Jul-2018	13-Jul-2018	19-Jul-2018	✓	16-Jul-2018	22-Aug-2018	✓
EP075C: Phthalate Esters							
Amber Glass Bottle - Unpreserved (EP075) QC2/120718	12-Jul-2018	13-Jul-2018	19-Jul-2018	✓	16-Jul-2018	22-Aug-2018	✓
EP075D: Nitrosamines							
Amber Glass Bottle - Unpreserved (EP075) QC2/120718	12-Jul-2018	13-Jul-2018	19-Jul-2018	✓	16-Jul-2018	22-Aug-2018	✓
EP075E: Nitroaromatics and Ketones							
Amber Glass Bottle - Unpreserved (EP075) QC2/120718	12-Jul-2018	13-Jul-2018	19-Jul-2018	✓	16-Jul-2018	22-Aug-2018	✓
EP075F: Haloethers							
Amber Glass Bottle - Unpreserved (EP075) QC2/120718	12-Jul-2018	13-Jul-2018	19-Jul-2018	✓	16-Jul-2018	22-Aug-2018	✓
EP075G: Chlorinated Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075) QC2/120718	12-Jul-2018	13-Jul-2018	19-Jul-2018	✓	16-Jul-2018	22-Aug-2018	✓
EP075H: Anilines and Benzidines							
Amber Glass Bottle - Unpreserved (EP075) QC2/120718	12-Jul-2018	13-Jul-2018	19-Jul-2018	✓	16-Jul-2018	22-Aug-2018	✓
EP075I: Organochlorine Pesticides							
Amber Glass Bottle - Unpreserved (EP075) QC2/120718	12-Jul-2018	13-Jul-2018	19-Jul-2018	✓	16-Jul-2018	22-Aug-2018	✓



Matrix: **WATER**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075J: Organophosphorus Pesticides							
Amber Glass Bottle - Unpreserved (EP075) QC2/120718	12-Jul-2018	13-Jul-2018	19-Jul-2018	✓	16-Jul-2018	22-Aug-2018	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071) QC2/120718	12-Jul-2018	13-Jul-2018	19-Jul-2018	✓	16-Jul-2018	22-Aug-2018	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC2/120718	12-Jul-2018	16-Jul-2018	26-Jul-2018	✓	17-Jul-2018	26-Jul-2018	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071) QC2/120718	12-Jul-2018	13-Jul-2018	19-Jul-2018	✓	16-Jul-2018	22-Aug-2018	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC2/120718	12-Jul-2018	16-Jul-2018	26-Jul-2018	✓	17-Jul-2018	26-Jul-2018	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) QC2/120718	12-Jul-2018	16-Jul-2018	26-Jul-2018	✓	17-Jul-2018	26-Jul-2018	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X) QC2/120718	12-Jul-2018	----	----	----	19-Jul-2018	08-Jan-2019	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) QC2/120718	12-Jul-2018	----	----	----	19-Jul-2018	08-Jan-2019	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) QC2/120718	12-Jul-2018	----	----	----	19-Jul-2018	08-Jan-2019	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) QC2/120718	12-Jul-2018	----	----	----	19-Jul-2018	08-Jan-2019	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) QC2/120718	12-Jul-2018	----	----	----	19-Jul-2018	08-Jan-2019	✓



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Alkalinity by PC Titrator	ED037-P	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	7	14.29	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by PC Titrator	EA010-P	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	2	19	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	19	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	6	16.67	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	15	13.33	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	5	0.00	10.00	✗	NEPM 2013 B3 & ALS QC Standard
pH by PC Titrator	EA005-P	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	6	0.00	10.00	✗	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	0	1	0.00	10.00	✗	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	5	20.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	2	11	18.18	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	1	2	50.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	8	0.00	10.00	✗	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	17	11.76	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	10	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Alkalinity by PC Titrator	ED037-P	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	7	28.57	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by PC Titrator	EA010-P	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	15	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	1	1	100.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard



Matrix: **WATER**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Control Samples (LCS) - Continued							
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	5	40.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	2	11	18.18	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	1	2	50.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	8	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	10	10.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Ammonia as N by Discrete analyser	EK055G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	7	14.29	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by PC Titrator	EA010-P	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	15	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	1	1	100.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	1	11	9.09	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	1	2	50.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	8	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	10	10.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	7	14.29	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	15	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	5	0.00	5.00	✗	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	6	0.00	5.00	✗	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	0	1	0.00	5.00	✗	NEPM 2013 B3 & ALS QC Standard

Page : 9 of 12
 Work Order : EM1811208
 Client : GHD PTY LTD
 Project : 31350060813



Matrix: **WATER**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Matrix Spikes (MS) - Continued							
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	1	2	50.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	8	0.00	5.00	✗	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	10	10.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH by PC Titrator	EA005-P	WATER	In house: Referenced to APHA 4500 H+ B. This procedure determines pH of water samples by automated ISE. This method is compliant with NEPM (2013) Schedule B(3)
Conductivity by PC Titrator	EA010-P	WATER	In house: Referenced to APHA 2510 B. This procedure determines conductivity by automated ISE. This method is compliant with NEPM (2013) Schedule B(3)
Total Dissolved Solids (High Level)	EA015H	WATER	In house: Referenced to APHA 2540C. A gravimetric procedure that determines the amount of 'filterable' residue in an aqueous sample. A well-mixed sample is filtered through a glass fibre filter (1.2um). The filtrate is evaporated to dryness and dried to constant weight at 180+/-5C. This method is compliant with NEPM (2013) Schedule B(3)
Free and Total CO2	EA165	WATER	In house: Referenced to APHA 4500-CO2 D. This method is compliant with NEPM (2013) Schedule B(3)
Alkalinity by PC Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM (2013) Schedule B(3)
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM (2013) Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G. The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocyanate forms highly-coloured ferric thiocyanate which is measured at 480 nm APHA 21st edition seal method 2 017-1-L april 2003
Major Cations - Dissolved	ED093F	WATER	In house: Referenced to APHA 3120 and 3125; USEPA SW 846 - 6010 and 6020; Cations are determined by either ICP-AES or ICP-MS techniques. This method is compliant with NEPM (2013) Schedule B(3) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM (2013) Schedule B(3) Hardness parameters are calculated based on APHA 2340 B. This method is compliant with NEPM (2013) Schedule B(3)
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45um filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.



Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) Samples are 0.45µm filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Ammonia as N by Discrete analyser	EK055G	WATER	In house: Referenced to APHA 4500-NH ₃ G Ammonia is determined by direct colorimetry by Discrete Analyser. This method is compliant with NEPM (2013) Schedule B(3)
Nitrite as N by Discrete Analyser	EK057G	WATER	In house: Referenced to APHA 4500-NO ₂ - B. Nitrite is determined by direct colourimetry by Discrete Analyser. This method is compliant with NEPM (2013) Schedule B(3)
Nitrate as N by Discrete Analyser	EK058G	WATER	In house: Referenced to APHA 4500-NO ₃ - F. Nitrate is reduced to nitrite by way of a chemical reduction followed by quantification by Discrete Analyser. Nitrite is determined separately by direct colourimetry and result for Nitrate calculated as the difference between the two results. This method is compliant with NEPM (2013) Schedule B(3)
Nitrite and Nitrate as N (NO _x) by Discrete Analyser	EK059G	WATER	In house: Referenced to APHA 4500-NO ₃ - F. Combined oxidised Nitrogen (NO ₂ +NO ₃) is determined by Chemical Reduction and direct colourimetry by Discrete Analyser. This method is compliant with NEPM (2013) Schedule B(3)
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	WATER	In house: Referenced to APHA 4500-Norg D (In house). An aliquot of sample is digested using a high temperature Kjeldahl digestion to convert nitrogenous compounds to ammonia. Ammonia is determined colorimetrically by discrete analyser. This method is compliant with NEPM (2013) Schedule B(3)
Total Nitrogen as N (TKN + Nox) By Discrete Analyser	EK062G	WATER	In house: Referenced to APHA 4500-Norg / 4500-NO ₃ -. This method is compliant with NEPM (2013) Schedule B(3)
Total Phosphorus as P By Discrete Analyser	EK067G	WATER	In house: Referenced to APHA 4500-P H, Jirka et al (1976), Zhang et al (2006). This procedure involves sulphuric acid digestion of a sample aliquot to break phosphorus down to orthophosphate. The orthophosphate reacts with ammonium molybdate and antimony potassium tartrate to form a complex which is then reduced and its concentration measured at 880nm using discrete analyser. This method is compliant with NEPM (2013) Schedule B(3)
Ionic Balance by PCT DA and Turbi SO ₄ DA	EN055 - PG	WATER	In house: Referenced to APHA 1030F. This method is compliant with NEPM (2013) Schedule B(3)
Total Organic Carbon	EP005	WATER	In house: Referenced to APHA 5310 B, The automated TOC analyzer determines Total and Inorganic Carbon by IR cell. TOC is calculated as the difference. This method is compliant with NEPM (2013) Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	WATER	In house: Referenced to USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Pesticides by GCMS	EP068	WATER	In house: Referenced to USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)



Analytical Methods	Method	Matrix	Method Descriptions
Volatile Organic Compounds	EP074	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Semivolatile Organic Compounds	EP075	WATER	In house: Referenced to USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In house: Direct injection analysis of fresh waters after dilution (1:1) with methanol. Analysis by LC-Electrospray-MS-MS, Negative Mode using MRM. Where commercially available, isotopically labelled analogues of the target analytes are used as internal standards for quantification. Where a labelled analogue is not commercially available, the internal standard with similar chemistry and the closest retention time to the target is used for quantification. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. This method complies with the quality control definitions as stated in QSM 5.1. Data is reviewed in line with the DQOs as stated in QSM5.1
Sulphate Reducing Bacteria (BART)	MM669	WATER	Specialist microbiological analysis subcontracted to ALS Scoresby (NATA accreditation does not cover this service).
Preparation Methods	Method	Matrix	Method Descriptions
TKN/TP Digestion	EK061/EK067	WATER	In house: Referenced to APHA 4500 Norg - D; APHA 4500 P - H. This method is compliant with NEPM (2013) Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

CERTIFICATE OF ANALYSIS

Work Order : **EM1811589**
Client : **GHD PTY LTD**
Contact : **KORY AUCH**
Address : **LEVEL 8, 180 LONSDALE ST**
MELBOURNE VIC, AUSTRALIA 3001
Telephone : **----**
Project : **31350060910**
Order number : **----**
C-O-C number : **----**
Sampler : **KORY AUCH**
Site : **North East Link**
Quote number : **ME/124/18 - North East Link**
No. of samples received : **2**
No. of samples analysed : **2**

Page : 1 of 5
Laboratory : Environmental Division Melbourne
Contact : Shirley LeCornu
Address : 4 Westall Rd Springvale VIC Australia 3171
Telephone : +61-3-8549 9630
Date Samples Received : 20-Jul-2018 11:25
Date Analysis Commenced : 27-Jul-2018
Issue Date : 30-Jul-2018 11:22



Accreditation No. 825
 Accredited for compliance with
 ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories

Position

Accreditation Category

Franco Lentini

Sydney Organics, Smithfield, NSW



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Client sample ID

				NEL-ENV-BH009_1907 2018	NEL-ENV-BH024_1907 2018	----	----	----
Client sampling date / time				19-Jul-2018 12:45	19-Jul-2018 15:20	----	----	----
Compound	CAS Number	LOR	Unit	EM1811589-001	EM1811589-002	-----	-----	-----
				Result	Result	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.002	µg/L	0.074	<0.002	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.002	µg/L	0.044	<0.002	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.002	µg/L	0.378	0.004	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.002	µg/L	0.018	<0.002	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.002	µg/L	0.150	0.003	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.002	µg/L	<0.002	<0.002	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.01	µg/L	0.11	<0.01	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.002	µg/L	0.400	<0.002	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.002	µg/L	0.440	<0.002	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.002	µg/L	0.112	<0.002	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.002	µg/L	0.080	<0.002	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.002	µg/L	0.004	<0.002	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.002	µg/L	<0.002	<0.002	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.002	µg/L	<0.002	<0.002	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.002	µg/L	<0.002	<0.002	----	----	----
Perfluorotridecanoic acid (PFTTrDA)	72629-94-8	0.002	µg/L	<0.002	<0.002	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.005	µg/L	<0.005	<0.005	----	----	----
Perfluorohexadecanoic acid (PFHxDA)	67905-19-5	0.005	µg/L	<0.005	<0.005	----	----	----
EP231C: Perfluoroalkyl Sulfonamides								
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.002	µg/L	<0.002	<0.002	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.005	µg/L	<0.005	<0.005	----	----	----



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Client sample ID

				NEL-ENV-BH009_1907 2018	NEL-ENV-BH024_1907 2018	----	----	----
Client sampling date / time				19-Jul-2018 12:45	19-Jul-2018 15:20	----	----	----
Compound	CAS Number	LOR	Unit	EM1811589-001	EM1811589-002	-----	-----	-----
				Result	Result	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued								
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.005	µg/L	<0.005	<0.005	----	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.005	µg/L	<0.005	<0.005	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.005	µg/L	<0.005	<0.005	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.002	µg/L	<0.002	<0.002	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.002	µg/L	<0.002	<0.002	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.005	µg/L	<0.005	<0.005	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.005	µg/L	0.016	0.007	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.005	µg/L	<0.005	<0.005	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.005	µg/L	<0.005	<0.005	----	----	----
EP231P: PFAS Sums								
Sum of PFAS	----	0.002	µg/L	1.83	0.014	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.002	µg/L	0.528	0.007	----	----	----
Sum of PFAS (WA DER List)	----	0.002	µg/L	1.76	0.014	----	----	----
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.002	%	69.4	73.7	----	----	----
13C8-PFOA	----	0.002	%	88.1	87.0	----	----	----



Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

GHD



GHD Melbourne
180 Lonsdale Street, Melbourne 3000
Telephone: 613 8667 8000 Facsimile: 613 8667 8111

Page 1 of 1

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SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : EM1811589

Client	: GHD PTY LTD	Laboratory	: Environmental Division Melbourne
Contact	: KORY AUCH	Contact	: Shirley LeCornu
Address	: LEVEL 8, 180 LONSDALE ST MELBOURNE VIC, AUSTRALIA 3001	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: kory.auch@ghd.com	E-mail	: shirley.lecornu@Alsglobal.com
Telephone	: ----	Telephone	: +61-3-8549 9630
Facsimile	: ----	Facsimile	: +61-3-8549 9626
Project	: 31350060910	Page	: 1 of 2
Order number	:	Quote number	: EM2018GHDSE0003 (ME/124/18 - North East Link)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: North East Link		
Sampler	: KORY AUCH		

Dates

Date Samples Received	: 20-Jul-2018 11:25	Issue Date	: 20-Jul-2018
Client Requested Due Date	: 27-Jul-2018	Scheduled Reporting Date	: 30-Jul-2018

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 1	Temperature	: 1.2°C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 2 / 2

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- **The scheduled reporting date has been extended due to analytical testing conducted by ALS interstate laboratories. Please refer to your quotation for further information.**
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **Analytical work for this work order will be conducted at ALS Sydney.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

EM1811589-002 : 19-Jul-2018 15:20 : NEL-ENV-BH024_19072018

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Laboratory sample ID	Client sampling date / time	Client sample ID	Water PFAS -
EM1811589-001	19-Jul-2018 12:45	NEL-ENV-BH009_190720...	✓
EM1811589-002	19-Jul-2018 15:20	NEL-ENV-BH024_190720...	✓

Sample(s) have been received within the recommended holding times for the requested analysis.

Email ap-fss@ghd.com

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QUALITY CONTROL REPORT

Work Order	: EM1811589	Page	: 1 of 7
Client	: GHD PTY LTD	Laboratory	: Environmental Division Melbourne
Contact	: KORY AUCH	Contact	: Shirley LeCornu
Address	: LEVEL 8, 180 LONSDALE ST MELBOURNE VIC, AUSTRALIA 3001	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +61-3-8549 9630
Project	: 31350060910	Date Samples Received	: 20-Jul-2018
Order number	:	Date Analysis Commenced	: 27-Jul-2018
C-O-C number	: ----	Issue Date	: 30-Jul-2018
Sampler	: KORY AUCH		
Site	: North East Link		
Quote number	: ME/124/18 - North East Link		
No. of samples received	: 2		
No. of samples analysed	: 2		



This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Franco Lentini		Sydney Organics, Smithfield, NSW

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
= Indicates failed QC

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 1833139)									
EM1811589-001	NEL-ENV-BH009_19072018	EP231X-LL: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.002	µg/L	0.074	0.075	0.00	0% - 20%
		EP231X-LL: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.002	µg/L	0.044	0.045	2.25	0% - 20%
		EP231X-LL: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.002	µg/L	0.378	0.391	3.38	0% - 20%
		EP231X-LL: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.002	µg/L	0.018	0.017	0.00	No Limit
		EP231X-LL: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.002	µg/L	0.150	0.155	3.47	0% - 20%
		EP231X-LL: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.002	µg/L	<0.002	<0.002	0.00	No Limit
EP1808701-010	Anonymous	EP231X-LL: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.002	µg/L	<0.002	<0.002	0.00	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 1833139)									



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 1833139) - continued									
EM1811589-001	NEL-ENV-BH009_19072018	EP231X-LL: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.002	µg/L	0.400	0.415	3.71	0% - 20%
		EP231X-LL: Perfluorohexanoic acid (PFHxA)	307-24-4	0.002	µg/L	0.440	0.451	2.47	0% - 20%
		EP231X-LL: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.002	µg/L	0.112	0.119	5.36	0% - 20%
		EP231X-LL: Perfluorooctanoic acid (PFOA)	335-67-1	0.002	µg/L	0.080	0.079	0.00	0% - 20%
		EP231X-LL: Perfluorononanoic acid (PFNA)	375-95-1	0.002	µg/L	0.004	0.005	0.00	No Limit
		EP231X-LL: Perfluorodecanoic acid (PFDA)	335-76-2	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.005	µg/L	<0.005	<0.005	0.00	No Limit
EP1808701-010	Anonymous	EP231X-LL: Perfluorobutanoic acid (PFBA)	375-22-4	0.01	µg/L	0.11	0.13	16.6	0% - 50%
		EP231X-LL: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorohexanoic acid (PFHxA)	307-24-4	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorooctanoic acid (PFOA)	335-67-1	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorononanoic acid (PFNA)	375-95-1	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorodecanoic acid (PFDA)	335-76-2	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.002	µg/L	<0.002	<0.002	0.00	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 1833139)	NEL-ENV-BH009_19072018	EP231X-LL: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.002	µg/L	<0.002	<0.002	0.00	No Limit



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 1833139) - continued									
EP1808701-010	Anonymous	EP231X-LL: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.005	µg/L	<0.005	<0.005	0.00	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 1833139)									
EM1811589-001	NEL-ENV-BH009_19072018	EP231X-LL: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.005	µg/L	0.016	0.017	6.06	No Limit
		EP231X-LL: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.005	µg/L	<0.005	<0.005	0.00	No Limit
EP1808701-010	Anonymous	EP231X-LL: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.005	µg/L	<0.005	<0.005	0.00	No Limit



Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 1833139)								
EP231X-LL: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.002	µg/L	<0.002	0.05 µg/L	106	50	130
EP231X-LL: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.002	µg/L	<0.002	0.05 µg/L	105	50	130
EP231X-LL: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.002	µg/L	<0.002	0.05 µg/L	104	50	130
EP231X-LL: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.002	µg/L	<0.002	0.05 µg/L	106	50	130
EP231X-LL: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.002	µg/L	<0.002	0.05 µg/L	92.6	50	130
EP231X-LL: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.002	µg/L	<0.002	0.05 µg/L	62.0	40	130
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 1833139)								
EP231X-LL: Perfluorobutanoic acid (PFBA)	375-22-4	0.01	µg/L	<0.01	0.25 µg/L	86.4	50	130
EP231X-LL: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.002	µg/L	<0.002	0.05 µg/L	101	50	130
EP231X-LL: Perfluorohexanoic acid (PFHxA)	307-24-4	0.002	µg/L	<0.002	0.05 µg/L	116	50	130
EP231X-LL: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.002	µg/L	<0.002	0.05 µg/L	117	50	130
EP231X-LL: Perfluorooctanoic acid (PFOA)	335-67-1	0.002	µg/L	<0.002	0.05 µg/L	112	50	130
EP231X-LL: Perfluorononanoic acid (PFNA)	375-95-1	0.002	µg/L	<0.002	0.05 µg/L	97.0	50	130
EP231X-LL: Perfluorodecanoic acid (PFDA)	335-76-2	0.002	µg/L	<0.002	0.05 µg/L	83.2	50	130
EP231X-LL: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.002	µg/L	<0.002	0.05 µg/L	80.8	40	130
EP231X-LL: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.002	µg/L	<0.002	0.05 µg/L	66.0	40	130
EP231X-LL: Perfluorotridecanoic acid (PFTTrDA)	72629-94-8	0.002	µg/L	<0.002	0.05 µg/L	68.0	40	130
EP231X-LL: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.005	µg/L	<0.005	0.125 µg/L	92.4	40	130
EP231X-LL: Perfluorohexadecanoic acid (PFHxDA)	67905-19-5	----	µg/L	----	0.05 µg/L	103	50	130
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 1833139)								
EP231X-LL: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.002	µg/L	<0.002	0.05 µg/L	73.2	40	130
EP231X-LL: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.005	µg/L	<0.005	0.125 µg/L	66.6	40	130
EP231X-LL: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.005	µg/L	<0.005	0.125 µg/L	64.1	40	130
EP231X-LL: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.005	µg/L	<0.005	0.125 µg/L	61.8	50	130
EP231X-LL: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.005	µg/L	<0.005	0.125 µg/L	65.1	40	130
EP231X-LL: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.002	µg/L	<0.002	0.05 µg/L	51.4	50	130
EP231X-LL: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.002	µg/L	<0.002	0.05 µg/L	53.8	40	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 1833139)								
EP231X-LL: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.005	µg/L	<0.005	0.05 µg/L	118	50	130



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) LowHigh	
Method: Compound	CAS Number	LOR	Unit	Result				
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 1833139) - continued								
EP231X-LL: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.005	µg/L	<0.005	0.05 µg/L	118	50	130
EP231X-LL: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.005	µg/L	<0.005	0.05 µg/L	109	50	130
EP231X-LL: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.005	µg/L	<0.005	0.05 µg/L	79.4	50	130

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Sub-Matrix: WATER				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 1833139)							
EM1811589-002	NEL-ENV-BH024_19072018	EP231X-LL: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.05 µg/L	119	50	130
		EP231X-LL: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.05 µg/L	117	50	130
		EP231X-LL: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.05 µg/L	109	50	130
		EP231X-LL: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.05 µg/L	107	50	130
		EP231X-LL: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.05 µg/L	94.6	50	130
		EP231X-LL: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.05 µg/L	63.4	30	130
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 1833139)							
EM1811589-002	NEL-ENV-BH024_19072018	EP231X-LL: Perfluorobutanoic acid (PFBA)	375-22-4	0.25 µg/L	46.8	30	130
		EP231X-LL: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.05 µg/L	122	50	130
		EP231X-LL: Perfluorohexanoic acid (PFHxA)	307-24-4	0.05 µg/L	120	50	130
		EP231X-LL: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.05 µg/L	114	50	130
		EP231X-LL: Perfluorooctanoic acid (PFOA)	335-67-1	0.05 µg/L	115	50	130
		EP231X-LL: Perfluorononanoic acid (PFNA)	375-95-1	0.05 µg/L	116	50	130
		EP231X-LL: Perfluorodecanoic acid (PFDA)	335-76-2	0.05 µg/L	92.2	50	130
		EP231X-LL: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.05 µg/L	111	30	130
		EP231X-LL: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.05 µg/L	68.0	30	130
		EP231X-LL: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.05 µg/L	51.8	30	130
		EP231X-LL: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.125 µg/L	74.7	30	130
		EP231X-LL: Perfluorohexadecanoic acid (PFHxDA)	67905-19-5	0.05 µg/L	86.4	30	130
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 1833139)							
EM1811589-002	NEL-ENV-BH024_19072018	EP231X-LL: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.05 µg/L	78.6	30	130
		EP231X-LL: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.125 µg/L	63.8	30	130
		EP231X-LL: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.125 µg/L	50.3	30	130



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 1833139) - continued							
EM1811589-002	NEL-ENV-BH024_19072018	EP231X-LL: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.125 µg/L	55.1	30	130
		EP231X-LL: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.125 µg/L	55.0	30	130
		EP231X-LL: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.05 µg/L	55.6	30	130
		EP231X-LL: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.05 µg/L	52.4	30	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 1833139)							
EM1811589-002	NEL-ENV-BH024_19072018	EP231X-LL: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05 µg/L	122	50	130
		EP231X-LL: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05 µg/L	118	50	130
		EP231X-LL: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05 µg/L	120	50	130
		EP231X-LL: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05 µg/L	102	50	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order : **EM1811589**

Page : 1 of 4

Client : **GHD PTY LTD**
Contact : **KORY AUCH**
Project : **31350060910**
Site : **North East Link**
Sampler : **KORY AUCH**
Order number :

Laboratory : **Environmental Division Melbourne**
Telephone : **+61-3-8549 9630**
Date Samples Received : **20-Jul-2018**
Issue Date : **30-Jul-2018**
No. of samples received : **2**
No. of samples analysed : **2**

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**



Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method		Sample Date	Extraction / Preparation			Analysis			
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP231A: Perfluoroalkyl Sulfonic Acids									
HDPE (no PTFE) (EP231X-LL) NEL-ENV-BH009_19072018,		NEL-ENV-BH024_19072018	19-Jul-2018	27-Jul-2018	15-Jan-2019	✓	27-Jul-2018	15-Jan-2019	✓
EP231B: Perfluoroalkyl Carboxylic Acids									
HDPE (no PTFE) (EP231X-LL) NEL-ENV-BH009_19072018,		NEL-ENV-BH024_19072018	19-Jul-2018	27-Jul-2018	15-Jan-2019	✓	27-Jul-2018	15-Jan-2019	✓
EP231C: Perfluoroalkyl Sulfonamides									
HDPE (no PTFE) (EP231X-LL) NEL-ENV-BH009_19072018,		NEL-ENV-BH024_19072018	19-Jul-2018	27-Jul-2018	15-Jan-2019	✓	27-Jul-2018	15-Jan-2019	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
HDPE (no PTFE) (EP231X-LL) NEL-ENV-BH009_19072018,		NEL-ENV-BH024_19072018	19-Jul-2018	27-Jul-2018	15-Jan-2019	✓	27-Jul-2018	15-Jan-2019	✓
EP231P: PFAS Sums									
HDPE (no PTFE) (EP231X-LL) NEL-ENV-BH009_19072018,		NEL-ENV-BH024_19072018	19-Jul-2018	27-Jul-2018	15-Jan-2019	✓	27-Jul-2018	15-Jan-2019	✓



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS by LCMSMS	EP231X-LL	2	16	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS by LCMSMS	EP231X-LL	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS by LCMSMS	EP231X-LL	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS by LCMSMS	EP231X-LL	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS by LCMSMS)	EP231X-LL	WATER	In-house: Analysis of fresh and saline waters by solid phase extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM. Where commercially available, isotopically labelled analogues of the target analytes are used as internal standards for quantification. Where a labelled analogue is not commercially available, the internal standard with similar chemistry and the closest retention time to the target is used for quantification. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. This method complies with the quality control definitions as stated in QSM 5.1. Data is reviewed in line with the DQOs as stated in QSM5.1
Preparation Methods	Method	Matrix	Method Descriptions
SPE preparation for LL and saline PFCs	EP231-SPE	WATER	In house

Certificate of Analysis

GHD Melbourne
 Level 8, 180 Lonsdale St
 Melbourne
 VIC 3000



NATA Accredited
 Accreditation Number 1261
 Site Number 1254

Accredited for compliance with ISO/IEC 17025 – Testing
 The results of the tests, calibrations and/or
 measurements included in this document are traceable
 to Australian/national standards.

Attention: **Matthew Moore**

Report **609535-W**
 Project name BULLEN VIC 3105
 Project ID 31/35006/0813
 Received Date Jul 26, 2018

Client Sample ID			NEL-BH067/260718	NEL-BH068/260718	NEL-BH151/260718
Sample Matrix			Water	Water	Water
Eurofins mgt Sample No.			M18-JI30257	M18-JI30258	M18-JI30259
Date Sampled			Jul 26, 2018	Jul 26, 2018	Jul 26, 2018
Test/Reference	LOR	Unit			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions					
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05	< 0.05	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1	< 0.1	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1	< 0.1
TRH C10-36 (Total)	0.1	mg/L	< 0.1	< 0.1	< 0.1
BTEX					
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Xylenes - Total	0.003	mg/L	< 0.003	< 0.003	< 0.003
4-Bromofluorobenzene (surr.)	1	%	106	104	103
Volatile Organics					
1.1-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001
1.1-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001
1.1.1-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001
1.1.1.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001
1.1.2-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001
1.1.2.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001
1.2-Dibromoethane	0.001	mg/L	< 0.001	< 0.001	< 0.001
1.2-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001
1.2-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001
1.2-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001
1.2.3-Trichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001
1.2.4-Trimethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001
1.3-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001
1.3-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001
1.3.5-Trimethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001
1.4-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001
2-Butanone (MEK)	0.001	mg/L	< 0.001	< 0.001	< 0.001
2-Propanone (Acetone)	0.001	mg/L	< 0.001	< 0.001	0.016
4-Chlorotoluene	0.001	mg/L	< 0.001	< 0.001	< 0.001
4-Methyl-2-pentanone (MIBK)	0.001	mg/L	< 0.001	< 0.001	< 0.001
Allyl chloride	0.001	mg/L	< 0.001	< 0.001	< 0.001

Client Sample ID			NEL-BH067/260718 Water M18-JI30257 Jul 26, 2018	NEL-BH068/260718 Water M18-JI30258 Jul 26, 2018	NEL-BH151/260718 Water M18-JI30259 Jul 26, 2018
Sample Matrix					
Eurofins mgt Sample No.					
Date Sampled					
Test/Reference	LOR	Unit			
Volatile Organics					
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Bromobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Bromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001
Bromodichloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001
Bromoform	0.001	mg/L	< 0.001	< 0.001	< 0.001
Bromomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001
Carbon disulfide	0.001	mg/L	< 0.001	< 0.001	< 0.001
Carbon Tetrachloride	0.001	mg/L	< 0.001	< 0.001	< 0.001
Chlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Chloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001
Chloroform	0.005	mg/L	< 0.005	< 0.005	< 0.005
Chloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001
cis-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001
cis-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Dibromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001
Dibromomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001
Dichlorodifluoromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Iodomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001
Isopropyl benzene (Cumene)	0.001	mg/L	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002
Methylene Chloride	0.001	mg/L	< 0.001	< 0.001	< 0.001
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Styrene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Tetrachloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001
trans-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001
trans-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Trichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Trichlorofluoromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001
Vinyl chloride	0.001	mg/L	< 0.001	< 0.001	< 0.001
Xylenes - Total	0.003	mg/L	< 0.003	< 0.003	< 0.003
Total MAH*	0.003	mg/L	< 0.003	< 0.003	< 0.003
Vic EPA IWRG 621 CHC (Total)*	0.005	mg/L	< 0.005	< 0.005	< 0.005
Vic EPA IWRG 621 Other CHC (Total)*	0.005	mg/L	< 0.005	< 0.005	< 0.005
4-Bromofluorobenzene (surr.)	1	%	106	104	103
Toluene-d8 (surr.)	1	%	98	84	96
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					
Naphthalene ^{N02}	0.01	mg/L	< 0.01	< 0.01	< 0.01
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02	< 0.02
TRH C6-C10 less BTEX (F1) ^{N04}	0.02	mg/L	< 0.02	< 0.02	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05	< 0.05	< 0.05
TRH >C10-C16 less Naphthalene (F2) ^{N01}	0.05	mg/L	< 0.05	< 0.05	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1	< 0.1	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	< 0.1

Client Sample ID			NEL-BH067/260718 Water M18-JI30257 Jul 26, 2018	NEL-BH068/260718 Water M18-JI30258 Jul 26, 2018	NEL-BH151/260718 Water M18-JI30259 Jul 26, 2018
Sample Matrix					
Eurofins mgt Sample No.					
Date Sampled					
Test/Reference	LOR	Unit			
Polycyclic Aromatic Hydrocarbons					
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene ^{N07}	0.001	mg/L	< 0.001	< 0.001	< 0.001
Benzo(g,h,i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Dibenz(a,h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001
2-Fluorobiphenyl (surr.)	1	%	60	80	65
p-Terphenyl-d14 (surr.)	1	%	53	101	52
Organochlorine Pesticides					
Chlordanes - Total	0.001	mg/L	< 0.001	< 0.001	< 0.001
4,4'-DDD	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001
4,4'-DDE	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001
4,4'-DDT	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001
a-BHC	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001
Aldrin	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001
b-BHC	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001
d-BHC	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001
Dieldrin	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001
Endosulfan I	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001
Endosulfan II	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001
Endosulfan sulphate	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001
Endrin	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001
Endrin aldehyde	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001
Endrin ketone	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001
g-BHC (Lindane)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001
Heptachlor	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001
Heptachlor epoxide	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001
Hexachlorobenzene	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001
Methoxychlor	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001
Toxaphene	0.01	mg/L	< 0.01	< 0.01	< 0.01
Aldrin and Dieldrin (Total)*	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001
DDT + DDE + DDD (Total)*	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001
Vic EPA IWRG 621 OCP (Total)*	0.001	mg/L	< 0.001	< 0.001	< 0.001
Vic EPA IWRG 621 Other OCP (Total)*	0.001	mg/L	< 0.001	< 0.001	< 0.001
Dibutylchloroendate (surr.)	1	%	68	58	51
Tetrachloro-m-xylene (surr.)	1	%	79	94	85

Client Sample ID			NEL-BH067/260718 Water M18-JI30257 Jul 26, 2018	NEL-BH068/260718 Water M18-JI30258 Jul 26, 2018	NEL-BH151/260718 Water M18-JI30259 Jul 26, 2018
Sample Matrix					
Eurofins mgt Sample No.					
Date Sampled					
Test/Reference	LOR	Unit			
Organophosphorus Pesticides					
Azinphos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002
Bolstar	0.002	mg/L	< 0.002	< 0.002	< 0.002
Chlorfenvinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002
Chlorpyrifos	0.02	mg/L	< 0.02	< 0.02	< 0.02
Chlorpyrifos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002
Coumaphos	0.02	mg/L	< 0.02	< 0.02	< 0.02
Demeton-S	0.02	mg/L	< 0.02	< 0.02	< 0.02
Demeton-O	0.002	mg/L	< 0.002	< 0.002	< 0.002
Diazinon	0.002	mg/L	< 0.002	< 0.002	< 0.002
Dichlorvos	0.002	mg/L	< 0.002	< 0.002	< 0.002
Dimethoate	0.002	mg/L	< 0.002	< 0.002	< 0.002
Disulfoton	0.002	mg/L	< 0.002	< 0.002	< 0.002
EPN	0.002	mg/L	< 0.002	< 0.002	< 0.002
Ethion	0.002	mg/L	< 0.002	< 0.002	< 0.002
Ethoprop	0.002	mg/L	< 0.002	< 0.002	< 0.002
Ethyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002
Fenitrothion	0.002	mg/L	< 0.002	< 0.002	< 0.002
Fensulfothion	0.002	mg/L	< 0.002	< 0.002	< 0.002
Fenthion	0.002	mg/L	< 0.002	< 0.002	< 0.002
Malathion	0.002	mg/L	< 0.002	< 0.002	< 0.002
Merphos	0.002	mg/L	< 0.002	< 0.002	< 0.002
Methyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002
Mevinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002
Monocrotophos	0.002	mg/L	< 0.002	< 0.002	< 0.002
Naled	0.002	mg/L	< 0.002	< 0.002	< 0.002
Omethoate	0.002	mg/L	< 0.002	< 0.002	< 0.002
Phorate	0.002	mg/L	< 0.002	< 0.002	< 0.002
Pirimiphos-methyl	0.02	mg/L	< 0.02	< 0.02	< 0.02
Pyrazophos	0.002	mg/L	< 0.002	< 0.002	< 0.002
Ronnel	0.002	mg/L	< 0.002	< 0.002	< 0.002
Terbufos	0.002	mg/L	< 0.002	< 0.002	< 0.002
Tetrachlorvinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002
Tokuthion	0.002	mg/L	< 0.002	< 0.002	< 0.002
Trichloronate	0.002	mg/L	< 0.002	< 0.002	< 0.002
Triphenylphosphate (surr.)	1	%	83	106	94
Polychlorinated Biphenyls					
Aroclor-1016	0.001	mg/L	< 0.001	< 0.001	< 0.001
Aroclor-1221	0.001	mg/L	< 0.001	< 0.001	< 0.001
Aroclor-1232	0.001	mg/L	< 0.001	< 0.001	< 0.001
Aroclor-1242	0.001	mg/L	< 0.001	< 0.001	< 0.001
Aroclor-1248	0.001	mg/L	< 0.001	< 0.001	< 0.001
Aroclor-1254	0.001	mg/L	< 0.001	< 0.001	< 0.001
Aroclor-1260	0.001	mg/L	< 0.001	< 0.001	< 0.001
Total PCB*	0.001	mg/L	< 0.001	< 0.001	< 0.001
Dibutylchlorendate (surr.)	1	%	68	58	51
Tetrachloro-m-xylene (surr.)	1	%	79	94	85

Client Sample ID			NEL-BH067/260718 Water M18-JI30257 Jul 26, 2018	NEL-BH068/260718 Water M18-JI30258 Jul 26, 2018	NEL-BH151/260718 Water M18-JI30259 Jul 26, 2018
Sample Matrix					
Eurofins mgt Sample No.					
Date Sampled					
Test/Reference	LOR	Unit			
Phenols (Halogenated)					
2-Chlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003
2,4-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003
2,4,5-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01
2,4,6-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01
2,6-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003
4-Chloro-3-methylphenol	0.01	mg/L	< 0.01	< 0.01	< 0.01
Pentachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01
Tetrachlorophenols - Total	0.03	mg/L	< 0.03	< 0.03	< 0.03
Total Halogenated Phenol*	0.01	mg/L	< 0.01	< 0.01	< 0.01
Phenols (non-Halogenated)					
2-Cyclohexyl-4,6-dinitrophenol	0.1	mg/L	< 0.1	< 0.1	< 0.1
2-Methyl-4,6-dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03
2-Methylphenol (o-Cresol)	0.003	mg/L	< 0.003	< 0.003	< 0.003
2-Nitrophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01
2,4-Dimethylphenol	0.003	mg/L	< 0.003	< 0.003	< 0.003
2,4-Dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	< 0.006	< 0.006	< 0.006
4-Nitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03
Dinoseb	0.1	mg/L	< 0.1	< 0.1	< 0.1
Phenol	0.003	mg/L	< 0.003	< 0.003	< 0.003
Total Non-Halogenated Phenol*	0.1	mg/L	< 0.1	< 0.1	< 0.1
Phenol-d6 (surr.)	1	%	46	55	47
Semivolatile Organics					
2-Methyl-4,6-dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03
1-Chloronaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005
1-Naphthylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005
1,2-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005
1,2,3-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005
1,2,3,4-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005
1,2,3,5-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005
1,2,4-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005
1,2,4,5-Tetrachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005
1,3-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005
1,3,5-Trichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005
1,4-Dichlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005
2-Chloronaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005
2-Chlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003
2-Methylnaphthalene	0.005	mg/L	< 0.005	< 0.005	< 0.005
2-Methylphenol (o-Cresol)	0.003	mg/L	< 0.003	< 0.003	< 0.003
2-Naphthylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005
2-Nitroaniline	0.005	mg/L	< 0.005	< 0.005	< 0.005
2-Nitrophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01
2-Picoline	0.005	mg/L	< 0.005	< 0.005	< 0.005
2,3,4,6-Tetrachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01
2,4-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003
2,4-Dimethylphenol	0.003	mg/L	< 0.003	< 0.003	< 0.003
2,4-Dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03
2,4-Dinitrotoluene	0.005	mg/L	< 0.005	< 0.005	< 0.005
2,4,5-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01

Client Sample ID			NEL-BH067/260718 Water M18-JI30257 Jul 26, 2018	NEL-BH068/260718 Water M18-JI30258 Jul 26, 2018	NEL-BH151/260718 Water M18-JI30259 Jul 26, 2018
Sample Matrix					
Eurofins mgt Sample No.					
Date Sampled					
Test/Reference	LOR	Unit			
Semivolatile Organics					
2,4,6-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01
2,6-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003
2,6-Dinitrotoluene	0.005	mg/L	< 0.005	< 0.005	< 0.005
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	< 0.006	< 0.006	< 0.006
3-Methylcholanthrene	0.005	mg/L	< 0.005	< 0.005	< 0.005
3,3'-Dichlorobenzidine	0.005	mg/L	< 0.005	< 0.005	< 0.005
4-Aminobiphenyl	0.005	mg/L	< 0.005	< 0.005	< 0.005
4-Bromophenyl phenyl ether	0.005	mg/L	< 0.005	< 0.005	< 0.005
4-Chloro-3-methylphenol	0.01	mg/L	< 0.01	< 0.01	< 0.01
4-Chlorophenyl phenyl ether	0.005	mg/L	< 0.005	< 0.005	< 0.005
4-Nitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03
4,4'-DDD	0.005	mg/L	< 0.005	< 0.005	< 0.005
4,4'-DDE	0.005	mg/L	< 0.005	< 0.005	< 0.005
4,4'-DDT	0.005	mg/L	< 0.005	< 0.005	< 0.005
7,12-Dimethylbenz(a)anthracene	0.005	mg/L	< 0.005	< 0.005	< 0.005
a-BHC	0.005	mg/L	< 0.005	< 0.005	< 0.005
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Acetophenone	0.005	mg/L	< 0.005	< 0.005	< 0.005
Aldrin	0.005	mg/L	< 0.005	< 0.005	< 0.005
Aniline	0.005	mg/L	< 0.005	< 0.005	< 0.005
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001
b-BHC	0.005	mg/L	< 0.005	< 0.005	< 0.005
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene ^{N07}	0.001	mg/L	< 0.001	< 0.001	< 0.001
Benzo(g,h,i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Benzyl chloride	0.005	mg/L	< 0.005	< 0.005	< 0.005
Bis(2-chloroethoxy)methane	0.005	mg/L	< 0.005	< 0.005	< 0.005
Bis(2-chloroisopropyl)ether	0.005	mg/L	< 0.005	< 0.005	< 0.005
Bis(2-ethylhexyl)phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005
Butyl benzyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001
d-BHC	0.005	mg/L	< 0.005	< 0.005	< 0.005
Di-n-butyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005
Di-n-octyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005
Dibenz(a,h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Dibenz(a,j)acridine	0.005	mg/L	< 0.005	< 0.005	< 0.005
Dibenzofuran	0.005	mg/L	< 0.005	< 0.005	< 0.005
Dieldrin	0.005	mg/L	< 0.005	< 0.005	< 0.005
Diethyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005
Dimethyl phthalate	0.005	mg/L	< 0.005	< 0.005	< 0.005
Dimethylaminoazobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005
Diphenylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005
Endosulfan I	0.005	mg/L	< 0.005	< 0.005	< 0.005
Endosulfan II	0.005	mg/L	< 0.005	< 0.005	< 0.005
Endosulfan sulphate	0.005	mg/L	< 0.005	< 0.005	< 0.005
Endrin	0.005	mg/L	< 0.005	< 0.005	< 0.005

Client Sample ID			NEL-BH067/260718 Water M18-JI30257 Jul 26, 2018	NEL-BH068/260718 Water M18-JI30258 Jul 26, 2018	NEL-BH151/260718 Water M18-JI30259 Jul 26, 2018
Sample Matrix					
Eurofins mgt Sample No.					
Date Sampled					
Test/Reference	LOR	Unit			
Semivolatile Organics					
Endrin aldehyde	0.005	mg/L	< 0.005	< 0.005	< 0.005
Endrin ketone	0.005	mg/L	< 0.005	< 0.005	< 0.005
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001
g-BHC (Lindane)	0.005	mg/L	< 0.005	< 0.005	< 0.005
Heptachlor	0.005	mg/L	< 0.005	< 0.005	< 0.005
Heptachlor epoxide	0.005	mg/L	< 0.005	< 0.005	< 0.005
Hexachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005
Hexachlorobutadiene	0.005	mg/L	< 0.005	< 0.005	< 0.005
Hexachlorocyclopentadiene	0.005	mg/L	< 0.005	< 0.005	< 0.005
Hexachloroethane	0.005	mg/L	< 0.005	< 0.005	< 0.005
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Methoxychlor	0.005	mg/L	< 0.005	< 0.005	< 0.005
N-Nitrosodibutylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005
N-Nitrosodipropylamine	0.005	mg/L	< 0.005	< 0.005	< 0.005
N-Nitrosopiperidine	0.005	mg/L	< 0.005	< 0.005	< 0.005
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Nitrobenzene	0.05	mg/L	< 0.05	< 0.05	< 0.05
Pentachlorobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005
Pentachloronitrobenzene	0.005	mg/L	< 0.005	< 0.005	< 0.005
Pentachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Phenol	0.003	mg/L	< 0.003	< 0.003	< 0.003
Pronamide	0.005	mg/L	< 0.005	< 0.005	< 0.005
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Trifluralin	0.005	mg/L	< 0.005	< 0.005	< 0.005
Phenol-d6 (surr.)	1	%	46	55	47
Nitrobenzene-d5 (surr.)	1	%	57	56	89
2-Fluorobiphenyl (surr.)	1	%	60	80	65
2,4,6-Tribromophenol (surr.)	1	%	G09 _{int}	G09 _{int}	G09 _{int}
Ammonia (as N)	0.01	mg/L	2.2	1.1	1.1
Carbon Dioxide (free)	5	mg/L	120	24	99
Chloride	1	mg/L	930	170	850
Chromium (hexavalent)	0.001	mg/L	< 0.001	< 0.001	< 0.001
Conductivity (at 25°C)	1	uS/cm	3300	1500	2700
Nitrate & Nitrite (as N)	0.05	mg/L	< 0.05	< 0.05	< 0.05
Nitrate (as N)	0.02	mg/L	0.02	< 0.02	< 0.02
pH (at 25°C)	0.1	pH Units	6.3	7.6	6.5
Phosphate total (as P)	0.05	mg/L	0.55	0.21	0.20
Sulphate (as S)	5	mg/L	20	< 5	28
Total Dissolved Solids	10	mg/L	1900	820	1700
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	2.6	1.5	1.4
Total Nitrogen (as N)	0.2	mg/L	2.6	1.5	1.4
Total Organic Carbon	5	mg/L	G01< 25	20	16
Alkalinity (speciated)					
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	120	550	160
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	< 10	< 10
Hydroxide Alkalinity (as CaCO3)	20	mg/L	< 20	< 20	< 20
Total Alkalinity (as CaCO3)	20	mg/L	120	550	160

Client Sample ID			NEL-BH067/260718	NEL-BH068/260718	NEL-BH151/260718
Sample Matrix			Water	Water	Water
Eurofins mgt Sample No.			M18-JI30257	M18-JI30258	M18-JI30259
Date Sampled			Jul 26, 2018	Jul 26, 2018	Jul 26, 2018
Test/Reference	LOR	Unit			
Heavy Metals					
Arsenic (filtered)	0.001	mg/L	0.007	0.018	0.004
Beryllium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001
Boron (filtered)	0.05	mg/L	< 0.05	< 0.05	0.05
Cadmium (filtered)	0.0002	mg/L	0.0002	< 0.0002	< 0.0002
Cobalt (filtered)	0.001	mg/L	0.005	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	0.060	0.021	< 0.001
Lead (filtered)	0.001	mg/L	0.014	0.002	< 0.001
Manganese (filtered)	0.005	mg/L	2.5	0.11	2.5
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.013	0.019	0.016
Selenium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001
Zinc (filtered)	0.005	mg/L	0.24	0.023	0.013
Alkali Metals					
Calcium	0.5	mg/L	41	80	50
Magnesium	0.5	mg/L	69	110	85
Potassium	0.5	mg/L	6.7	6.2	7.7
Sodium	0.5	mg/L	410	59	370

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 - Method: LTM-ORG-2010 TRH C6-C36	Melbourne	Jul 27, 2018	7 Day
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: TRH C6-C40 - LTM-ORG-2010	Melbourne	Jul 27, 2018	7 Day
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: TRH C6-C40 - LTM-ORG-2010	Melbourne	Jul 27, 2018	7 Day
BTEX and Naphthalene			
BTEX - Method: TRH C6-C40 - LTM-ORG-2010	Melbourne	Jul 27, 2018	14 Day
Volatile Organics - Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices	Melbourne	Jul 27, 2018	7 Days
Polycyclic Aromatic Hydrocarbons - Method: LTM-ORG-2130 PAH and Phenols in Soil and Water	Melbourne	Jul 27, 2018	7 Day
Organochlorine Pesticides - Method: LTM-ORG-2220 OCP & PCB in Soil and Water	Melbourne	Jul 27, 2018	7 Day
Organophosphorus Pesticides - Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS	Melbourne	Jul 27, 2018	7 Day
Polychlorinated Biphenyls - Method: LTM-ORG-2220 OCP & PCB in Soil and Water	Melbourne	Jul 27, 2018	7 Days
Semivolatile Organics - Method: LTM-ORG-2190 SVOC in Water & Soil by GC-MS	Melbourne	Jul 27, 2018	7 Day
Carbon Dioxide (free) - Method: APHA 4500-CO2 C. Free Carbon Dioxide by Titration	Melbourne	Jul 27, 2018	24 Hours
Conductivity (at 25°C) - Method: LTM-INO-4030 Conductivity	Melbourne	Jul 27, 2018	28 Day
pH (at 25°C) - Method: LTM-GEN-7090 pH in water by ISE	Melbourne	Jul 27, 2018	0 Hours
Total Dissolved Solids - Method: LTM-INO-4170 Total Dissolved Solids in Water	Melbourne	Jul 27, 2018	7 Day
Total Organic Carbon - Method: APHA 5310B Total Organic Carbon	Melbourne	Jul 30, 2018	28 Day
Alkalinity (speciated) - Method: APHA 2320 Alkalinity by Titration	Melbourne	Jul 27, 2018	14 Day
Phenols (IWRG 621)			
Phenols (Halogenated) - Method: LTM-ORG-2130 PAH and Phenols in Soil and Water	Melbourne	Jul 27, 2018	7 Days
Phenols (non-Halogenated) - Method: LTM-ORG-2130 PAH and Phenols in Soil and Water	Melbourne	Jul 27, 2018	7 Day
Major Cations			
Ammonia (as N) - Method: APHA 4500-NH3 Ammonia Nitrogen by FIA	Melbourne	Jul 27, 2018	28 Day
Alkali Metals - Method: USEPA 6010 Alkali Metals	Melbourne	Jul 27, 2018	180 Day
Major Anions			
Chloride - Method: LTM-INO-4090 Chloride by Discrete Analyser	Melbourne	Jul 27, 2018	28 Day
Nitrate (as N) - Method: APHA 4500-NO3 Nitrate Nitrogen by FIA	Melbourne	Jul 27, 2018	28 Day
Sulphate (as S) - Method: LTM-INO-4110 Sulfate by Discrete Analyser	Melbourne	Jul 27, 2018	28 Day

Description	Testing Site	Extracted	Holding Time
Chromium (hexavalent) - Method: Cr (VI) by MGT 1170A	Melbourne	Jul 27, 2018	28 Day
Heavy Metals (filtered) - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Melbourne	Jul 27, 2018	180 Day
Mobil Metals : Metals M15 - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Melbourne	Jul 27, 2018	28 Day
Total Nitrogen Set (as N) Nitrate & Nitrite (as N) - Method: APHA 4500-NO3/NO2 Nitrate-Nitrite Nitrogen by FIA	Melbourne	Jul 27, 2018	28 Day
Total Kjeldahl Nitrogen (as N) - Method: LTM-INO-4310 TKN in Waters & Soils by FIA	Melbourne	Jul 27, 2018	7 Day
Eurofins mgt Suite B19A: Total N (TKN, NOx), Total P Phosphate total (as P) - Method: APHA 4500-P E. Phosphorous	Melbourne	Jul 27, 2018	28 Day

Company Name: GHD Pty Ltd VIC
Address: Level 8, 180 Lonsdale St
Melbourne
VIC 3000

Project Name: BULLEN VIC 3105
Project ID: 31/35006/0813

Order No.:
Report #: 609535
Phone: 8687 8000
Fax: 8687 8111

Received: Jul 26, 2018 3:56 PM
Due: Aug 2, 2018
Priority: 5 Day
Contact Name: Matthew Moore

Eurofins | mgt Analytical Services Manager : Natalie Krasselt

Sample Detail						Carbon Dioxide (free)	Conductivity (at 25°C)	pH (at 25°C)	Total Dissolved Solids	Total Organic Carbon	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Organophosphorus Pesticides	Polychlorinated Biphenyls	Alkalinity (speciated)	Phenols (IWRG 621)	Major Anions	Major Cations	NEPM 2013 Metals : Metals M13 filtered	BTEX and Naphthalene	Volatile Organics	Semivolatile Organics	Total Recoverable Hydrocarbons	Eurofins mgt Suite B19A: Total N (TKN, NOx), Total P
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217																								
Brisbane Laboratory - NATA Site # 20794																								
Perth Laboratory - NATA Site # 23736																								
External Laboratory																								
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID																			
1	NEL-BH067/260718	Jul 26, 2018		Water	M18-JI30257	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
2	NEL-BH068/260718	Jul 26, 2018		Water	M18-JI30258	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
3	NEL-BH151/260718	Jul 26, 2018		Water	M18-JI30259	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Test Counts						3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	Quality Systems Manual ver 5.1 US Department of Defense
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.1 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " - " in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/L	< 0.02			0.02	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	
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	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
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	
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	
α-BHC	mg/L	< 0.0001			0.0001	Pass	
Aldrin	mg/L	< 0.0001			0.0001	Pass	
β-BHC	mg/L	< 0.0001			0.0001	Pass	
δ-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	
γ-BHC (Lindane)	mg/L	< 0.0001			0.0001	Pass	
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							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
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							
Phenols (Halogenated)							
2-Chlorophenol	mg/L	< 0.003			0.003	Pass	
2,4-Dichlorophenol	mg/L	< 0.003			0.003	Pass	
2,4,5-Trichlorophenol	mg/L	< 0.01			0.01	Pass	
2,4,6-Trichlorophenol	mg/L	< 0.01			0.01	Pass	
2,6-Dichlorophenol	mg/L	< 0.003			0.003	Pass	
4-Chloro-3-methylphenol	mg/L	< 0.01			0.01	Pass	
Pentachlorophenol	mg/L	< 0.01			0.01	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Tetrachlorophenols - Total	mg/L	< 0.03			0.03	Pass	
Method Blank							
Phenols (non-Halogenated)							
2-Cyclohexyl-4,6-dinitrophenol	mg/L	< 0.1			0.1	Pass	
2-Methyl-4,6-dinitrophenol	mg/L	< 0.03			0.03	Pass	
2-Methylphenol (o-Cresol)	mg/L	< 0.003			0.003	Pass	
2-Nitrophenol	mg/L	< 0.01			0.01	Pass	
2,4-Dimethylphenol	mg/L	< 0.003			0.003	Pass	
2,4-Dinitrophenol	mg/L	< 0.03			0.03	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/L	< 0.006			0.006	Pass	
4-Nitrophenol	mg/L	< 0.03			0.03	Pass	
Dinoseb	mg/L	< 0.1			0.1	Pass	
Phenol	mg/L	< 0.003			0.003	Pass	
Method Blank							
Semivolatile Organics							
1-Chloronaphthalene	mg/L	< 0.005			0.005	Pass	
1-Naphthylamine	mg/L	< 0.005			0.005	Pass	
1,2-Dichlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,3-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,3,4-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,3,5-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,4-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1,2,4,5-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1,3-Dichlorobenzene	mg/L	< 0.005			0.005	Pass	
1,3,5-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1,4-Dichlorobenzene	mg/L	< 0.005			0.005	Pass	
2-Chloronaphthalene	mg/L	< 0.005			0.005	Pass	
2-Methylnaphthalene	mg/L	< 0.005			0.005	Pass	
2-Naphthylamine	mg/L	< 0.005			0.005	Pass	
2-Nitroaniline	mg/L	< 0.005			0.005	Pass	
2-Picoline	mg/L	< 0.005			0.005	Pass	
2,3,4,6-Tetrachlorophenol	mg/L	< 0.01			0.01	Pass	
2,4-Dinitrotoluene	mg/L	< 0.005			0.005	Pass	
2,6-Dinitrotoluene	mg/L	< 0.005			0.005	Pass	
3-Methylcholanthrene	mg/L	< 0.005			0.005	Pass	
3,3'-Dichlorobenzidine	mg/L	< 0.005			0.005	Pass	
4-Aminobiphenyl	mg/L	< 0.005			0.005	Pass	
4-Bromophenyl phenyl ether	mg/L	< 0.005			0.005	Pass	
4-Chlorophenyl phenyl ether	mg/L	< 0.005			0.005	Pass	
4,4'-DDD	mg/L	< 0.005			0.005	Pass	
4,4'-DDE	mg/L	< 0.005			0.005	Pass	
4,4'-DDT	mg/L	< 0.005			0.005	Pass	
7,12-Dimethylbenz(a)anthracene	mg/L	< 0.005			0.005	Pass	
a-BHC	mg/L	< 0.005			0.005	Pass	
Acetophenone	mg/L	< 0.005			0.005	Pass	
Aldrin	mg/L	< 0.005			0.005	Pass	
Aniline	mg/L	< 0.005			0.005	Pass	
b-BHC	mg/L	< 0.005			0.005	Pass	
Benzyl chloride	mg/L	< 0.005			0.005	Pass	
Bis(2-chloroethoxy)methane	mg/L	< 0.005			0.005	Pass	
Bis(2-chloroisopropyl)ether	mg/L	< 0.005			0.005	Pass	
Bis(2-ethylhexyl)phthalate	mg/L	< 0.005			0.005	Pass	
Butyl benzyl phthalate	mg/L	< 0.005			0.005	Pass	
d-BHC	mg/L	< 0.005			0.005	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Di-n-butyl phthalate	mg/L	< 0.005			0.005	Pass	
Di-n-octyl phthalate	mg/L	< 0.005			0.005	Pass	
Dibenz(a.i)acridine	mg/L	< 0.005			0.005	Pass	
Dibenzofuran	mg/L	< 0.005			0.005	Pass	
Dieldrin	mg/L	< 0.005			0.005	Pass	
Diethyl phthalate	mg/L	< 0.005			0.005	Pass	
Dimethyl phthalate	mg/L	< 0.005			0.005	Pass	
Dimethylaminoazobenzene	mg/L	< 0.005			0.005	Pass	
Diphenylamine	mg/L	< 0.005			0.005	Pass	
Endosulfan I	mg/L	< 0.005			0.005	Pass	
Endosulfan II	mg/L	< 0.005			0.005	Pass	
Endosulfan sulphate	mg/L	< 0.005			0.005	Pass	
Endrin	mg/L	< 0.005			0.005	Pass	
Endrin aldehyde	mg/L	< 0.005			0.005	Pass	
Endrin ketone	mg/L	< 0.005			0.005	Pass	
g-BHC (Lindane)	mg/L	< 0.005			0.005	Pass	
Heptachlor	mg/L	< 0.005			0.005	Pass	
Heptachlor epoxide	mg/L	< 0.005			0.005	Pass	
Hexachlorobenzene	mg/L	< 0.005			0.005	Pass	
Hexachlorobutadiene	mg/L	< 0.005			0.005	Pass	
Hexachlorocyclopentadiene	mg/L	< 0.005			0.005	Pass	
Hexachloroethane	mg/L	< 0.005			0.005	Pass	
Methoxychlor	mg/L	< 0.005			0.005	Pass	
N-Nitrosodibutylamine	mg/L	< 0.005			0.005	Pass	
N-Nitrosodipropylamine	mg/L	< 0.005			0.005	Pass	
N-Nitrosopiperidine	mg/L	< 0.005			0.005	Pass	
Nitrobenzene	mg/L	< 0.05			0.05	Pass	
Pentachlorobenzene	mg/L	< 0.005			0.005	Pass	
Pentachloronitrobenzene	mg/L	< 0.005			0.005	Pass	
Pronamide	mg/L	< 0.005			0.005	Pass	
Trifluralin	mg/L	< 0.005			0.005	Pass	
Method Blank							
Ammonia (as N)	mg/L	< 0.01			0.01	Pass	
Chloride	mg/L	< 1			1	Pass	
Chromium (hexavalent)	mg/L	< 0.001			0.001	Pass	
Nitrate & Nitrite (as N)	mg/L	< 0.05			0.05	Pass	
Nitrate (as N)	mg/L	< 0.02			0.02	Pass	
Phosphate total (as P)	mg/L	< 0.05			0.05	Pass	
Sulphate (as S)	mg/L	< 5			5	Pass	
Total Dissolved Solids	mg/L	< 10			10	Pass	
Total Kjeldahl Nitrogen (as N)	mg/L	< 0.2			0.2	Pass	
Total Organic Carbon	mg/L	< 5			5	Pass	
Method Blank							
Alkalinity (speciated)							
Bicarbonate Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Carbonate Alkalinity (as CaCO ₃)	mg/L	< 10			10	Pass	
Hydroxide Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Total Alkalinity (as CaCO ₃)	mg/L	< 20			20	Pass	
Method Blank							
Heavy Metals							
Arsenic (filtered)	mg/L	< 0.001			0.001	Pass	
Beryllium (filtered)	mg/L	< 0.001			0.001	Pass	
Boron (filtered)	mg/L	< 0.05			0.05	Pass	
Cadmium (filtered)	mg/L	< 0.0002			0.0002	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Cobalt (filtered)	mg/L	< 0.001			0.001	Pass	
Copper (filtered)	mg/L	< 0.001			0.001	Pass	
Lead (filtered)	mg/L	< 0.001			0.001	Pass	
Manganese (filtered)	mg/L	< 0.005			0.005	Pass	
Mercury (filtered)	mg/L	< 0.0001			0.0001	Pass	
Nickel (filtered)	mg/L	< 0.001			0.001	Pass	
Selenium (filtered)	mg/L	< 0.001			0.001	Pass	
Zinc (filtered)	mg/L	< 0.005			0.005	Pass	
Method Blank							
Alkali Metals							
Calcium	mg/L	< 0.5			0.5	Pass	
Magnesium	mg/L	< 0.5			0.5	Pass	
Potassium	mg/L	< 0.5			0.5	Pass	
Sodium	mg/L	< 0.5			0.5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	99			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	105			70-130	Pass	
Toluene	%	94			70-130	Pass	
Ethylbenzene	%	104			70-130	Pass	
m&p-Xylenes	%	101			70-130	Pass	
Xylenes - Total	%	100			70-130	Pass	
LCS - % Recovery							
Volatile Organics							
1.1-Dichloroethene	%	89			70-130	Pass	
1.1.1-Trichloroethane	%	95			70-130	Pass	
1.2-Dichlorobenzene	%	109			70-130	Pass	
1.2-Dichloroethane	%	99			70-130	Pass	
Trichloroethene	%	97			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	83			70-130	Pass	
TRH C6-C10	%	98			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	82			70-130	Pass	
4.4'-DDD	%	74			70-130	Pass	
4.4'-DDE	%	77			70-130	Pass	
4.4'-DDT	%	107			70-130	Pass	
a-BHC	%	77			70-130	Pass	
Aldrin	%	90			70-130	Pass	
b-BHC	%	95			70-130	Pass	
d-BHC	%	96			70-130	Pass	
Dieldrin	%	81			70-130	Pass	
Endosulfan I	%	85			70-130	Pass	
Endosulfan II	%	92			70-130	Pass	
Endosulfan sulphate	%	80			70-130	Pass	
Endrin	%	111			70-130	Pass	
Endrin aldehyde	%	111			70-130	Pass	
Endrin ketone	%	90			70-130	Pass	
g-BHC (Lindane)	%	97			70-130	Pass	
Heptachlor	%	78			70-130	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Heptachlor epoxide			%	83			70-130	Pass	
Hexachlorobenzene			%	72			70-130	Pass	
Methoxychlor			%	99			70-130	Pass	
LCS - % Recovery									
Organophosphorus Pesticides									
Diazinon			%	100			70-130	Pass	
Dimethoate			%	83			70-130	Pass	
Ethion			%	93			70-130	Pass	
Fenitrothion			%	107			70-130	Pass	
Methyl parathion			%	116			70-130	Pass	
Mevinphos			%	81			70-130	Pass	
LCS - % Recovery									
Ammonia (as N)			%	102			70-130	Pass	
Chloride			%	112			70-130	Pass	
Chromium (hexavalent)			%	105			70-130	Pass	
Nitrate & Nitrite (as N)			%	105			70-130	Pass	
Nitrate (as N)			%	104			70-130	Pass	
Phosphate total (as P)			%	92			70-130	Pass	
Sulphate (as S)			%	108			70-130	Pass	
Total Dissolved Solids			%	95			70-130	Pass	
Total Kjeldahl Nitrogen (as N)			%	96			70-130	Pass	
Total Organic Carbon			%	105			70-130	Pass	
LCS - % Recovery									
Alkalinity (speciated)									
Carbonate Alkalinity (as CaCO3)			%	93			70-130	Pass	
Total Alkalinity (as CaCO3)			%	99			70-130	Pass	
LCS - % Recovery									
Heavy Metals									
Arsenic (filtered)			%	100			80-120	Pass	
Boron (filtered)			%	115			80-120	Pass	
Cadmium (filtered)			%	98			80-120	Pass	
Cobalt (filtered)			%	98			80-120	Pass	
Copper (filtered)			%	93			80-120	Pass	
Lead (filtered)			%	101			80-120	Pass	
Manganese (filtered)			%	97			80-120	Pass	
Mercury (filtered)			%	96			70-130	Pass	
Nickel (filtered)			%	94			80-120	Pass	
Selenium (filtered)			%	99			80-120	Pass	
Zinc (filtered)			%	95			80-120	Pass	
LCS - % Recovery									
Alkali Metals									
Calcium			%	109			70-130	Pass	
Magnesium			%	114			70-130	Pass	
Potassium			%	99			70-130	Pass	
Sodium			%	104			70-130	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-JI30251	NCP	%	115			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	M18-JI30251	NCP	%	107			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Acenaphthene	M18-JI29707	NCP	%	106			70-130	Pass	
Pyrene	M18-JI29707	NCP	%	130			70-130	Pass	
Spike - % Recovery									
Phenols (Halogenated)				Result 1					
2-Chlorophenol	M18-JI29707	NCP	%	49			30-130	Pass	
4-Chloro-3-methylphenol	M18-JI29707	NCP	%	91			30-130	Pass	
Spike - % Recovery									
Phenols (non-Halogenated)				Result 1					
Phenol	M18-JI29707	NCP	%	60			30-130	Pass	
Spike - % Recovery									
Semivolatile Organics				Result 1					
1,2,4-Trichlorobenzene	M18-JI29707	NCP	%	111			70-130	Pass	
1,4-Dichlorobenzene	M18-JI29707	NCP	%	101			70-130	Pass	
N-Nitrosodipropylamine	M18-JI29707	NCP	%	86			70-130	Pass	
Spike - % Recovery									
				Result 1					
Ammonia (as N)	M18-JI32879	NCP	%	100			70-130	Pass	
Chloride	M18-JI33257	NCP	%	101			70-130	Pass	
Chromium (hexavalent)	M18-JI30547	NCP	%	107			70-130	Pass	
Nitrate & Nitrite (as N)	M18-JI29249	NCP	%	105			70-130	Pass	
Nitrate (as N)	M18-JI29249	NCP	%	105			70-130	Pass	
Phosphate total (as P)	M18-JI30805	NCP	%	112			70-130	Pass	
Sulphate (as S)	M18-JI29672	NCP	%	86			70-130	Pass	
Total Kjeldahl Nitrogen (as N)	M18-JI29674	NCP	%	44			70-130	Fail	Q08
Spike - % Recovery									
Alkalinity (speciated)				Result 1					
Bicarbonate Alkalinity (as CaCO ₃)	P18-JI28851	NCP	%	100			70-130	Pass	
Carbonate Alkalinity (as CaCO ₃)	M18-JI29837	NCP	%	72			70-130	Pass	
Total Alkalinity (as CaCO ₃)	P18-JI28851	NCP	%	100			70-130	Pass	
Spike - % Recovery									
Alkali Metals				Result 1					
Calcium	S18-JI34080	NCP	%	111			70-130	Pass	
Magnesium	S18-JI34080	NCP	%	113			70-130	Pass	
Potassium	S18-JI34080	NCP	%	107			70-130	Pass	
Sodium	M18-JI32761	NCP	%	121			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic (filtered)	M18-JI30258	CP	%	101			70-130	Pass	
Beryllium (filtered)	M18-JI30258	CP	%	85			75-125	Pass	
Boron (filtered)	M18-JI30258	CP	%	96			75-125	Pass	
Cadmium (filtered)	M18-JI30258	CP	%	95			70-130	Pass	
Cobalt (filtered)	M18-JI30258	CP	%	93			75-125	Pass	
Copper (filtered)	M18-JI30258	CP	%	88			70-130	Pass	
Lead (filtered)	M18-JI30258	CP	%	98			70-130	Pass	
Manganese (filtered)	M18-JI30258	CP	%	99			70-130	Pass	
Mercury (filtered)	M18-JI30258	CP	%	93			70-130	Pass	
Nickel (filtered)	M18-JI30258	CP	%	89			70-130	Pass	
Selenium (filtered)	M18-JI30258	CP	%	102			70-130	Pass	
Zinc (filtered)	M18-JI30258	CP	%	93			70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C10-C14	M18-JI32889	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH C15-C28	M18-JI32889	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36	M18-JI32889	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-JI32889	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass
TRH >C16-C34	M18-JI32889	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass
TRH >C34-C40	M18-JI32889	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass
Duplicate								
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD		
Acenaphthene	M18-JI29706	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Acenaphthylene	M18-JI29706	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Anthracene	M18-JI29706	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Benz(a)anthracene	M18-JI29706	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Benzo(a)pyrene	M18-JI29706	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Benzo(b&j)fluoranthene	M18-JI29706	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Benzo(g,h,i)perylene	M18-JI29706	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Benzo(k)fluoranthene	M18-JI29706	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Chrysene	M18-JI29706	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Dibenz(a,h)anthracene	M18-JI29706	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Fluoranthene	M18-JI29706	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Fluorene	M18-JI29706	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Indeno(1,2,3-cd)pyrene	M18-JI29706	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Naphthalene	M18-JI29706	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Phenanthrene	M18-JI29706	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Pyrene	M18-JI29706	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Duplicate								
Organochlorine Pesticides				Result 1	Result 2	RPD		
Chlordanes - Total	M18-JI25460	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
4,4'-DDD	M18-JI25460	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
4,4'-DDE	M18-JI25460	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
4,4'-DDT	M18-JI25460	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
a-BHC	M18-JI25460	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Aldrin	M18-JI25460	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
b-BHC	M18-JI25460	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
d-BHC	M18-JI25460	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Dieldrin	M18-JI25460	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Endosulfan I	M18-JI25460	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Endosulfan II	M18-JI25460	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Endosulfan sulphate	M18-JI25460	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Endrin	M18-JI25460	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Endrin aldehyde	M18-JI25460	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Endrin ketone	M18-JI25460	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
g-BHC (Lindane)	M18-JI25460	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Heptachlor	M18-JI25460	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Heptachlor epoxide	M18-JI25460	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Hexachlorobenzene	M18-JI25460	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Methoxychlor	M18-JI25460	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Duplicate								
Organophosphorus Pesticides				Result 1	Result 2	RPD		
Azinphos-methyl	S18-JI25593	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Bolstar	S18-JI25593	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Chlorfenvinphos	S18-JI25593	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Chlorpyrifos	S18-JI25593	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass
Chlorpyrifos-methyl	S18-JI25593	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Coumaphos	S18-JI25593	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass
Demeton-S	S18-JI25593	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass
Demeton-O	S18-JI25593	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Diazinon	S18-JI25593	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass

Duplicate								
Organophosphorus Pesticides				Result 1	Result 2	RPD		
Dichlorvos	S18-JI25593	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Dimethoate	S18-JI25593	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Disulfoton	S18-JI25593	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
EPN	S18-JI25593	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Ethion	S18-JI25593	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Ethoprop	S18-JI25593	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Ethyl parathion	S18-JI25593	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Fenitrothion	S18-JI25593	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Fensulfotthion	S18-JI25593	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Fenthion	S18-JI25593	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Malathion	S18-JI25593	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Merphos	S18-JI25593	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Methyl parathion	S18-JI25593	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Mevinphos	S18-JI25593	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Monocrotophos	S18-JI25593	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Naled	S18-JI25593	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Omethoate	S18-JI25593	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Phorate	S18-JI25593	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Pirimiphos-methyl	S18-JI25593	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass
Pyrazophos	S18-JI25593	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Ronnel	S18-JI25593	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Terbufos	S18-JI25593	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Tetrachlorvinphos	S18-JI25593	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Tokuthion	S18-JI25593	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Trichloronate	S18-JI25593	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Duplicate								
Phenols (Halogenated)				Result 1	Result 2	RPD		
2-Chlorophenol	M18-JI29706	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass
2,4-Dichlorophenol	M18-JI29706	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass
2,4,5-Trichlorophenol	M18-JI29706	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass
2,4,6-Trichlorophenol	M18-JI29706	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass
2,6-Dichlorophenol	M18-JI29706	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass
4-Chloro-3-methylphenol	M18-JI29706	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass
Pentachlorophenol	M18-JI29706	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass
Tetrachlorophenols - Total	M18-JI29706	NCP	mg/L	< 0.03	< 0.03	<1	30%	Pass
Duplicate								
Phenols (non-Halogenated)				Result 1	Result 2	RPD		
2-Cyclohexyl-4,6-dinitrophenol	M18-JI29706	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass
2-Methyl-4,6-dinitrophenol	M18-JI29706	NCP	mg/L	< 0.03	< 0.03	<1	30%	Pass
2-Methylphenol (o-Cresol)	M18-JI29706	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass
2-Nitrophenol	M18-JI29706	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass
2,4-Dimethylphenol	M18-JI29706	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass
2,4-Dinitrophenol	M18-JI29706	NCP	mg/L	< 0.03	< 0.03	<1	30%	Pass
3&4-Methylphenol (m&p-Cresol)	M18-JI29706	NCP	mg/L	< 0.006	< 0.006	<1	30%	Pass
4-Nitrophenol	M18-JI29706	NCP	mg/L	< 0.03	< 0.03	<1	30%	Pass
Dinoseb	M18-JI29706	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass
Phenol	M18-JI29706	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass
Duplicate								
Semivolatile Organics				Result 1	Result 2	RPD		
1-Chloronaphthalene	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1-Naphthylamine	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,2-Dichlorobenzene	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,2,3-Trichlorobenzene	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1,2,3,4-Tetrachlorobenzene	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass

Duplicate								
Semivolatile Organics				Result 1	Result 2	RPD		
1.2.3.5-Tetrachlorobenzene	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1.2.4-Trichlorobenzene	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1.2.4.5-Tetrachlorobenzene	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1.3-Dichlorobenzene	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1.3.5-Trichlorobenzene	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
1.4-Dichlorobenzene	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
2-Chloronaphthalene	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
2-Methylnaphthalene	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
2-Naphthylamine	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
2-Nitroaniline	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
2-Picoline	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
2.3.4.6-Tetrachlorophenol	M18-JI29706	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass
2.4-Dinitrotoluene	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
2.6-Dinitrotoluene	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
3-Methylcholanthrene	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
3,3'-Dichlorobenzidine	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
4-Aminobiphenyl	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
4-Bromophenyl phenyl ether	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
4-Chlorophenyl phenyl ether	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
4,4'-DDD	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
4,4'-DDE	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
4,4'-DDT	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
7.12-Dimethylbenz(a)anthracene	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
a-BHC	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Acetophenone	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Aldrin	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Aniline	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
b-BHC	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Benzyl chloride	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Bis(2-chloroethoxy)methane	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Bis(2-chloroisopropyl)ether	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Bis(2-ethylhexyl)phthalate	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Butyl benzyl phthalate	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
d-BHC	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Di-n-butyl phthalate	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Di-n-octyl phthalate	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Dibenz(a,j)acridine	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Dibenzofuran	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Dieldrin	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Diethyl phthalate	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Dimethyl phthalate	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Dimethylaminoazobenzene	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Diphenylamine	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Endosulfan I	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Endosulfan II	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Endosulfan sulphate	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Endrin	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Endrin aldehyde	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Endrin ketone	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
g-BHC (Lindane)	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Heptachlor	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Heptachlor epoxide	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Hexachlorobenzene	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Hexachlorobutadiene	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass

Duplicate								
Semivolatile Organics				Result 1	Result 2	RPD		
Hexachlorocyclopentadiene	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Hexachloroethane	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Methoxychlor	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
N-Nitrosodibutylamine	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
N-Nitrosodipropylamine	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
N-Nitrosopiperidine	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Nitrobenzene	M18-JI29706	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass
Pentachlorobenzene	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Pentachloronitrobenzene	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Pronamide	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Trifluralin	M18-JI29706	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
Ammonia (as N)	M18-JI32879	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass
Carbon Dioxide (free)	M18-JI30180	NCP	mg/L	1100	1200	5.0	30%	Pass
Chloride	M18-JI30801	NCP	mg/L	3900	4100	4.0	30%	Pass
Chromium (hexavalent)	M18-JI30547	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Conductivity (at 25°C)	M18-JI30218	NCP	uS/cm	290	270	10	30%	Pass
Nitrate & Nitrite (as N)	M18-JI32879	NCP	mg/L	6.9	6.6	4.0	30%	Pass
Nitrate (as N)	M18-JI32879	NCP	mg/L	6.9	6.6	4.0	30%	Pass
pH (at 25°C)	M18-JI30218	NCP	pH Units	7.9	7.8	pass	30%	Pass
Phosphate total (as P)	M18-JI30555	NCP	mg/L	0.10	0.08	22	30%	Pass
Sulphate (as S)	M18-JI30801	NCP	mg/L	110	110	4.0	30%	Pass
Total Dissolved Solids	M18-JI31115	NCP	mg/L	1800	1900	3.0	30%	Pass
Total Kjeldahl Nitrogen (as N)	M18-JI32172	NCP	mg/L	0.3	0.2	16	30%	Pass
Total Organic Carbon	M18-JI32107	NCP	mg/L	7200	7100	2.0	30%	Pass
Duplicate								
Alkalinity (speciated)				Result 1	Result 2	RPD		
Bicarbonate Alkalinity (as CaCO ₃)	M18-JI30180	NCP	mg/L	980	990	1.0	30%	Pass
Carbonate Alkalinity (as CaCO ₃)	M18-JI30180	NCP	mg/L	< 10	< 10	<1	30%	Pass
Hydroxide Alkalinity (as CaCO ₃)	M18-JI30180	NCP	mg/L	< 20	< 20	<1	30%	Pass
Total Alkalinity (as CaCO ₃)	M18-JI30180	NCP	mg/L	980	990	1.0	30%	Pass
Duplicate								
Alkali Metals				Result 1	Result 2	RPD		
Calcium	M18-JI31986	NCP	mg/L	28	27	3.0	30%	Pass
Magnesium	M18-JI31986	NCP	mg/L	2.5	2.4	1.0	30%	Pass
Potassium	M18-JI31986	NCP	mg/L	3.0	2.8	6.0	30%	Pass
Sodium	M18-JI31986	NCP	mg/L	29	29	1.0	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic (filtered)	M18-JI30258	CP	mg/L	0.018	0.018	<1	30%	Pass
Beryllium (filtered)	M18-JI30258	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Boron (filtered)	M18-JI30258	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass
Cadmium (filtered)	M18-JI30258	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Cobalt (filtered)	M18-JI30258	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Copper (filtered)	M18-JI30258	CP	mg/L	0.021	0.022	2.0	30%	Pass
Lead (filtered)	M18-JI30258	CP	mg/L	0.002	0.002	1.0	30%	Pass
Manganese (filtered)	M18-JI30258	CP	mg/L	0.11	0.11	1.0	30%	Pass
Mercury (filtered)	M18-JI30258	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Nickel (filtered)	M18-JI30258	CP	mg/L	0.019	0.019	<1	30%	Pass
Selenium (filtered)	M18-JI30258	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Zinc (filtered)	M18-JI30258	CP	mg/L	0.023	0.024	4.0	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
G01	The LORs have been raised due to matrix interference
G09	Sample punctured in transit; sample integrity compromised and unavailable for testing.
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
Q09	The Surrogate recovery is outside of the recommended acceptance criteria due to matrix interference. Acceptance criteria were met for all other QC

Authorised By

Natalie Krasselt	Analytical Services Manager
Alex Petridis	Senior Analyst-Metal (VIC)
Harry Bacalis	Senior Analyst-Volatile (VIC)
Joseph Edouard	Senior Analyst-Organic (VIC)
Michael Brancati	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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Tel: (03) 8687 8000

Page 1

of 1

Special Instructions: _____
 As per quote #180206GHDV, dated 6 February 2018

TURN AROUND TIME REQUIRED

☐ 1 Working Day
 ☐ 2 Working Days
 ☐ 3 Working Days
 ☐ 4 Working Days
 ☒ 5 Working Days (standard)
 Other _____

<u>SAMPLE RECEIPT</u>			
Relinquished by: Matthew Moore	Date: 26.07.2018	Received by: CANH TO #609535 EF/MGT	Date: 26/07/18
Organisation: GHD	Time: 15:00:00 PM	Organisation: _____	Time: 3 56pm

<u>ANALYTICAL SCHEDULE</u>		<u>DELIVERED BY:</u>		<u>SAMPLE STATUS</u>	
Relinquished by: Matthew Moore	Date: 26.07.2018	RECEIVED BY: _____	COURIER/LAB <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Security Sealed
Organisation: GHD	Time: 15:00:00 PM	Organisation: _____	GHD <input type="checkbox"/>	<input type="checkbox"/>	
			FAX <input type="checkbox"/>	<input type="checkbox"/>	Chilled
			HAND <input checked="" type="checkbox"/>	<input type="checkbox"/>	Frozen
				<input type="checkbox"/>	Ambient

RECEIVING LABORATORY TO CONFIRM RECEIPT OF ANALYTICAL SCHEDULE BY EMAIL TO: matthew.moore5@ghd.com

Checked By _____ Date _____

Sample Receipt Advice

Company name: **GHD Pty Ltd VIC**
Contact name: **Matthew Moore**
Project name: **BULLEN VIC 3105**
Project ID: **31/35006/0813**
COC number: **Not provided**
Turn around time: **5 Day**
Date/Time received: **Jul 26, 2018 3:56 PM**
Eurofins | mgt reference: **609535**

Sample information

- ☒ A detailed list of analytes logged into our LIMS, is included in the attached summary table.
- ☒ All samples have been received as described on the above COC.
- ☒ COC has been completed correctly.
- ☒ Attempt to chill was evident.
- ☒ Appropriately preserved sample containers have been used.
- ☒ All samples were received in good condition.
- ☒ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
- ☒ Appropriate sample containers have been used.
- ☒ Sample containers for volatile analysis received with zero headspace.
- ☒ Split sample sent to requested external lab.
- ☒ Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

Contact notes

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

Natalie Krasselt on Phone : +61 3 8564 5000 or by e.mail: NatalieKrasselt@eurofins.com

Results will be delivered electronically via e.mail to Matthew Moore - matthew.moore5@ghd.com.

CERTIFICATE OF ANALYSIS

Work Order : **EM1811908**
Client : **GHD PTY LTD**
Contact : **MR MATTHEW MOORE**
Address : **LEVEL 8, 180 LONSDALE ST**
MELBOURNE VIC, AUSTRALIA 3001
Telephone : **----**
Project : **31350060813**
Order number : **----**
C-O-C number : **----**
Sampler : **LIAM SPURR, MATTHEW MOORE**
Site : **Bulleen, VIC 3105**
Quote number : **EN/005/18**
No. of samples received : **3**
No. of samples analysed : **3**

Page : 1 of 2
Laboratory : Environmental Division Melbourne
Contact : Shirley LeCornu
Address : 4 Westall Rd Springvale VIC Australia 3171
Telephone : +61-3-8549 9630
Date Samples Received : 26-Jul-2018 15:00
Date Analysis Commenced : 08-Aug-2018
Issue Date : 08-Aug-2018 17:04



Accreditation No. 825
 Accredited for compliance with
 ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Samantha Smith	Laboratory Coordinator	WRG Subcontracting, Springvale, VIC



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
 LOR = Limit of reporting
 ^ = This result is computed from individual analyte detections at or above the level of reporting
 ø = ALS is not NATA accredited for these tests.
 ~ = Indicates an estimated value.

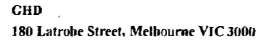
- SRB (MM669) is conducted by ALS Scoresby NATA accreditation no. 992, site no. 989. NATA accreditation does not cover performance of this method.

Analytical Results

Sub-Matrix: **WATER**
 (Matrix: **WATER**)

Client sample ID

				NEL-BH067 / 260718	NEL-BH068 / 260718	NEL-BH151 / 260718	----	----
Client sampling date / time				26-Jul-2018 00:00	26-Jul-2018 00:00	26-Jul-2018 00:00	----	----
Compound	CAS Number	LOR	Unit	EM1811908-001	EM1811908-002	EM1811908-003	-----	-----
				Result	Result	Result	----	----
MM669: Sulphate Reducing Bacteria								
Sulphate Reducing Bacteria Population Estimate	----	20	pac/mL	6000	27000	6000	----	----
Aggressivity	----	1	-	High	High	High	----	----

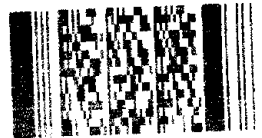


Page 1
of 1

Job Number	31/35006/0813
Job Location:	Buileen, VIC 3105
Laboratory Issued To:	ALS
Order No.:	
Sampled By:	M.Moore and L.Spurr
Job Contact:	Matthew Moore (0490 784 218), Tim Anderson (03 8687 8208)
Contact Email:	matthew.moore5@ghd.com timothy.anderson@ghd.com

[illegible]**Special Instructions:**

Environmental Division
Melbourne
Work Order Reference
EM1811908



Telephone - 61-3-8549 9807

<div style="display: flex; justify-content: space-between; align-items: center;"> <div> <input type="checkbox"/> 1 Working Day <input type="checkbox"/> 2 Working Days <input type="checkbox"/> 3 Working Days <input type="checkbox"/> 4 Working Days <input checked="" type="checkbox"/> 5 Working Days (standard) Other _____ </div> <div style="text-align: center;"> TURN AROUND TIME REQUIRED </div> </div>																																	
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p style="text-align: center;">SAMPLE RECEIPT</p> <p>Relinquished by: Matthew Moore Date: 26.07.2018</p> <p>Organisation: GHD Time: 15:00:00 PM</p> </div> <div style="width: 45%;"> <p>Received by: <i>Tom Als</i> Date: 26-7</p> <p>Organisation: <i>ALS</i> Time: 15:00</p> </div> </div>																																	
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p style="text-align: center;">ANALYTICAL SCHEDULE</p> <p>Relinquished by: Matthew Moore Date: 26.07.2018</p> <p>Organisation: GHD Time: 15:00:00 PM</p> </div> <div style="width: 45%;"> <p>Received by: _____ Date: _____</p> <p>Organisation: _____ Time: _____</p> </div> </div>																																	
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p style="text-align: center;">RECEIVING LABORATORY TO CONFIRM RECEIPT OF ANALYTICAL SCHEDULE BY EMAIL TO: matthew.moore@ghd.com</p> </div> <div style="width: 45%;"> <table border="1" style="width: 100%;"> <tr> <td colspan="2">DELIVERED BY:</td> <td colspan="2">SAMPLE STATUS</td> </tr> <tr> <td>COURIER/LAB</td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td>Security Sealed</td> </tr> <tr> <td>GHD</td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td>Chilled</td> </tr> <tr> <td>RECEIVED BY:</td> <td></td> <td><input type="checkbox"/></td> <td>Frozen</td> </tr> <tr> <td>FAX</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td>Ambient</td> </tr> <tr> <td>HAND</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td></td> </tr> </table> </div> </div>										DELIVERED BY:		SAMPLE STATUS		COURIER/LAB	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Security Sealed	GHD	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Chilled	RECEIVED BY:		<input type="checkbox"/>	Frozen	FAX	<input type="checkbox"/>	<input type="checkbox"/>	Ambient	HAND	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
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FAX	<input type="checkbox"/>	<input type="checkbox"/>	Ambient																														
HAND	<input checked="" type="checkbox"/>	<input type="checkbox"/>																															

Checked By: _____ Date: _____

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : EM1811908

<p>Client : GHD PTY LTD</p> <p>Contact : MR MATTHEW MOORE</p> <p>Address : LEVEL 8, 180 LONSDALE ST MELBOURNE VIC, AUSTRALIA 3001</p> <p>E-mail : matthew.moore5@ghd.com</p> <p>Telephone : ----</p> <p>Facsimile : ----</p> <p>Project : 31350060813</p> <p>Order number : </p> <p>C-O-C number : ----</p> <p>Site : Bulleen, VIC 3105</p> <p>Sampler : LIAM SPURR, MATTHEW MOORE</p>	<p>Laboratory : Environmental Division Melbourne</p> <p>Contact : Shirley LeCornu</p> <p>Address : 4 Westall Rd Springvale VIC Australia 3171</p> <p>E-mail : shirley.lecornu@Alsglobal.com</p> <p>Telephone : +61-3-8549 9630</p> <p>Facsimile : +61-3-8549 9626</p> <p>Page : 1 of 2</p> <p>Quote number : ES2018GHDSE0025 (EN/005/18)</p> <p>QC Level : NEPM 2013 B3 & ALS QC Standard</p>
---	---

Dates

Date Samples Received : 26-Jul-2018 15:00	Issue Date : 26-Jul-2018
Client Requested Due : 02-Aug-2018	Scheduled Reporting Date : 09-Aug-2018
Date	

Delivery Details

Mode of Delivery : Carrier	Security Seal : Intact.
No. of coolers/boxes : 1	Temperature : 3.9°C - Ice present
Receipt Detail :	No. of samples received / analysed : 3 / 3

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- **The scheduled reporting date has been extended due to analytical testing conducted by ALS interstate laboratories. Please refer to your quotation for further information.**
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **Analytical work for this work order will be conducted at ALS Scoresby.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- No sample container / preservation non-compliance exists.

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

WATER - MM669 (Subcontracted)
Sulphate Reducing Bacteria (BART)

Laboratory sample ID	Client sampling date / time	Client sample ID	Water Sulphate
EM1811908-001	26-Jul-2018 00:00	NEL-BH067 / 260718	✓
EM1811908-002	26-Jul-2018 00:00	NEL-BH068 / 260718	✓
EM1811908-003	26-Jul-2018 00:00	NEL-BH151 / 260718	✓

Sample(s) have been received within the recommended holding times for the requested analysis.

ACCOUNTS PAYABLE (Brisbane)

- Email ap-fss@ghd.com

- *AU Certificate of Analysis - NATA (COA)	Email	ghdlabreports@ghd.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	ghdlabreports@ghd.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	ghdlabreports@ghd.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	ghdlabreports@ghd.com
- EDI Format - ESDAT (ESDAT)	Email	ghdlabreports@ghd.com
- Electronic SRN for ESdat (ESRN ESDAT)	Email	ghdlabreports@ghd.com

- *AU Certificate of Analysis - NATA (COA)	Email	matthew.moore5@ghd.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	matthew.moore5@ghd.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	matthew.moore5@ghd.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	matthew.moore5@ghd.com
- A4 - AU Tax Invoice (INV)	Email	matthew.moore5@ghd.com
- Chain of Custody (CoC) (COC)	Email	matthew.moore5@ghd.com
- EDI Format - ENMRG (ENMRG)	Email	matthew.moore5@ghd.com
- EDI Format - ESDAT (ESDAT)	Email	matthew.moore5@ghd.com
- Electronic SRN for ESdat (ESRN ESDAT)	Email	matthew.moore5@ghd.com

- *AU Certificate of Analysis - NATA (COA)	Email	tim.anderson@ghd.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	tim.anderson@ghd.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	tim.anderson@ghd.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	tim.anderson@ghd.com
- A4 - AU Tax Invoice (INV)	Email	tim.anderson@ghd.com
- Chain of Custody (CoC) (COC)	Email	tim.anderson@ghd.com
- EDI Format - ENMRG (ENMRG)	Email	tim.anderson@ghd.com
- EDI Format - ESDAT (ESDAT)	Email	tim.anderson@ghd.com
- Electronic SRN for ESdat (ESRN ESDAT)	Email	tim.anderson@ghd.com

QUALITY CONTROL REPORT

Work Order	: EM1811908	Page	: 1 of 3
Client	: GHD PTY LTD	Laboratory	: Environmental Division Melbourne
Contact	: MR MATTHEW MOORE	Contact	: Shirley LeCornu
Address	: LEVEL 8, 180 LONSDALE ST MELBOURNE VIC, AUSTRALIA 3001	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +61-3-8549 9630
Project	: 31350060813	Date Samples Received	: 26-Jul-2018
Order number	:	Date Analysis Commenced	: 08-Aug-2018
C-O-C number	: ----	Issue Date	: 08-Aug-2018
Sampler	: LIAM SPURR, MATTHEW MOORE		
Site	: Bulleen, VIC 3105		
Quote number	: EN/005/18		
No. of samples received	: 3		
No. of samples analysed	: 3		



Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Samantha Smith	Laboratory Coordinator	WRG Subcontracting, Springvale, VIC



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key :
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
= Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

- **No Laboratory Duplicate (DUP) Results are required to be reported.**



Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

- **No Method Blank (MB) or Laboratory Control Spike (LCS) Results are required to be reported.**

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**
-

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: EM1811908	Page	: 1 of 4
Client	: GHD PTY LTD	Laboratory	: Environmental Division Melbourne
Contact	: MR MATTHEW MOORE	Telephone	: +61-3-8549 9630
Project	: 31350060813	Date Samples Received	: 26-Jul-2018
Site	: Bulleen, VIC 3105	Issue Date	: 08-Aug-2018
Sampler	: LIAM SPURR, MATTHEW MOORE	No. of samples received	: 3
Order number	:	No. of samples analysed	: 3

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO** Method Blank value outliers occur.
- **NO** Duplicate outliers occur.
- **NO** Laboratory Control outliers occur.
- **NO** Matrix Spike outliers occur.
- For all regular sample matrices, **NO** surrogate recovery outliers occur.

Outliers : Analysis Holding Time Compliance

- **NO** Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- **NO** Quality Control Sample Frequency Outliers exist.



Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix:

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation



Quality Control Parameter Frequency Compliance

- No Quality Control data available for this section.



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Sulphate Reducing Bacteria (BART)	MM669	WATER	Specialist microbiological analysis subcontracted to ALS Scoresby (NATA accreditation does not cover this service).

CERTIFICATE OF ANALYSIS

Work Order : EM1815577 Amendment : 1 Client : GHD PTY LTD Contact : KORY AUCH Address : LEVEL 8, 180 LONSDALE ST MELBOURNE VIC, AUSTRALIA 3001 Telephone : ---- Project : ---- Order number : ---- C-O-C number : ---- Sampler : LIAM SPURR Site : ---- Quote number : ME/124/18 - North East Link No. of samples received : 4 No. of samples analysed : 4	Page : 1 of 16 Laboratory : Environmental Division Melbourne Contact : Shirley LeCornu Address : 4 Westall Rd Springvale VIC Australia 3171 Telephone : +61-3-8549 9630 Date Samples Received : 27-Sep-2018 16:05 Date Analysis Commenced : 27-Sep-2018 Issue Date : 15-Oct-2018 16:41
---	---



Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Franco Lentini		Sydney Organics, Smithfield, NSW
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Samantha Smith	Laboratory Coordinator	WRG Subcontracting, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

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Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

Ø = ALS is not NATA accredited for these tests.

~ = Indicates an estimated value.

- EP010-P For EM1815577 #2 & 3 -Results have been confirmed by re-analysis
- EA010-P: Electrical Conductivity @ 25°C was analysed by manual method (EA010).
- SRB (MM669) is conducted by ALS Scoresby NATA accreditation no. 992, site no. 989. NATA accreditation does not cover performance of this method.
- EG035F: EM1815577 #1 sample results confirmed by re-extraction and re-analysis.
- EP074/080: Particular sample EM1815577_001 required dilution due to the presence of high level contaminants. LOR values have been adjusted accordingly.
- EP080/074: Particular sample EM1815577_003 shows minor BTEX hits. Confirmed by re-analysis.
- Amendment (15/10/2018): This report has been amended following changes to the analytical data reported. The quality system is being utilised to resolve this issue. The specific data affected includes EP231X-LL results for sample "QC2_20180927".
- Ionic balances were calculated using: major anions - chloride, alkalinity and sulfate; and major cations - calcium, magnesium, potassium and sodium.
- ED045G: The presence of thiocyanate can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.
- EK071G: EM1815566-011 Poor matrix spike recovery for reactive phosphorus due to sample matrix. Confirmed by re-extraction and re-analysis.
- EP075: 'Sum of PAH' is the sum of the USEPA 16 priority PAHs
- EA016: Calculated TDS is determined from Electrical conductivity using a conversion factor of 0.65.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a,h)anthracene (1.0), Benzo(g,h,i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	NEL-ENV-BH022	QC1_20180927	QC2_20180927	TRIP BLANKS	----
Client sampling date / time					27-Sep-2018 00:00	27-Sep-2018 00:00	27-Sep-2018 00:00	27-Sep-2018 00:00	----
Compound	CAS Number	LOR	Unit		EM1815577-001	EM1815577-002	EM1815577-003	EM1815577-004	-----
				Result	Result	Result	Result	Result	----
EA005P: pH by PC Titrator									
pH Value	----	0.01	pH Unit		7.28	7.53	7.55	----	----
EA006: Sodium Adsorption Ratio (SAR)									
^ Sodium Adsorption Ratio	----	0.01	-		28.2	0.12	0.12	----	----
EA010P: Conductivity by PC Titrator									
Electrical Conductivity @ 25°C	----	1	µS/cm		8380	1	4	----	----
EA016: Calculated TDS (from Electrical Conductivity)									
Total Dissolved Solids (Calc.)	----	1	mg/L		5450	<1	3	----	----
EA065: Total Hardness as CaCO3									
Total Hardness as CaCO3	----	1	mg/L		527	<1	<1	----	----
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		698	1	<1	----	----
Total Alkalinity as CaCO3	----	1	mg/L		698	1	<1	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		118	<1	<1	----	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		2700	<1	<1	----	----
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		23	<1	<1	----	----
Magnesium	7439-95-4	1	mg/L		114	<1	<1	----	----
Sodium	7440-23-5	1	mg/L		1490	<1	<1	----	----
Potassium	7440-09-7	1	mg/L		55	<1	<1	----	----
EG020F: Dissolved Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		0.001	<0.001	<0.001	----	----
Boron	7440-42-8	0.05	mg/L		<0.05	<0.05	<0.05	----	----
Barium	7440-39-3	0.001	mg/L		0.062	<0.001	<0.001	----	----
Beryllium	7440-41-7	0.001	mg/L		<0.001	<0.001	<0.001	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	<0.0001	<0.0001	----	----
Cobalt	7440-48-4	0.001	mg/L		0.005	<0.001	<0.001	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	<0.001	<0.001	----	----
Copper	7440-50-8	0.001	mg/L		0.002	<0.001	<0.001	----	----
Manganese	7439-96-5	0.001	mg/L		0.473	<0.001	<0.001	----	----
Nickel	7440-02-0	0.001	mg/L		0.014	<0.001	<0.001	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	NEL-ENV-BH022	QC1_20180927	QC2_20180927	TRIP BLANKS	----
Client sampling date / time					27-Sep-2018 00:00	27-Sep-2018 00:00	27-Sep-2018 00:00	27-Sep-2018 00:00	----
Compound	CAS Number	LOR	Unit		EM1815577-001	EM1815577-002	EM1815577-003	EM1815577-004	-----
					Result	Result	Result	Result	----
EG020F: Dissolved Metals by ICP-MS - Continued									
Lead	7439-92-1	0.001	mg/L		0.007	<0.001	<0.001	----	----
Selenium	7782-49-2	0.01	mg/L		<0.01	<0.01	<0.01	----	----
Vanadium	7440-62-2	0.01	mg/L		<0.01	<0.01	<0.01	----	----
Zinc	7440-66-6	0.005	mg/L		0.009	<0.005	<0.005	----	----
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		0.0003	<0.0001	<0.0001	----	----
EK040P: Fluoride by PC Titrator									
Fluoride	16984-48-8	0.1	mg/L		1.1	<0.1	<0.1	----	----
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		0.03	<0.01	<0.01	----	----
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L		<0.01	<0.01	<0.01	----	----
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L		0.03	<0.01	<0.01	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		0.03	<0.01	<0.01	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L		0.7	<0.1	<0.1	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L		0.7	<0.1	<0.1	----	----
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L		0.23	<0.01	<0.01	----	----
EK071G: Reactive Phosphorus as P by discrete analyser									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L		<0.01	<0.01	<0.01	----	----
EN055: Ionic Balance									
Total Anions	----	0.01	meq/L		92.6	0.02	<0.01	----	----
Total Cations	----	0.01	meq/L		76.7	<0.01	<0.01	----	----
Ionic Balance	----	0.01	%		9.34	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)									
^ Total Polychlorinated biphenyls	----	1	µg/L		<1	<1	<1	----	----
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.5	µg/L		<0.5	<0.5	<0.5	----	----
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L		<0.5	<0.5	<0.5	----	----



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Client sample ID

				NEL-ENV-BH022	QC1_20180927	QC2_20180927	TRIP BLANKS	----
Client sampling date / time				27-Sep-2018 00:00	27-Sep-2018 00:00	27-Sep-2018 00:00	27-Sep-2018 00:00	----
Compound	CAS Number	LOR	Unit	EM1815577-001	EM1815577-002	EM1815577-003	EM1815577-004	-----
				Result	Result	Result	Result	----

EP068A: Organochlorine Pesticides (OC) - Continued

beta-BHC	319-85-7	0.5	µg/L	<0.5	<0.5	<0.5	----	----
gamma-BHC	58-89-9	0.5	µg/L	<0.5	<0.5	<0.5	----	----
delta-BHC	319-86-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Heptachlor	76-44-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Aldrin	309-00-2	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	<0.5	<0.5	----	----
trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	<0.5	<0.5	----	----
alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Dieldrin	60-57-1	0.5	µg/L	<0.5	<0.5	<0.5	----	----
4,4'-DDE	72-55-9	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Endrin	72-20-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	<0.5	<0.5	----	----
4,4'-DDD	72-54-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
4,4'-DDT	50-29-3	2.0	µg/L	<2.0	<2.0	<2.0	----	----
Endrin ketone	53494-70-5	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Methoxychlor	72-43-5	2.0	µg/L	<2.0	<2.0	<2.0	----	----
^ Total Chlordane (sum)	----	0.5	µg/L	<0.5	<0.5	<0.5	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.5	µg/L	<0.5	<0.5	<0.5	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.5	µg/L	<0.5	<0.5	<0.5	----	----

EP068B: Organophosphorus Pesticides (OP)

Dichlorvos	62-73-7	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Monocrotophos	6923-22-4	2.0	µg/L	<2.0	<2.0	<2.0	----	----
Dimethoate	60-51-5	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Diazinon	333-41-5	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Parathion-methyl	298-00-0	2.0	µg/L	<2.0	<2.0	<2.0	----	----
Malathion	121-75-5	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Fenthion	55-38-9	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Parathion	56-38-2	2.0	µg/L	<2.0	<2.0	<2.0	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	NEL-ENV-BH022	QC1_20180927	QC2_20180927	TRIP BLANKS	----
Client sampling date / time					27-Sep-2018 00:00	27-Sep-2018 00:00	27-Sep-2018 00:00	27-Sep-2018 00:00	----
Compound	CAS Number	LOR	Unit		EM1815577-001	EM1815577-002	EM1815577-003	EM1815577-004	-----
					Result	Result	Result	Result	----
EP068B: Organophosphorus Pesticides (OP) - Continued									
Pirimphos-ethyl	23505-41-1	0.5	µg/L		<0.5	<0.5	<0.5	----	----
Chlorfenvinphos	470-90-6	0.5	µg/L		<0.5	<0.5	<0.5	----	----
Bromophos-ethyl	4824-78-6	0.5	µg/L		<0.5	<0.5	<0.5	----	----
Fenamiphos	22224-92-6	0.5	µg/L		<0.5	<0.5	<0.5	----	----
Prothiofos	34643-46-4	0.5	µg/L		<0.5	<0.5	<0.5	----	----
Ethion	563-12-2	0.5	µg/L		<0.5	<0.5	<0.5	----	----
Carbophenothion	786-19-6	0.5	µg/L		<0.5	<0.5	<0.5	----	----
Azinphos Methyl	86-50-0	0.5	µg/L		<0.5	<0.5	<0.5	----	----
EP074A: Monocyclic Aromatic Hydrocarbons									
Benzene	71-43-2	1	µg/L		----	----	----	<1	----
Toluene	108-88-3	2	µg/L		----	----	----	<2	----
Ethylbenzene	100-41-4	2	µg/L		----	----	----	<2	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		----	----	----	<2	----
Styrene	100-42-5	5	µg/L		<100	<5	<5	<5	----
ortho-Xylene	95-47-6	2	µg/L		----	----	----	<2	----
Isopropylbenzene	98-82-8	5	µg/L		<100	<5	<5	<5	----
n-Propylbenzene	103-65-1	5	µg/L		<100	<5	<5	<5	----
1,3,5-Trimethylbenzene	108-67-8	5	µg/L		185	<5	<5	<5	----
sec-Butylbenzene	135-98-8	5	µg/L		<100	<5	<5	<5	----
1,2,4-Trimethylbenzene	95-63-6	5	µg/L		628	<5	<5	<5	----
tert-Butylbenzene	98-06-6	5	µg/L		<100	<5	<5	<5	----
p-Isopropyltoluene	99-87-6	5	µg/L		<100	<5	<5	<5	----
n-Butylbenzene	104-51-8	5	µg/L		<100	<5	<5	<5	----
EP074B: Oxygenated Compounds									
Vinyl Acetate	108-05-4	50	µg/L		<1000	<50	<50	<50	----
2-Butanone (MEK)	78-93-3	50	µg/L		<1000	<50	<50	<50	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L		<1000	<50	<50	<50	----
2-Hexanone (MBK)	591-78-6	50	µg/L		<1000	<50	<50	<50	----
EP074C: Sulfonated Compounds									
Carbon disulfide	75-15-0	5	µg/L		<100	<5	<5	<5	----
EP074D: Fumigants									
2,2-Dichloropropane	594-20-7	5	µg/L		<100	<5	<5	<5	----
1,2-Dichloropropane	78-87-5	5	µg/L		<100	<5	<5	<5	----
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L		<100	<5	<5	<5	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	NEL-ENV-BH022	QC1_20180927	QC2_20180927	TRIP BLANKS	----
Client sampling date / time					27-Sep-2018 00:00	27-Sep-2018 00:00	27-Sep-2018 00:00	27-Sep-2018 00:00	----
Compound	CAS Number	LOR	Unit		EM1815577-001	EM1815577-002	EM1815577-003	EM1815577-004	-----
					Result	Result	Result	Result	----
EP074D: Fumigants - Continued									
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L		<100	<5	<5	<5	----
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L		<100	<5	<5	<5	----
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	50	µg/L		<1000	<50	<50	<50	----
Chloromethane	74-87-3	50	µg/L		<1000	<50	<50	<50	----
Vinyl chloride	75-01-4	50	µg/L		<50	<50	<50	<50	----
Bromomethane	74-83-9	50	µg/L		<1000	<50	<50	<50	----
Chloroethane	75-00-3	50	µg/L		<1000	<50	<50	<50	----
Trichlorofluoromethane	75-69-4	50	µg/L		<1000	<50	<50	<50	----
1,1-Dichloroethene	75-35-4	5	µg/L		<100	<5	<5	<5	----
Iodomethane	74-88-4	5	µg/L		<100	<5	<5	<5	----
trans-1,2-Dichloroethene	156-60-5	5	µg/L		<100	<5	<5	<5	----
1,1-Dichloroethane	75-34-3	5	µg/L		<100	<5	<5	<5	----
cis-1,2-Dichloroethene	156-59-2	5	µg/L		<100	<5	<5	<5	----
1,1,1-Trichloroethane	71-55-6	5	µg/L		<100	<5	<5	<5	----
1,1-Dichloropropylene	563-58-6	5	µg/L		<100	<5	<5	<5	----
Carbon Tetrachloride	56-23-5	5	µg/L		<100	<5	<5	<5	----
1,2-Dichloroethane	107-06-2	5	µg/L		<100	<5	<5	<5	----
Trichloroethene	79-01-6	5	µg/L		<100	<5	<5	<5	----
Dibromomethane	74-95-3	5	µg/L		<100	<5	<5	<5	----
1,1,2-Trichloroethane	79-00-5	5	µg/L		<100	<5	<5	<5	----
1,3-Dichloropropane	142-28-9	5	µg/L		<100	<5	<5	<5	----
Tetrachloroethene	127-18-4	5	µg/L		<100	<5	<5	<5	----
1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L		<100	<5	<5	<5	----
trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L		<100	<5	<5	<5	----
cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L		<100	<5	<5	<5	----
1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L		<100	<5	<5	<5	----
1,2,3-Trichloropropane	96-18-4	5	µg/L		<100	<5	<5	<5	----
Pentachloroethane	76-01-7	5	µg/L		<100	<5	<5	<5	----
1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L		<100	<5	<5	<5	----
Hexachlorobutadiene	87-68-3	5	µg/L		----	----	----	<5	----
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	5	µg/L		<100	<5	<5	<5	----
Bromobenzene	108-86-1	5	µg/L		<100	<5	<5	<5	----



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Client sample ID

				NEL-ENV-BH022	QC1_20180927	QC2_20180927	TRIP BLANKS	----
Client sampling date / time				27-Sep-2018 00:00	27-Sep-2018 00:00	27-Sep-2018 00:00	27-Sep-2018 00:00	----
Compound	CAS Number	LOR	Unit	EM1815577-001	EM1815577-002	EM1815577-003	EM1815577-004	-----
				Result	Result	Result	Result	----
EP074F: Halogenated Aromatic Compounds - Continued								
2-Chlorotoluene	95-49-8	5	µg/L	<100	<5	<5	<5	----
4-Chlorotoluene	106-43-4	5	µg/L	<100	<5	<5	<5	----
1,3-Dichlorobenzene	541-73-1	5	µg/L	----	----	----	<5	----
1,4-Dichlorobenzene	106-46-7	5	µg/L	----	----	----	<5	----
1,2-Dichlorobenzene	95-50-1	5	µg/L	----	----	----	<5	----
1,2,4-Trichlorobenzene	120-82-1	5	µg/L	----	----	----	<5	----
1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<100	<5	<5	<5	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<100	<5	<5	<5	----
Bromodichloromethane	75-27-4	5	µg/L	<100	<5	<5	<5	----
Dibromochloromethane	124-48-1	5	µg/L	<100	<5	<5	<5	----
Bromoform	75-25-2	5	µg/L	<100	<5	<5	<5	----
EP074H: Naphthalene								
Naphthalene	91-20-3	5	µg/L	----	----	----	<5	----
EP075A: Phenolic Compounds								
Phenol	108-95-2	2	µg/L	4	<2	<2	----	----
2-Chlorophenol	95-57-8	2	µg/L	<2	<2	<2	----	----
2-Methylphenol	95-48-7	2	µg/L	32	<2	<2	----	----
3- & 4-Methylphenol	1319-77-3	4	µg/L	14	<4	<4	----	----
2-Nitrophenol	88-75-5	2	µg/L	<2	<2	<2	----	----
2,4-Dimethylphenol	105-67-9	2	µg/L	6	<2	<2	----	----
2,4-Dichlorophenol	120-83-2	2	µg/L	<2	<2	<2	----	----
2,6-Dichlorophenol	87-65-0	2	µg/L	<2	<2	<2	----	----
4-Chloro-3-methylphenol	59-50-7	2	µg/L	<2	<2	<2	----	----
2,4,6-Trichlorophenol	88-06-2	2	µg/L	<2	<2	<2	----	----
2,4,5-Trichlorophenol	95-95-4	2	µg/L	<2	<2	<2	----	----
Pentachlorophenol	87-86-5	4	µg/L	<4	<4	<4	----	----
EP075B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	2	µg/L	122	<2	<2	----	----
2-Methylnaphthalene	91-57-6	2	µg/L	36	<2	<2	----	----
2-Chloronaphthalene	91-58-7	2	µg/L	<2	<2	<2	----	----
Acenaphthylene	208-96-8	2	µg/L	<2	<2	<2	----	----
Acenaphthene	83-32-9	2	µg/L	<2	<2	<2	----	----
Fluorene	86-73-7	2	µg/L	<2	<2	<2	----	----



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Client sample ID

				NEL-ENV-BH022	QC1_20180927	QC2_20180927	TRIP BLANKS	----
Client sampling date / time				27-Sep-2018 00:00	27-Sep-2018 00:00	27-Sep-2018 00:00	27-Sep-2018 00:00	----
Compound	CAS Number	LOR	Unit	EM1815577-001	EM1815577-002	EM1815577-003	EM1815577-004	-----
				Result	Result	Result	Result	----
EP075B: Polynuclear Aromatic Hydrocarbons - Continued								
Phenanthrene	85-01-8	2	µg/L	<2	<2	<2	----	----
Anthracene	120-12-7	2	µg/L	<2	<2	<2	----	----
Fluoranthene	206-44-0	2	µg/L	<2	<2	<2	----	----
Pyrene	129-00-0	2	µg/L	<2	<2	<2	----	----
N-2-Fluorenyl Acetamide	53-96-3	2	µg/L	<2	<2	<2	----	----
Benz(a)anthracene	56-55-3	2	µg/L	<2	<2	<2	----	----
Chrysene	218-01-9	2	µg/L	<2	<2	<2	----	----
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	4	µg/L	<4	<4	<4	----	----
7.12-Dimethylbenz(a)anthracene	57-97-6	2	µg/L	<2	<2	<2	----	----
Benzo(a)pyrene	50-32-8	2	µg/L	<2	<2	<2	----	----
3-Methylcholanthrene	56-49-5	2	µg/L	<2	<2	<2	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	2	µg/L	<2	<2	<2	----	----
Dibenz(a,h)anthracene	53-70-3	2	µg/L	<2	<2	<2	----	----
Benzo(g,h,i)perylene	191-24-2	2	µg/L	<2	<2	<2	----	----
^ Sum of PAHs	----	2	µg/L	122	<2	<2	----	----
^ Benzo(a)pyrene TEQ (zero)	----	2	µg/L	<2	<2	<2	----	----
EP075C: Phthalate Esters								
Dimethyl phthalate	131-11-3	2	µg/L	<2	<2	<2	----	----
Diethyl phthalate	84-66-2	2	µg/L	<2	<2	<2	----	----
Di-n-butyl phthalate	84-74-2	2	µg/L	<2	<2	<2	----	----
Butyl benzyl phthalate	85-68-7	2	µg/L	<2	<2	<2	----	----
bis(2-ethylhexyl) phthalate	117-81-7	10	µg/L	<10	<10	<10	----	----
Di-n-octylphthalate	117-84-0	2	µg/L	<2	<2	<2	----	----
EP075D: Nitrosamines								
N-Nitrosomethylethylamine	10595-95-6	2	µg/L	<2	<2	<2	----	----
N-Nitrosodiethylamine	55-18-5	2	µg/L	<2	<2	<2	----	----
N-Nitrosopyrrolidine	930-55-2	4	µg/L	<4	<4	<4	----	----
N-Nitrosomorpholine	59-89-2	2	µg/L	<2	<2	<2	----	----
N-Nitrosodi-n-propylamine	621-64-7	2	µg/L	<2	<2	<2	----	----
N-Nitrosopiperidine	100-75-4	2	µg/L	<2	<2	<2	----	----
N-Nitrosodibutylamine	924-16-3	2	µg/L	<2	<2	<2	----	----
N-Nitrosodiphenyl & Diphenylamine	86-30-6 122-39-4	4	µg/L	<4	<4	<4	----	----
Methapyrilene	91-80-5	2	µg/L	<2	<2	<2	----	----

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	NEL-ENV-BH022	QC1_20180927	QC2_20180927	TRIP BLANKS	----
Client sampling date / time					27-Sep-2018 00:00	27-Sep-2018 00:00	27-Sep-2018 00:00	27-Sep-2018 00:00	----
Compound	CAS Number	LOR	Unit	EM1815577-001	EM1815577-002	EM1815577-003	EM1815577-004	-----	
				Result	Result	Result	Result	----	
EP075E: Nitroaromatics and Ketones									
2-Picoline	109-06-8	2	µg/L	<2	<2	<2	----	----	
Acetophenone	98-86-2	2	µg/L	86	<2	<2	----	----	
Nitrobenzene	98-95-3	2	µg/L	<2	<2	<2	----	----	
Isophorone	78-59-1	2	µg/L	<2	<2	<2	----	----	
2,6-Dinitrotoluene	606-20-2	4	µg/L	<4	<4	<4	----	----	
2,4-Dinitrotoluene	121-14-2	4	µg/L	<4	<4	<4	----	----	
1-Naphthylamine	134-32-7	2	µg/L	<2	<2	<2	----	----	
4-Nitroquinoline-N-oxide	56-57-5	2	µg/L	<2	<2	<2	----	----	
5-Nitro-o-toluidine	99-55-8	2	µg/L	<2	<2	<2	----	----	
Azobenzene	103-33-3	2	µg/L	<2	<2	<2	----	----	
1,3,5-Trinitrobenzene	99-35-4	2	µg/L	<2	<2	<2	----	----	
Phenacetin	62-44-2	2	µg/L	<2	<2	<2	----	----	
4-Aminobiphenyl	92-67-1	2	µg/L	<2	<2	<2	----	----	
Pentachloronitrobenzene	82-68-8	2	µg/L	<2	<2	<2	----	----	
Pronamide	23950-58-5	2	µg/L	<2	<2	<2	----	----	
Dimethylaminoazobenzene	60-11-7	2	µg/L	<2	<2	<2	----	----	
Chlorobenzilate	510-15-6	2	µg/L	<2	<2	<2	----	----	
EP075F: Haloethers									
Bis(2-chloroethyl) ether	111-44-4	2	µg/L	<2	<2	<2	----	----	
Bis(2-chloroethoxy) methane	111-91-1	2	µg/L	<2	<2	<2	----	----	
4-Chlorophenyl phenyl ether	7005-72-3	2	µg/L	<2	<2	<2	----	----	
4-Bromophenyl phenyl ether	101-55-3	2	µg/L	<2	<2	<2	----	----	
EP075G: Chlorinated Hydrocarbons									
1,3-Dichlorobenzene	541-73-1	2	µg/L	<2	<2	<2	----	----	
1,4-Dichlorobenzene	106-46-7	2	µg/L	<2	<2	<2	----	----	
1,2-Dichlorobenzene	95-50-1	2	µg/L	<2	<2	<2	----	----	
Hexachloroethane	67-72-1	2	µg/L	<2	<2	<2	----	----	
1,2,4-Trichlorobenzene	120-82-1	2	µg/L	<2	<2	<2	----	----	
Hexachloropropylene	1888-71-7	2	µg/L	<2	<2	<2	----	----	
Hexachlorobutadiene	87-68-3	2	µg/L	<2	<2	<2	----	----	
Hexachlorocyclopentadiene	77-47-4	10	µg/L	<10	<10	<10	----	----	
Pentachlorobenzene	608-93-5	2	µg/L	<2	<2	<2	----	----	
Hexachlorobenzene (HCB)	118-74-1	4	µg/L	<4	<4	<4	----	----	
EP075H: Anilines and Benzidines									



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Client sample ID

				NEL-ENV-BH022	QC1_20180927	QC2_20180927	TRIP BLANKS	----
Client sampling date / time				27-Sep-2018 00:00	27-Sep-2018 00:00	27-Sep-2018 00:00	27-Sep-2018 00:00	----
Compound	CAS Number	LOR	Unit	EM1815577-001	EM1815577-002	EM1815577-003	EM1815577-004	-----
				Result	Result	Result	Result	----
EP075H: Anilines and Benzidines - Continued								
Aniline	62-53-3	2	µg/L	<2	<2	<2	----	----
4-Chloroaniline	106-47-8	2	µg/L	<2	<2	<2	----	----
2-Nitroaniline	88-74-4	4	µg/L	<4	<4	<4	----	----
3-Nitroaniline	99-09-2	4	µg/L	<4	<4	<4	----	----
Dibenzofuran	132-64-9	2	µg/L	<2	<2	<2	----	----
4-Nitroaniline	100-01-8	2	µg/L	<2	<2	<2	----	----
Carbazole	86-74-8	2	µg/L	<2	<2	<2	----	----
3,3'-Dichlorobenzidine	91-94-1	2	µg/L	<2	<2	<2	----	----
EP075I: Organochlorine Pesticides								
alpha-BHC	319-84-6	2	µg/L	<2	<2	<2	----	----
beta-BHC	319-85-7	2	µg/L	<2	<2	<2	----	----
gamma-BHC	58-89-9	2	µg/L	<2	<2	<2	----	----
delta-BHC	319-86-8	2	µg/L	<2	<2	<2	----	----
Heptachlor	76-44-8	2	µg/L	<2	<2	<2	----	----
Aldrin	309-00-2	2	µg/L	<2	<2	<2	----	----
Heptachlor epoxide	1024-57-3	2	µg/L	<2	<2	<2	----	----
alpha-Endosulfan	959-98-8	2	µg/L	<2	<2	<2	----	----
4,4'-DDE	72-55-9	2	µg/L	<2	<2	<2	----	----
Dieldrin	60-57-1	2	µg/L	<2	<2	<2	----	----
Endrin	72-20-8	2	µg/L	<2	<2	<2	----	----
beta-Endosulfan	33213-65-9	2	µg/L	<2	<2	<2	----	----
4,4'-DDD	72-54-8	2	µg/L	<2	<2	<2	----	----
Endosulfan sulfate	1031-07-8	2	µg/L	<2	<2	<2	----	----
4,4'-DDT	50-29-3	4	µg/L	<4	<4	<4	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	4	µg/L	<4	<4	<4	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	4	µg/L	<4	<4	<4	----	----
EP075J: Organophosphorus Pesticides								
Dichlorvos	62-73-7	2	µg/L	<2	<2	<2	----	----
Dimethoate	60-51-5	2	µg/L	<2	<2	<2	----	----
Diazinon	333-41-5	2	µg/L	<2	<2	<2	----	----
Chlorpyrifos-methyl	5598-13-0	2	µg/L	<2	<2	<2	----	----
Malathion	121-75-5	2	µg/L	<2	<2	<2	----	----
Fenthion	55-38-9	2	µg/L	<2	<2	<2	----	----
Chlorpyrifos	2921-88-2	2	µg/L	<2	<2	<2	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	NEL-ENV-BH022	QC1_20180927	QC2_20180927	TRIP BLANKS	----
Client sampling date / time					27-Sep-2018 00:00	27-Sep-2018 00:00	27-Sep-2018 00:00	27-Sep-2018 00:00	----
Compound	CAS Number	LOR	Unit		EM1815577-001	EM1815577-002	EM1815577-003	EM1815577-004	-----
					Result	Result	Result	Result	----
EP075J: Organophosphorus Pesticides - Continued									
Pirimphos-ethyl	23505-41-1	2	µg/L		<2	<2	<2	----	----
Chlorfenvinphos	470-90-6	2	µg/L		<2	<2	<2	----	----
Prothiofos	34643-46-4	2	µg/L		<2	<2	<2	----	----
Ethion	563-12-2	2	µg/L		<2	<2	<2	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		42800	<20	<20	----	----
C10 - C14 Fraction	----	50	µg/L		3090	<50	<50	----	----
C15 - C28 Fraction	----	100	µg/L		230	<100	<100	----	----
C29 - C36 Fraction	----	50	µg/L		<50	<50	<50	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L		3320	<50	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		41600	<20	<20	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		4420	<20	<20	----	----
>C10 - C16 Fraction	----	100	µg/L		1410	<100	<100	----	----
>C16 - C34 Fraction	----	100	µg/L		180	<100	<100	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L		1590	<100	<100	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L		1240	<100	<100	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		6060	<1	<1	----	----
Toluene	108-88-3	2	µg/L		19400	<2	<2	----	----
Ethylbenzene	100-41-4	2	µg/L		1220	<2	<2	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		7180	<2	2	----	----
ortho-Xylene	95-47-6	2	µg/L		3320	<2	<2	----	----
^ Total Xylenes	----	2	µg/L		10500	<2	2	----	----
^ Sum of BTEX	----	1	µg/L		37200	<1	2	----	----
Naphthalene	91-20-3	5	µg/L		166	<5	<5	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.002	µg/L		<0.002	<0.002	<0.002	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.002	µg/L		<0.002	<0.002	<0.002	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	NEL-ENV-BH022	QC1_20180927	QC2_20180927	TRIP BLANKS	----
Client sampling date / time					27-Sep-2018 00:00	27-Sep-2018 00:00	27-Sep-2018 00:00	27-Sep-2018 00:00	----
Compound	CAS Number	LOR	Unit		EM1815577-001	EM1815577-002	EM1815577-003	EM1815577-004	-----
					Result	Result	Result	Result	----
EP231A: Perfluoroalkyl Sulfonic Acids - Continued									
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.002	µg/L		<0.002	<0.002	<0.002	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.002	µg/L		<0.002	<0.002	<0.002	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.002	µg/L		<0.002	<0.002	<0.002	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.002	µg/L		<0.002	<0.002	<0.002	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.01	µg/L		<0.01	<0.01	<0.01	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.002	µg/L		<0.002	<0.002	<0.002	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.002	µg/L		<0.002	<0.002	<0.002	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.002	µg/L		<0.002	<0.002	<0.002	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.002	µg/L		<0.002	<0.002	<0.002	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.002	µg/L		<0.002	<0.002	<0.002	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.002	µg/L		<0.002	<0.002	<0.002	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.002	µg/L		<0.002	<0.002	<0.002	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.002	µg/L		<0.002	<0.002	<0.002	----	----
Perfluorotridecanoic acid (PFTTrDA)	72629-94-8	0.002	µg/L		<0.002	<0.002	<0.002	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.005	µg/L		<0.005	<0.005	<0.005	----	----
Perfluorohexadecanoic acid (PFHxDA)	67905-19-5	0.005	µg/L		<0.005	<0.005	<0.005	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.002	µg/L		<0.002	<0.002	<0.002	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.005	µg/L		<0.005	<0.005	<0.005	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.005	µg/L		<0.005	<0.005	<0.005	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.005	µg/L		<0.005	<0.005	<0.005	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	NEL-ENV-BH022	QC1_20180927	QC2_20180927	TRIP BLANKS	----
Client sampling date / time					27-Sep-2018 00:00	27-Sep-2018 00:00	27-Sep-2018 00:00	27-Sep-2018 00:00	----
Compound	CAS Number	LOR	Unit		EM1815577-001	EM1815577-002	EM1815577-003	EM1815577-004	-----
					Result	Result	Result	Result	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.005	µg/L		<0.005	<0.005	<0.005	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.002	µg/L		<0.002	<0.002	<0.002	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.002	µg/L		<0.002	<0.002	<0.002	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.005	µg/L		<0.005	<0.005	<0.005	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.005	µg/L		<0.005	<0.005	<0.005	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.005	µg/L		<0.005	<0.005	<0.005	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.005	µg/L		<0.005	<0.005	<0.005	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.002	µg/L		<0.002	<0.002	<0.002	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.002	µg/L		<0.002	<0.002	<0.002	----	----
Sum of PFAS (WA DER List)	----	0.002	µg/L		<0.002	<0.002	<0.002	----	----
MM669: Sulphate Reducing Bacteria									
Sulphate Reducing Bacteria Population Estimate	----	20	pac/mL		27000	<20	<20	----	----
Aggressivity	----	1	-		High	Not Aggressive	Not Aggressive	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	1	%		74.9	64.5	63.2	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.5	%		80.1	73.6	72.3	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.5	%		99.0	80.9	79.7	----	----
EP074S: VOC Surrogates									
1,2-Dichloroethane-D4	17060-07-0	5	%		102	91.0	91.4	101	----
Toluene-D8	2037-26-5	5	%		89.1	92.1	90.4	88.2	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	NEL-ENV-BH022	QC1_20180927	QC2_20180927	TRIP BLANKS	----
Client sampling date / time					27-Sep-2018 00:00	27-Sep-2018 00:00	27-Sep-2018 00:00	27-Sep-2018 00:00	----
Compound	CAS Number	LOR	Unit		EM1815577-001	EM1815577-002	EM1815577-003	EM1815577-004	-----
					Result	Result	Result	Result	----
EP074S: VOC Surrogates - Continued									
4-Bromofluorobenzene	460-00-4	5	%		85.6	94.4	92.1	97.3	----
EP075S: Acid Extractable Surrogates									
2-Fluorophenol	367-12-4	2	%		18.8	49.4	46.3	----	----
Phenol-d6	13127-88-3	2	%		36.2	22.0	20.5	----	----
2-Chlorophenol-D4	93951-73-6	2	%		63.6	48.7	46.6	----	----
2,4,6-Tribromophenol	118-79-6	2	%		70.5	48.8	49.2	----	----
EP075T: Base/Neutral Extractable Surrogates									
Nitrobenzene-D5	4165-60-0	2	%		68.4	54.7	52.4	----	----
1,2-Dichlorobenzene-D4	2199-69-1	2	%		59.2	50.6	48.7	----	----
2-Fluorobiphenyl	321-60-8	2	%		70.4	58.1	57.5	----	----
Anthracene-d10	1719-06-8	2	%		73.4	66.4	64.8	----	----
4-Terphenyl-d14	1718-51-0	2	%		76.3	67.8	66.9	----	----
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	2	%		84.1	93.0	94.2	----	----
Toluene-D8	2037-26-5	2	%		77.4	100	98.4	----	----
4-Bromofluorobenzene	460-00-4	2	%		93.7	113	111	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.002	%		91.8	84.0	72.3	----	----
13C8-PFOA	----	0.002	%		88.0	86.2	86.7	----	----



Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	41	125
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	117
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	51	127
EP074S: VOC Surrogates			
1,2-Dichloroethane-D4	17060-07-0	72	132
Toluene-D8	2037-26-5	77	132
4-Bromofluorobenzene	460-00-4	67	131
EP075S: Acid Extractable Surrogates			
2-Fluorophenol	367-12-4	10	75
Phenol-d6	13127-88-3	10	65
2-Chlorophenol-D4	93951-73-6	21	103
2,4,6-Tribromophenol	118-79-6	22	120
EP075T: Base/Neutral Extractable Surrogates			
Nitrobenzene-D5	4165-60-0	24	116
1,2-Dichlorobenzene-D4	2199-69-1	23	99
2-Fluorobiphenyl	321-60-8	32	114
Anthracene-d10	1719-06-8	47	119
4-Terphenyl-d14	1718-51-0	44	124
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	73	129
Toluene-D8	2037-26-5	70	125
4-Bromofluorobenzene	460-00-4	71	129
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

[illegible]

Shirley LeCornu

From: Liam Spurr <Liam.Spurr@ghd.com>
Sent: Thursday, 27 September 2018 4:52 PM
To: Shirley LeCornu
Subject: Re: Lab bottle request

Hi Shirley,

I'd like to request that for this batch of samples, that an amendment be made to the CoC.

Could you please add on OC/OP/PCB for analysis, for the following samples (sent today).

NEL-ENV-BH022
QC1_20180927
QC2_20180927

Thanks again for your help.

Cheers
Liam

Liam Spurr
Hydrogeologist - Water Resources

O: +61386878831
M: +61408767607
E: Liam.Spurr@GHD.com

Sent from my Samsung Galaxy smartphone.

----- Original message -----

From: Liam Spurr <Liam.Spurr@ghd.com>
Date: 25/9/18 17:00 (GMT+10:00)
To: "Shirley Lecornu (InTouch)" <shirley.lecornu@alsglobal.com>
Subject: Re: Lab bottle request

Apologies, please remove the duplicate and triplicate from that request.

Please keep the trip blanks, rinsates and field blank.

Suite attached.

Thanks
Liam

Liam Spurr
Hydrogeologist - Water Resources

O: +61386878831

M: +61408767607
E: Liam.Spurr@GHD.com

Sent from my Samsung Galaxy smartphone.

----- Original message -----

From: Liam Spurr <Liam.Spurr@ghd.com>
Date: 25/9/18 16:56 (GMT+10:00)
To: "Shirley Lecornu (InTouch)" <shirley.lecornu@alsglobal.com>
Subject: Lab bottle request

Hi Shirley,

I'd like to request a set of lab bottles and eskies for the attached suite, required for 1 primary sample.

The below list summarises the bottles required.

- 1 primary sample, bottles for full suite
- 1 duplicate sample, for full primary suite
- 1 triplicate sample (for MGT-Eurofins), for full primary suite
- 3 trip blanks, (TPH/TRH only)
- 1 rinsate, for full primary suite
- 1 field blank, for full primary suite

Please arrange for the delivery of these bottles by COB tomorrow Wednesday the 26th of September to our GHD office at 180 Lonsdale St.

Please let me know if this is not achievable given the late notice.

Thanks for your help.
Liam

Liam Spurr
Hydrogeologist - Water Resources

O: +61386878831
M: +61408767607
E: Liam.Spurr@GHD.com

Sent from my Samsung Galaxy smartphone.

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SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : EM1815577

<p>Client : GHD PTY LTD</p> <p>Contact : KORY AUCH</p> <p>Address : LEVEL 8, 180 LONSDALE ST MELBOURNE VIC, AUSTRALIA 3001</p> <p>E-mail : kory.auch@ghd.com</p> <p>Telephone : ----</p> <p>Facsimile : ----</p> <p>Project : ----</p> <p>Order number : ----</p> <p>C-O-C number : ----</p> <p>Site : ----</p> <p>Sampler : LIAM SPURR</p>	<p>Laboratory : Environmental Division Melbourne</p> <p>Contact : Shirley LeCornu</p> <p>Address : 4 Westall Rd Springvale VIC Australia 3171</p> <p>E-mail : shirley.lecornu@Alsglobal.com</p> <p>Telephone : +61-3-8549 9630</p> <p>Facsimile : +61-3-8549 9626</p> <p>Page : 1 of 3</p> <p>Quote number : EM2018GHDSE0003 (ME/124/18 - North East Link)</p> <p>QC Level : NEPM 2013 B3 & ALS QC Standard</p>
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Dates

Date Samples Received : 27-Sep-2018 16:05	Issue Date : 27-Sep-2018
Client Requested Due : 05-Oct-2018	Scheduled Reporting Date : 05-Oct-2018
Date : ----	

Delivery Details

Mode of Delivery : Carrier	Security Seal : Intact.
No. of coolers/boxes : 2	Temperature : 5.9°C - Ice present
Receipt Detail : ----	No. of samples received / analysed : 4 / 4

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **Analytical work for this work order will be conducted at ALS Springvale, ALS Scoresby & ALS Sydney.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Preliminary results will be available on the scheduled reporting date listed in this report. However the final report with SRB analysis will be complete on 11/10/18.



Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- No sample container / preservation non-compliance exists.

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EP231X-LL PFAS - Full Suite Low Level (29 analytes)	WATER - MM669 (Subcontracted) Sulphate Reducing Bacteria (BART)	WATER - NT-14 Extended Water Suite B	WATER - W-03 15 Metals (NEPM Suite)	WATER - W-04 TRH/BTEXN	WATER - W-13 OC/OP/PCB	WATER - W-23 SVOC/VOC
EM1815577-001	27-Sep-2018 00:00	NEL-ENV-BH022	✓	✓	✓	✓	✓	✓	✓
EM1815577-002	27-Sep-2018 00:00	QC1_20180927	✓	✓	✓	✓	✓	✓	✓
EM1815577-003	27-Sep-2018 00:00	QC2_20180927	✓	✓	✓	✓	✓	✓	✓

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EP074 (water) Volatile Organic Compounds
EM1815577-004	27-Sep-2018 00:00	TRIP BLANKS	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

[illegible]

QUALITY CONTROL REPORT

Work Order : **EM1815577**

Page : 1 of 21

Amendment : **1**

Client : **GHD PTY LTD**

Laboratory : Environmental Division Melbourne

Contact : **KORY AUCH**

Contact : Shirley LeCornu

Address : LEVEL 8, 180 LONSDALE ST
MELBOURNE VIC, AUSTRALIA 3001

Address : 4 Westall Rd Springvale VIC Australia 3171

Telephone : ----

Telephone : +61-3-8549 9630

Project : ----

Date Samples Received : 27-Sep-2018

Order number :

Date Analysis Commenced : 27-Sep-2018

C-O-C number : ----

Issue Date : 15-Oct-2018

Sampler : **LIAM SPURR**

Site : ----

Quote number : **ME/124/18 - North East Link**

No. of samples received : **4**

No. of samples analysed : **4**



Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Franco Lentini		Sydney Organics, Smithfield, NSW
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Samantha Smith	Laboratory Coordinator	WRG Subcontracting, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
 CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
 LOR = Limit of reporting
 RPD = Relative Percentage Difference
 # = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EA005P: pH by PC Titrator (QC Lot: 1963389)									
EM1815635-003	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	7.91	7.91	0.00	0% - 20%
EM1815528-001	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	8.21	8.29	0.970	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 1963388)									
EM1815635-003	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	672	672	0.00	0% - 20%
EM1815528-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	946	946	0.00	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 1963391)									
EM1815541-001	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.00	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.00	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	1	<1	0.00	No Limit
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	1	<1	0.00	No Limit
EM1815528-001	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.00	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	1	0.00	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	238	241	1.01	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	238	242	1.48	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 1954849)									
EM1815577-003	QC2_20180927	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	<1	0.00	No Limit
EM1815572-003	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	624	617	1.13	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 1954850)									
EM1815572-003	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	1930	1940	0.614	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 1960354)									
EM1815566-016	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	86	87	0.00	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	238	241	1.18	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	865	875	1.22	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	20	21	0.00	0% - 20%

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
ED093F: Dissolved Major Cations (QC Lot: 1960354) - continued									
EM1815566-024	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	74	76	1.56	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	200	201	0.515	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	716	720	0.566	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	14	14	0.00	0% - 50%
EG020F: Dissolved Metals by ICP-MS (QC Lot: 1960353)									
EM1815566-015	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.001	<0.001	0.00	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.134	0.133	0.951	0% - 20%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.001	0.00	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.007	0.007	0.00	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EG020A-F: Boron	7440-42-8	0.05	mg/L	1.34	1.26	6.58	0% - 20%		
EM1815566-024	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Barium	7440-39-3	0.001	mg/L	0.209	0.211	0.840	0% - 20%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.003	0.003	0.00	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.008	0.009	0.00	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EG020A-F: Boron	7440-42-8	0.05	mg/L	0.58	0.60	3.96	0% - 50%		
EG035F: Dissolved Mercury by FIMS (QC Lot: 1960352)									
EM1815566-015	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EM1815566-024	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EK040P: Fluoride by PC Titrator (QC Lot: 1963390)									
EM1815528-001	Anonymous	EK040P: Fluoride	16984-48-8	0.1	mg/L	0.5	0.5	0.00	No Limit
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 1961420)									



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 1961420) - continued									
EM1815576-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	339	367	8.01	0% - 20%
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 1954845)									
EM1815540-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EM1815566-013	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 1954851)									
EM1815577-003	QC2_20180927	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 1961419)									
EM1815566-011	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	2.26	2.22	1.54	0% - 20%
EM1815582-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.06	0.06	0.00	No Limit
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 1958698)									
EM1815332-008	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	0.4	122	No Limit
EM1815577-001	NEL-ENV-BH022	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.7	0.7	0.00	No Limit
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 1958697)									
EM1815332-008	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EM1815577-001	NEL-ENV-BH022	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.23	0.23	0.00	0% - 20%
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 1954848)									
EM1815566-019	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EM1815566-013	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 1961137)									
EM1815577-002	QC1_20180927	EP074: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP074: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP074: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP074: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.00	No Limit
			106-42-3						
		EP074: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.00	No Limit
EP074B: Oxygenated Compounds (QC Lot: 1961137)									
EM1815577-002	QC1_20180927	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.00	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.00	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.00	No Limit



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074C: Sulfonated Compounds (QC Lot: 1961137)									
EM1815577-002	QC1_20180927	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.00	No Limit
EP074D: Fumigants (QC Lot: 1961137)									
EM1815577-002	QC1_20180927	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.00	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 1961137)									
EM1815577-002	QC1_20180927	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.00	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.00	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.00	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.00	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.00	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.00	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 1961137)									
EM1815577-002	QC1_20180927	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.00	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074F: Halogenated Aromatic Compounds (QC Lot: 1961137) - continued									
EM1815577-002	QC1_20180927	EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.00	No Limit
EP074G: Trihalomethanes (QC Lot: 1961137)									
EM1815577-002	QC1_20180927	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.00	No Limit
EP074H: Naphthalene (QC Lot: 1961137)									
EM1815577-002	QC1_20180927	EP074: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1961136)									
EM1815648-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	340	370	8.44	0% - 50%
EM1815577-002	QC1_20180927	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1961136)									
EM1815648-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	360	390	8.70	0% - 50%
EM1815577-002	QC1_20180927	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 1961136)									
EM1815648-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	126	138	8.68	0% - 20%
		EP080: Toluene	108-88-3	2	µg/L	16	18	8.18	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	48	53	9.85	0% - 20%
			106-42-3						
		EP080: ortho-Xylene	95-47-6	2	µg/L	17	19	9.35	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	6	6	0.00	No Limit
EM1815577-002	QC1_20180927	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.00	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 1961163)									
EM1815577-001	NEL-ENV-BH022	EP231X-LL: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.002	µg/L	<0.002	<0.002	0.00	No Limit



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 1961163) - continued									
EM1815577-001	NEL-ENV-BH022	EP231X-LL: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.002	µg/L	<0.002	<0.002	0.00	No Limit
EM1815625-021	Anonymous	EP231X-LL: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.002	µg/L	0.003	0.003	0.00	No Limit
		EP231X-LL: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.002	µg/L	<0.002	<0.002	0.00	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 1961163)									
EM1815577-001	NEL-ENV-BH022	EP231X-LL: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorohexanoic acid (PFHxA)	307-24-4	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorooctanoic acid (PFOA)	335-67-1	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorononanoic acid (PFNA)	375-95-1	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorodecanoic acid (PFDA)	335-76-2	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorotridecanoic acid (PFTTrDA)	72629-94-8	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: Perfluorobutanoic acid (PFBA)	375-22-4	0.01	µg/L	<0.01	<0.01	0.00	No Limit
EM1815625-021	Anonymous	EP231X-LL: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorohexanoic acid (PFHxA)	307-24-4	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorooctanoic acid (PFOA)	335-67-1	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorononanoic acid (PFNA)	375-95-1	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorodecanoic acid (PFDA)	335-76-2	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.002	µg/L	<0.002	<0.002	0.00	No Limit
EP231X-LL: Perfluorotridecanoic acid (PFTTrDA)	72629-94-8	0.002	µg/L	<0.002	<0.002	0.00	No Limit		



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 1961163) - continued									
EM1815625-021	Anonymous	EP231X-LL: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: Perfluorobutanoic acid (PFBA)	375-22-4	0.01	µg/L	<0.01	<0.01	0.00	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 1961163)									
EM1815577-001	NEL-ENV-BH022	EP231X-LL: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.005	µg/L	<0.005	<0.005	0.00	No Limit
EM1815625-021	Anonymous	EP231X-LL: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.005	µg/L	<0.005	<0.005	0.00	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 1961163)									
EM1815577-001	NEL-ENV-BH022	EP231X-LL: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.005	µg/L	<0.005	<0.005	0.00	No Limit
EM1815625-021	Anonymous	EP231X-LL: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.005	µg/L	<0.005	<0.005	0.00	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 1961163) - continued									
EM1815625-021	Anonymous	EP231X-LL: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.005	µg/L	<0.005	<0.005	0.00	No Limit



Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EA010P: Conductivity by PC Titrator (QCLot: 1963388)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	1412 µS/cm	99.4	85	119
ED037P: Alkalinity by PC Titrator (QCLot: 1963391)								
ED037-P: Total Alkalinity as CaCO3	----	----	mg/L	----	200 mg/L	92.1	88	112
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 1954849)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	106	86	115
				<1	100 mg/L	97.7	86	115
ED045G: Chloride by Discrete Analyser (QCLot: 1954850)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	10 mg/L	106	84	122
				<1	1000 mg/L	103	84	122
ED093F: Dissolved Major Cations (QCLot: 1960354)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	5 mg/L	94.0	93	110
ED093F: Magnesium	7439-95-4	1	mg/L	<1	5 mg/L	95.2	91	110
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	97.0	90	109
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	93.5	89	109
EG020F: Dissolved Metals by ICP-MS (QCLot: 1960353)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	101	91	107
EG020A-F: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	99.9	82	113
EG020A-F: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	101	84	106
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	96.8	84	104
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	93.6	83	103
EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	98.1	83	106
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	97.0	82	103
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	100	83	105
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	96.4	83	105
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	99.7	82	106
EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	98.2	82	109
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	95.3	83	106
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	101	85	109
EG020A-F: Boron	7440-42-8	0.05	mg/L	<0.05	0.5 mg/L	98.9	84	116
EG035F: Dissolved Mercury by FIMS (QCLot: 1960352)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	94.2	81	114
EK040P: Fluoride by PC Titrator (QCLot: 1963390)								
EK040P: Fluoride	16984-48-8	0.1	mg/L	<0.1	5 mg/L	99.0	87	117



Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EK055G: Ammonia as N by Discrete Analyser (QCLot: 1961420)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	110	87	117
EK057G: Nitrite as N by Discrete Analyser (QCLot: 1954845)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	102	92	111
EK057G: Nitrite as N by Discrete Analyser (QCLot: 1954851)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	102	92	111
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 1961419)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	104	93	120
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 1958698)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	5 mg/L	100	70	117
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 1958697)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	2.21 mg/L	108	72	114
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 1954848)								
EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.5 mg/L	107	93	113
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 1958080)								
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	10 µg/L	69.2	54	132
EP068A: Organochlorine Pesticides (OC) (QCLot: 1958079)								
EP068: alpha-BHC	319-84-6	0.5	µg/L	<0.5	2.5 µg/L	89.0	51	122
EP068: Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	2.5 µg/L	79.4	51	118
EP068: beta-BHC	319-85-7	0.5	µg/L	<0.5	2.5 µg/L	92.2	57	119
EP068: gamma-BHC	58-89-9	0.5	µg/L	<0.5	2.5 µg/L	87.4	51	121
EP068: delta-BHC	319-86-8	0.5	µg/L	<0.5	2.5 µg/L	80.0	58	114
EP068: Heptachlor	76-44-8	0.5	µg/L	<0.5	2.5 µg/L	91.2	47	113
EP068: Aldrin	309-00-2	0.5	µg/L	<0.5	2.5 µg/L	87.0	53	118
EP068: Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	2.5 µg/L	91.2	53	117
EP068: trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	2.5 µg/L	89.4	50	126
EP068: alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	2.5 µg/L	87.5	55	121
EP068: cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	2.5 µg/L	89.6	54	120
EP068: Dieldrin	60-57-1	0.5	µg/L	<0.5	2.5 µg/L	87.4	50	121
EP068: 4,4'-DDE	72-55-9	0.5	µg/L	<0.5	2.5 µg/L	78.3	54	120
EP068: Endrin	72-20-8	0.5	µg/L	<0.5	2.5 µg/L	113	45	122
EP068: beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	2.5 µg/L	88.1	55	120
EP068: 4,4'-DDD	72-54-8	0.5	µg/L	<0.5	2.5 µg/L	88.1	53	126
EP068: Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	2.5 µg/L	96.9	52	123
EP068: Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	2.5 µg/L	92.9	48	121
EP068: 4,4'-DDT	50-29-3	2	µg/L	<2.0	2.5 µg/L	94.5	46	120
EP068: Endrin ketone	53494-70-5	0.5	µg/L	<0.5	2.5 µg/L	87.7	56	118
EP068: Methoxychlor	72-43-5	2	µg/L	<2.0	2.5 µg/L	100.0	42	123



Sub-Matrix: **WATER**

Method: Compound				Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%)	
							Low	High
CAS Number	LOR	Unit						
EP068B: Organophosphorus Pesticides (OP) (QCLot: 1958079)								
EP068: Dichlorvos	62-73-7	0.5	µg/L	<0.5	2.5 µg/L	92.7	45	123
EP068: Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	2.5 µg/L	106	42	129
EP068: Monocrotophos	6923-22-4	2	µg/L	<2.0	2.5 µg/L	18.2	10	43
EP068: Dimethoate	60-51-5	0.5	µg/L	<0.5	2.5 µg/L	85.0	38	115
EP068: Diazinon	333-41-5	0.5	µg/L	<0.5	2.5 µg/L	89.6	54	121
EP068: Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	2.5 µg/L	92.4	56	118
EP068: Parathion-methyl	298-00-0	2	µg/L	<2.0	2.5 µg/L	104	43	115
EP068: Malathion	121-75-5	0.5	µg/L	<0.5	2.5 µg/L	80.4	50	120
EP068: Fenthion	55-38-9	0.5	µg/L	<0.5	2.5 µg/L	91.1	55	119
EP068: Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	2.5 µg/L	92.1	50	122
EP068: Parathion	56-38-2	2	µg/L	<2.0	2.5 µg/L	104	44	114
EP068: Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	2.5 µg/L	92.7	52	117
EP068: Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	2.5 µg/L	103	42	126
EP068: Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	2.5 µg/L	94.0	50	117
EP068: Fenamiphos	22224-92-6	0.5	µg/L	<0.5	2.5 µg/L	108	45	127
EP068: Prothiofos	34643-46-4	0.5	µg/L	<0.5	2.5 µg/L	90.5	52	120
EP068: Ethion	563-12-2	0.5	µg/L	<0.5	2.5 µg/L	97.6	49	118
EP068: Carbophenothion	786-19-6	0.5	µg/L	<0.5	2.5 µg/L	96.6	52	119
EP068: Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	2.5 µg/L	95.6	21	120
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 1961137)								
EP074: Benzene	71-43-2	1	µg/L	<1	20 µg/L	84.3	76	122
EP074: Toluene	108-88-3	2	µg/L	<2	20 µg/L	83.6	81	115
EP074: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	81.6	78	116
EP074: meta- & para-Xylene	108-38-3	2	µg/L	<2	40 µg/L	83.9	79	116
	106-42-3							
EP074: Styrene	100-42-5	5	µg/L	<5	20 µg/L	83.2	79	114
EP074: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	85.6	83	116
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	20 µg/L	74.0	72	116
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	20 µg/L	75.9	71	115
EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	20 µg/L	78.2	72	114
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	20 µg/L	75.0	72	114
EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	20 µg/L	77.1	74	112
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	20 µg/L	78.6	73	114
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	20 µg/L	76.8	70	115
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	20 µg/L	73.9	62	116
EP074B: Oxygenated Compounds (QCLot: 1961137)								
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	200 µg/L	75.7	73	126
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	200 µg/L	93.8	68	136
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	200 µg/L	87.0	76	127



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EP074B: Oxygenated Compounds (QCLot: 1961137) - continued								
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	200 µg/L	89.4	71	131
EP074C: Sulfonated Compounds (QCLot: 1961137)								
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	20 µg/L	76.2	55	123
EP074D: Fumigants (QCLot: 1961137)								
EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	20 µg/L	81.8	67	122
EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	20 µg/L	89.0	78	120
EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	20 µg/L	81.0	70	118
EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	20 µg/L	84.2	68	115
EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	20 µg/L	84.1	78	120
EP074E: Halogenated Aliphatic Compounds (QCLot: 1961137)								
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	200 µg/L	79.2	62	140
EP074: Chloromethane	74-87-3	50	µg/L	<50	200 µg/L	86.4	68	138
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	200 µg/L	80.2	64	139
EP074: Bromomethane	74-83-9	50	µg/L	<50	200 µg/L	68.6	48	130
EP074: Chloroethane	75-00-3	50	µg/L	<50	200 µg/L	83.4	71	130
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	200 µg/L	80.1	71	126
EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	20 µg/L	82.4	65	124
EP074: Iodomethane	74-88-4	5	µg/L	<5	20 µg/L	40.3	27	120
EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	20 µg/L	82.2	73	121
EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	20 µg/L	84.4	77	120
EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	20 µg/L	89.7	78	120
EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	20 µg/L	80.5	68	116
EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	20 µg/L	74.6	66	119
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	20 µg/L	75.0	66	119
EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	20 µg/L	88.6	79	118
EP074: Trichloroethene	79-01-6	5	µg/L	<5	20 µg/L	80.4	70	120
EP074: Dibromomethane	74-95-3	5	µg/L	<5	20 µg/L	91.5	75	115
EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	20 µg/L	89.6	87	114
EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	20 µg/L	89.2	84	116
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	20 µg/L	75.2	75	119
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	20 µg/L	81.6	75	112
EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	20 µg/L	90.9	63	119
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	20 µg/L	84.8	54	119
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	20 µg/L	90.7	81	125
EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	20 µg/L	88.4	81	125
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	20 µg/L	78.5	62	110
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	20 µg/L	83.5	63	106
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	20 µg/L	80.0	63	126



Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result			Low	High
EP074F: Halogenated Aromatic Compounds (QCLot: 1961137)								
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	20 µg/L	82.5	82	114
EP074: Bromobenzene	108-86-1	5	µg/L	<5	20 µg/L	86.3	74	117
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	20 µg/L	79.7	71	114
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	20 µg/L	79.0	71	112
EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	20 µg/L	79.6	73	116
EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	20 µg/L	85.5	76	118
EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	20 µg/L	83.9	82	112
EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	20 µg/L	79.7	62	119
EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	20 µg/L	87.3	74	118
EP074G: Trihalomethanes (QCLot: 1961137)								
EP074: Chloroform	67-66-3	5	µg/L	<5	20 µg/L	90.1	79	119
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	20 µg/L	87.1	70	112
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	20 µg/L	85.6	68	107
EP074: Bromoform	75-25-2	5	µg/L	<5	20 µg/L	83.2	62	108
EP074H: Naphthalene (QCLot: 1961137)								
EP074: Naphthalene	91-20-3	5	µg/L	<5	20 µg/L	89.3	80	115
EP075A: Phenolic Compounds (QCLot: 1958078)								
EP075: Phenol	108-95-2	2	µg/L	<2	10 µg/L	30.8	19	47
EP075: 2-Chlorophenol	95-57-8	2	µg/L	<2	10 µg/L	67.6	44	100
EP075: 2-Methylphenol	95-48-7	2	µg/L	<2	10 µg/L	54.0	38	94
EP075: 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2	10 µg/L	51.8	33	88
EP075: 2-Nitrophenol	88-75-5	2	µg/L	<2	10 µg/L	66.8	40	111
EP075: 2,4-Dimethylphenol	105-67-9	2	µg/L	<2	10 µg/L	67.4	44	110
EP075: 2,4-Dichlorophenol	120-83-2	2	µg/L	<2	10 µg/L	67.5	43	110
EP075: 2,6-Dichlorophenol	87-65-0	2	µg/L	<2	10 µg/L	68.7	49	104
EP075: 4-Chloro-3-methylphenol	59-50-7	2	µg/L	<2	10 µg/L	59.6	50	103
EP075: 2,4,6-Trichlorophenol	88-06-2	2	µg/L	<2	10 µg/L	63.8	48	107
EP075: 2,4,5-Trichlorophenol	95-95-4	2	µg/L	<2	10 µg/L	67.5	48	110
EP075: Pentachlorophenol	87-86-5	4	µg/L	<4	10 µg/L	79.4	25	113
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 1958078)								
EP075: Naphthalene	91-20-3	2	µg/L	<2	10 µg/L	68.6	51	102
EP075: 2-Methylnaphthalene	91-57-6	2	µg/L	<2	10 µg/L	63.5	50	107
EP075: 2-Chloronaphthalene	91-58-7	2	µg/L	<2	10 µg/L	63.4	47	111
EP075: Acenaphthylene	208-96-8	2	µg/L	<2	10 µg/L	64.3	49	110
EP075: Acenaphthene	83-32-9	2	µg/L	<2	10 µg/L	69.4	54	105
EP075: Fluorene	86-73-7	2	µg/L	<2	10 µg/L	73.3	54	108
EP075: Phenanthrene	85-01-8	2	µg/L	<2	10 µg/L	73.3	57	108
EP075: Anthracene	120-12-7	2	µg/L	<2	10 µg/L	73.3	57	108



Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result			Low	High
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 1958078) - continued								
EP075: Fluoranthene	206-44-0	2	µg/L	<2	10 µg/L	74.0	57	111
EP075: Pyrene	129-00-0	2	µg/L	<2	10 µg/L	68.8	58	110
EP075: N-2-Fluorenyl Acetamide	53-96-3	2	µg/L	<2	10 µg/L	79.5	48	117
EP075: Benz(a)anthracene	56-55-3	2	µg/L	<2	10 µg/L	74.8	55	112
EP075: Chrysene	218-01-9	2	µg/L	<2	10 µg/L	73.0	55	113
EP075: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	4	µg/L	<4	20 µg/L	75.2	56	111
EP075: 7,12-Dimethylbenz(a)anthracene	57-97-6	2	µg/L	<2	10 µg/L	79.0	55	140
EP075: Benzo(a)pyrene	50-32-8	2	µg/L	<2	10 µg/L	75.0	57	129
EP075: 3-Methylcholanthrene	56-49-5	2	µg/L	<2	10 µg/L	90.9	47	135
EP075: Indeno(1,2,3-cd)pyrene	193-39-5	2	µg/L	<2	10 µg/L	77.3	59	125
EP075: Dibenzo(a,h)anthracene	53-70-3	2	µg/L	<2	10 µg/L	77.7	58	126
EP075: Benzo(g,h,i)perylene	191-24-2	2	µg/L	<2	10 µg/L	80.2	59	127
EP075C: Phthalate Esters (QCLot: 1958078)								
EP075: Dimethyl phthalate	131-11-3	2	µg/L	<2	10 µg/L	67.4	57	121
EP075: Diethyl phthalate	84-66-2	2	µg/L	<2	10 µg/L	74.5	62	128
EP075: Di-n-butyl phthalate	84-74-2	2	µg/L	<2	10 µg/L	76.6	65	129
EP075: Butyl benzyl phthalate	85-68-7	2	µg/L	<2	10 µg/L	75.4	63	127
EP075: bis(2-ethylhexyl) phthalate	117-81-7	10	µg/L	<10	10 µg/L	77.6	56	131
EP075: Di-n-octylphthalate	117-84-0	2	µg/L	<2	10 µg/L	78.0	57	129
EP075D: Nitrosamines (QCLot: 1958078)								
EP075: N-Nitrosomethylethylamine	10595-95-6	2	µg/L	<2	10 µg/L	62.5	19	102
EP075: N-Nitrosodiethylamine	55-18-5	2	µg/L	<2	10 µg/L	60.1	38	113
EP075: N-Nitrosopyrrolidine	930-55-2	4	µg/L	<4	10 µg/L	48.8	29	88
EP075: N-Nitrosomorpholine	59-89-2	2	µg/L	<2	10 µg/L	41.8	27	90
EP075: N-Nitrosodi-n-propylamine	621-64-7	2	µg/L	<2	10 µg/L	71.1	43	119
EP075: N-Nitrosopiperidine	100-75-4	2	µg/L	<2	10 µg/L	66.8	43	112
EP075: N-Nitrosodibutylamine	924-16-3	2	µg/L	<2	10 µg/L	66.2	49	119
EP075: N-Nitrosodiphenyl & Diphenylamine	86-30-6 122-39-4	4	µg/L	<4	10 µg/L	75.1	59	119
EP075: Methapyrilene	91-80-5	2	µg/L	<2	10 µg/L	# 13.0	55	157
EP075E: Nitroaromatics and Ketones (QCLot: 1958078)								
EP075: 2-Picoline	109-06-8	2	µg/L	<2	10 µg/L	53.4	17	120
EP075: Acetophenone	98-86-2	2	µg/L	<2	10 µg/L	70.0	51	108
EP075: Nitrobenzene	98-95-3	2	µg/L	<2	10 µg/L	68.1	46	109
EP075: Isophorone	78-59-1	2	µg/L	<2	10 µg/L	71.8	49	114
EP075: 2,6-Dinitrotoluene	606-20-2	4	µg/L	<4	10 µg/L	65.0	56	120
EP075: 2,4-Dinitrotoluene	121-14-2	4	µg/L	<4	10 µg/L	72.2	57	121



Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EP075E: Nitroaromatics and Ketones (QCLot: 1958078) - continued								
EP075: 1-Naphthylamine	134-32-7	2	µg/L	<2	10 µg/L	35.4	11	119
EP075: 4-Nitroquinoline-N-oxide	56-57-5	2	µg/L	<2	10 µg/L	77.6	30	160
EP075: 5-Nitro-o-toluidine	99-55-8	2	µg/L	<2	10 µg/L	69.0	50	124
EP075: Azobenzene	103-33-3	2	µg/L	<2	10 µg/L	73.5	56	120
EP075: 1,3,5-Trinitrobenzene	99-35-4	2	µg/L	<2	10 µg/L	59.3	36	132
EP075: Phenacetin	62-44-2	2	µg/L	<2	10 µg/L	63.1	46	110
EP075: 4-Aminobiphenyl	92-67-1	2	µg/L	<2	10 µg/L	26.0	24	149
EP075: Pentachloronitrobenzene	82-68-8	2	µg/L	<2	10 µg/L	72.0	57	127
EP075: Pronamide	23950-58-5	2	µg/L	<2	10 µg/L	75.0	63	125
EP075: Dimethylaminoazobenzene	60-11-7	2	µg/L	<2	10 µg/L	72.3	57	123
EP075: Chlorobenzilate	510-15-6	2	µg/L	<2	10 µg/L	74.2	61	131
EP075F: Haloethers (QCLot: 1958078)								
EP075: Bis(2-chloroethyl) ether	111-44-4	2	µg/L	<2	10 µg/L	72.6	44	109
EP075: Bis(2-chloroethoxy) methane	111-91-1	2	µg/L	<2	10 µg/L	70.7	46	114
EP075: 4-Chlorophenyl phenyl ether	7005-72-3	2	µg/L	<2	10 µg/L	72.4	55	119
EP075: 4-Bromophenyl phenyl ether	101-55-3	2	µg/L	<2	10 µg/L	72.2	57	119
EP075G: Chlorinated Hydrocarbons (QCLot: 1958078)								
EP075: 1,4-Dichlorobenzene	106-46-7	2	µg/L	<2	10 µg/L	65.0	46	102
EP075: 1,3-Dichlorobenzene	541-73-1	2	µg/L	<2	10 µg/L	66.7	45	101
EP075: 1,2-Dichlorobenzene	95-50-1	2	µg/L	<2	10 µg/L	64.3	47	101
EP075: Hexachloroethane	67-72-1	2	µg/L	<2	10 µg/L	62.2	44	104
EP075: 1,2,4-Trichlorobenzene	120-82-1	2	µg/L	<2	10 µg/L	65.3	46	107
EP075: Hexachloropropylene	1888-71-7	2	µg/L	<2	10 µg/L	58.0	35	109
EP075: Hexachlorobutadiene	87-68-3	2	µg/L	<2	10 µg/L	67.9	48	103
EP075: Hexachlorocyclopentadiene	77-47-4	10	µg/L	<10	10 µg/L	47.4	34	112
EP075: Pentachlorobenzene	608-93-5	2	µg/L	<2	10 µg/L	70.4	53	117
EP075: Hexachlorobenzene (HCB)	118-74-1	4	µg/L	<4	20 µg/L	71.9	55	121
EP075H: Anilines and Benzidines (QCLot: 1958078)								
EP075: Aniline	62-53-3	2	µg/L	<2	10 µg/L	56.9	14	110
EP075: 4-Chloroaniline	106-47-8	2	µg/L	<2	10 µg/L	52.1	32	114
EP075: 2-Nitroaniline	88-74-4	4	µg/L	<4	10 µg/L	64.4	51	119
EP075: 3-Nitroaniline	99-09-2	4	µg/L	<4	10 µg/L	58.7	50	116
EP075: Dibenzofuran	132-64-9	2	µg/L	<2	10 µg/L	71.8	53	117
EP075: 4-Nitroaniline	100-01-8	2	µg/L	<2	10 µg/L	55.0	48	114
EP075: Carbazole	86-74-8	2	µg/L	<2	10 µg/L	74.1	63	125
EP075: 3,3'-Dichlorobenzidine	91-94-1	2	µg/L	<2	10 µg/L	64.2	59	137
EP075I: Organochlorine Pesticides (QCLot: 1958078)								
EP075: alpha-BHC	319-84-6	2	µg/L	<2	10 µg/L	73.9	58	124



Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result			Low	High
EP075I: Organochlorine Pesticides (QCLot: 1958078) - continued								
EP075: beta-BHC	319-85-7	2	µg/L	<2	10 µg/L	75.5	57	127
EP075: gamma-BHC	58-89-9	2	µg/L	<2	10 µg/L	74.4	57	125
EP075: delta-BHC	319-86-8	2	µg/L	<2	10 µg/L	98.3	62	128
EP075: Heptachlor	76-44-8	2	µg/L	<2	10 µg/L	70.9	53	112
EP075: Aldrin	309-00-2	2	µg/L	<2	10 µg/L	73.2	57	110
EP075: Heptachlor epoxide	1024-57-3	2	µg/L	<2	10 µg/L	73.7	55	112
EP075: alpha-Endosulfan	959-98-8	2	µg/L	<2	10 µg/L	75.3	50	124
EP075: 4,4'-DDE	72-55-9	2	µg/L	<2	10 µg/L	72.0	55	110
EP075: Dieldrin	60-57-1	2	µg/L	<2	10 µg/L	72.6	61	131
EP075: Endrin	72-20-8	2	µg/L	<2	10 µg/L	70.1	59	133
EP075: beta-Endosulfan	33213-65-9	2	µg/L	<2	10 µg/L	72.5	60	130
EP075: 4,4'-DDD	72-54-8	2	µg/L	<2	10 µg/L	80.3	61	129
EP075: Endosulfan sulfate	1031-07-8	2	µg/L	<2	10 µg/L	98.6	58	136
EP075: 4,4'-DDT	50-29-3	4	µg/L	<4	10 µg/L	59.5	51	137
EP075J: Organophosphorus Pesticides (QCLot: 1958078)								
EP075: Dichlorvos	62-73-7	2	µg/L	<2	10 µg/L	69.1	50	116
EP075: Dimethoate	60-51-5	2	µg/L	<2	10 µg/L	73.7	49	111
EP075: Diazinon	333-41-5	2	µg/L	<2	10 µg/L	74.4	62	126
EP075: Chlorpyrifos-methyl	5598-13-0	2	µg/L	<2	10 µg/L	78.0	60	126
EP075: Malathion	121-75-5	2	µg/L	<2	10 µg/L	84.2	61	131
EP075: Fenthion	55-38-9	2	µg/L	<2	10 µg/L	75.0	62	128
EP075: Chlorpyrifos	2921-88-2	2	µg/L	<2	10 µg/L	74.4	61	127
EP075: Pirimphos-ethyl	23505-41-1	2	µg/L	<2	10 µg/L	74.4	61	129
EP075: Chlorfenvinphos	470-90-6	2	µg/L	<2	10 µg/L	80.0	61	131
EP075: Prothiofos	34643-46-4	2	µg/L	<2	10 µg/L	74.5	61	125
EP075: Ethion	563-12-2	2	µg/L	<2	10 µg/L	75.2	62	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1958076)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	4331 µg/L	87.4	58	134
EP071: C15 - C28 Fraction	----	100	µg/L	<100	16952 µg/L	90.7	60	133
EP071: C29 - C36 Fraction	----	50	µg/L	<50	8695 µg/L	91.0	54	137
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1961136)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	360 µg/L	84.0	68	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1958076)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	6292 µg/L	87.8	58	122
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	22143 µg/L	92.0	56	132
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	1677 µg/L	95.5	58	137
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1961136)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	80.5	66	123



Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result			Low	High
EP080: BTEXN (QCLot: 1961136)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	84.5	74	123
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	90.7	77	128
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	91.3	73	126
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	40 µg/L	98.3	72	131
	106-42-3							
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	99.8	74	131
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	93.2	74	124
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 1961163)								
EP231X-LL: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.002	µg/L	<0.002	0.05 µg/L	83.2	50	130
EP231X-LL: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.002	µg/L	<0.002	0.05 µg/L	82.8	50	130
EP231X-LL: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.002	µg/L	<0.002	0.05 µg/L	91.4	50	130
EP231X-LL: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.002	µg/L	<0.002	0.05 µg/L	87.2	50	130
EP231X-LL: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.002	µg/L	<0.002	0.05 µg/L	74.8	50	130
EP231X-LL: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.002	µg/L	<0.002	0.05 µg/L	51.4	40	130
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 1961163)								
EP231X-LL: Perfluorobutanoic acid (PFBA)	375-22-4	0.01	µg/L	<0.01	0.25 µg/L	63.2	50	130
EP231X-LL: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.002	µg/L	<0.002	0.05 µg/L	77.0	50	130
EP231X-LL: Perfluorohexanoic acid (PFHxA)	307-24-4	0.002	µg/L	<0.002	0.05 µg/L	95.4	50	130
EP231X-LL: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.002	µg/L	<0.002	0.05 µg/L	86.0	50	130
EP231X-LL: Perfluorooctanoic acid (PFOA)	335-67-1	0.002	µg/L	<0.002	0.05 µg/L	93.0	50	130
EP231X-LL: Perfluorononanoic acid (PFNA)	375-95-1	0.002	µg/L	<0.002	0.05 µg/L	88.6	50	130
EP231X-LL: Perfluorodecanoic acid (PFDA)	335-76-2	0.002	µg/L	<0.002	0.05 µg/L	70.6	50	130
EP231X-LL: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.002	µg/L	<0.002	0.05 µg/L	57.0	40	130
EP231X-LL: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.002	µg/L	<0.002	0.05 µg/L	41.4	40	130
EP231X-LL: Perfluorotridecanoic acid (PFTTrDA)	72629-94-8	0.002	µg/L	<0.002	0.05 µg/L	51.4	40	130
EP231X-LL: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.005	µg/L	<0.005	0.125 µg/L	50.6	40	130
EP231X-LL: Perfluorohexadecanoic acid (PFHxDA)	67905-19-5	----	µg/L	----	0.05 µg/L	53.4	50	130
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 1961163)								
EP231X-LL: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.002	µg/L	<0.002	0.05 µg/L	51.8	40	130
EP231X-LL: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.005	µg/L	<0.005	0.125 µg/L	42.1	40	130
EP231X-LL: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.005	µg/L	<0.005	0.125 µg/L	40.9	40	130
EP231X-LL: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.005	µg/L	<0.005	0.125 µg/L	54.0	50	130
EP231X-LL: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.005	µg/L	<0.005	0.125 µg/L	43.4	40	130
EP231X-LL: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.002	µg/L	<0.002	0.05 µg/L	76.8	50	130

Matrix Spike (MS) Report

Sub-Matrix: **WATER**

Sub-Matrix: WATER				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 1954849)							
EM1815572-004	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	92.3	70	130
ED045G: Chloride by Discrete Analyser (QCLot: 1954850)							
EM1815572-004	Anonymous	ED045G: Chloride	16887-00-6	400 mg/L	101	70	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 1960353)							
EM1815566-015	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	106	85	131
		EG020A-F: Beryllium	7440-41-7	0.2 mg/L	100	73	141
		EG020A-F: Barium	7440-39-3	0.2 mg/L	99.0	75	127
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	92.6	81	133
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	92.7	71	135
		EG020A-F: Cobalt	7440-48-4	0.2 mg/L	101	78	132
		EG020A-F: Copper	7440-50-8	0.2 mg/L	97.0	76	130
		EG020A-F: Lead	7439-92-1	0.2 mg/L	93.3	75	133
		EG020A-F: Manganese	7439-96-5	0.2 mg/L	93.1	64	134
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	101	73	131
		EG020A-F: Vanadium	7440-62-2	0.2 mg/L	96.1	73	131
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	97.6	75	131
EG035F: Dissolved Mercury by FIMS (QCLot: 1960352)							
EM1815566-016	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	71.5	70	120
EK040P: Fluoride by PC Titrator (QCLot: 1963390)							
EM1815577-001	NEL-ENV-BH022	EK040P: Fluoride	16984-48-8	5 mg/L	105	70	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 1961420)							



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EK055G: Ammonia as N by Discrete Analyser (QCLot: 1961420) - continued							
EM1815576-002	Anonymous	EK055G: Ammonia as N	7664-41-7	1 mg/L	85.8	70	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 1954845)							
EM1815540-002	Anonymous	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	94.7	80	114
EK057G: Nitrite as N by Discrete Analyser (QCLot: 1954851)							
EM1815577-003	QC2_20180927	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	95.7	80	114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 1961419)							
EM1815566-012	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	105	70	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 1958698)							
EM1815573-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	71.6	70	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 1958697)							
EM1815540-001	Anonymous	EK067G: Total Phosphorus as P	----	1 mg/L	115	70	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 1954848)							
EM1815566-011	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.5 mg/L	# 35.1	79	123
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 1961137)							
EM1815577-003	QC2_20180927	EP074: Benzene	71-43-2	20 µg/L	72.3	60	128
		EP074: Toluene	108-88-3	20 µg/L	79.0	64	132
EP074E: Halogenated Aliphatic Compounds (QCLot: 1961137)							
EM1815577-003	QC2_20180927	EP074: 1,1-Dichloroethene	75-35-4	20 µg/L	58.6	40	124
		EP074: Trichloroethene	79-01-6	20 µg/L	60.4	54	126
EP074F: Halogenated Aromatic Compounds (QCLot: 1961137)							
EM1815577-003	QC2_20180927	EP074: Chlorobenzene	108-90-7	20 µg/L	74.3	68	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1961136)							
EM1815577-003	QC2_20180927	EP080: C6 - C9 Fraction	----	280 µg/L	53.6	43	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1961136)							
EM1815577-003	QC2_20180927	EP080: C6 - C10 Fraction	C6_C10	330 µg/L	53.5	44	122
EP080: BTEXN (QCLot: 1961136)							
EM1815577-003	QC2_20180927	EP080: Benzene	71-43-2	20 µg/L	73.7	68	130
		EP080: Toluene	108-88-3	20 µg/L	81.6	72	132
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 1961163)							
EM1815577-001	NEL-ENV-BH022	EP231X-LL: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.05 µg/L	90.0	50	130
		EP231X-LL: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.05 µg/L	85.0	50	130
		EP231X-LL: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.05 µg/L	73.2	50	130
		EP231X-LL: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.05 µg/L	78.2	50	130
		EP231X-LL: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.05 µg/L	74.6	50	130



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 1961163) - continued							
EM1815577-001	NEL-ENV-BH022	EP231X-LL: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.05 µg/L	50.6	30	130
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 1961163)							
EM1815577-001	NEL-ENV-BH022	EP231X-LL: Perfluorobutanoic acid (PFBA)	375-22-4	0.25 µg/L	72.7	30	130
		EP231X-LL: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.05 µg/L	102	50	130
		EP231X-LL: Perfluorohexanoic acid (PFHxA)	307-24-4	0.05 µg/L	96.0	50	130
		EP231X-LL: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.05 µg/L	82.2	50	130
		EP231X-LL: Perfluorooctanoic acid (PFOA)	335-67-1	0.05 µg/L	99.6	50	130
		EP231X-LL: Perfluorononanoic acid (PFNA)	375-95-1	0.05 µg/L	84.4	50	130
		EP231X-LL: Perfluorodecanoic acid (PFDA)	335-76-2	0.05 µg/L	74.2	50	130
		EP231X-LL: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.05 µg/L	63.8	30	130
		EP231X-LL: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.05 µg/L	43.8	30	130
		EP231X-LL: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.05 µg/L	54.2	30	130
		EP231X-LL: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.125 µg/L	55.2	30	130
		EP231X-LL: Perfluorohexadecanoic acid (PFHxDA)	67905-19-5	0.05 µg/L	50.8	30	130
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 1961163)							
EM1815577-001	NEL-ENV-BH022	EP231X-LL: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.05 µg/L	85.4	30	130
		EP231X-LL: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.125 µg/L	33.0	30	130
		EP231X-LL: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.125 µg/L	34.1	30	130
		EP231X-LL: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.125 µg/L	35.0	30	130
		EP231X-LL: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.125 µg/L	32.3	30	130
		EP231X-LL: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.05 µg/L	116	30	130
		EP231X-LL: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.05 µg/L	95.0	30	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 1961163)							
EM1815577-001	NEL-ENV-BH022	EP231X-LL: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05 µg/L	70.2	50	130
		EP231X-LL: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05 µg/L	78.6	50	130
		EP231X-LL: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05 µg/L	82.4	50	130
		EP231X-LL: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05 µg/L	59.8	50	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order : **EM1815577**

Page : 1 of 13

Amendment : **1**

Client : **GHD PTY LTD**

Laboratory : Environmental Division Melbourne

Contact : **KORY AUCH**

Telephone : +61-3-8549 9630

Project : ----

Date Samples Received : 27-Sep-2018

Site : ----

Issue Date : 15-Oct-2018

Sampler : **LIAM SPURR**

No. of samples received : 4

Order number :

No. of samples analysed : 4

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank** value outliers occur.
- **NO Duplicate** outliers occur.
- Laboratory Control outliers exist - please see following pages for full details.
- Matrix Spike outliers exist - please see following pages for full details.
- For all regular sample matrices, **NO** surrogate recovery outliers occur.

Outliers : Analysis Holding Time Compliance

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- Quality Control Sample Frequency Outliers exist - please see following pages for full details.



Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Laboratory Control Spike (LCS) Recoveries							
EP075D: Nitrosamines	QC-1958078-001	----	Methapyrilene	91-80-5	13.0 %	55-157%	Recovery less than lower control limit
Matrix Spike (MS) Recoveries							
EK071G: Reactive Phosphorus as P by discrete analysis	EM1815566--011	Anonymous	Reactive Phosphorus as P	14265-44-2	35.1 %	79-123%	Recovery less than lower data quality objective

Outliers : Analysis Holding Time Compliance

Matrix: **WATER**

Method		Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
MM669: Sulphate Reducing Bacteria							
Sterile Plastic Bottle - Sodium Thiosulfate							
NEL-ENV-BH022,	QC1_20180927,	----	----	----	08-Oct-2018	28-Sep-2018	10
QC2_20180927							

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
Pesticides by GCMS	0	5	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	0	3	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	0	4	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	19	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Pesticides by GCMS	0	5	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	0	3	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	0	4	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	19	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method		Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA005P: pH by PC Titrator								
Clear Plastic Bottle - Natural (EA005-P) NEL-ENV-BH022, QC2_20180927	QC1_20180927,	27-Sep-2018	----	----	----	27-Sep-2018	27-Sep-2018	✓
EA006: Sodium Adsorption Ratio (SAR)								
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) NEL-ENV-BH022, QC2_20180927	QC1_20180927,	27-Sep-2018	----	----	----	04-Oct-2018	25-Oct-2018	✓
EA010P: Conductivity by PC Titrator								
Clear Plastic Bottle - Natural (EA010-P) NEL-ENV-BH022, QC2_20180927	QC1_20180927,	27-Sep-2018	----	----	----	04-Oct-2018	25-Oct-2018	✓
EA065: Total Hardness as CaCO3								
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) NEL-ENV-BH022, QC2_20180927	QC1_20180927,	27-Sep-2018	----	----	----	04-Oct-2018	25-Oct-2018	✓
ED037P: Alkalinity by PC Titrator								
Clear Plastic Bottle - Natural (ED037-P) NEL-ENV-BH022, QC2_20180927	QC1_20180927,	27-Sep-2018	----	----	----	04-Oct-2018	11-Oct-2018	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Clear Plastic Bottle - Natural (ED041G) NEL-ENV-BH022, QC2_20180927	QC1_20180927,	27-Sep-2018	----	----	----	01-Oct-2018	25-Oct-2018	✓
ED045G: Chloride by Discrete Analyser								
Clear Plastic Bottle - Natural (ED045G) NEL-ENV-BH022, QC2_20180927	QC1_20180927,	27-Sep-2018	----	----	----	01-Oct-2018	25-Oct-2018	✓
ED093F: Dissolved Major Cations								
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) NEL-ENV-BH022, QC2_20180927	QC1_20180927,	27-Sep-2018	----	----	----	04-Oct-2018	25-Oct-2018	✓
EG020F: Dissolved Metals by ICP-MS								
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) NEL-ENV-BH022, QC2_20180927	QC1_20180927,	27-Sep-2018	----	----	----	03-Oct-2018	26-Mar-2019	✓
EG035F: Dissolved Mercury by FIMS								
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) NEL-ENV-BH022, QC2_20180927	QC1_20180927,	27-Sep-2018	----	----	----	03-Oct-2018	25-Oct-2018	✓



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method		Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EK040P: Fluoride by PC Titrator								
Clear Plastic Bottle - Natural (EK040P) NEL-ENV-BH022, QC2_20180927	QC1_20180927,	27-Sep-2018	----	----	----	04-Oct-2018	25-Oct-2018	✓
EK055G: Ammonia as N by Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK055G) NEL-ENV-BH022, QC2_20180927	QC1_20180927,	27-Sep-2018	----	----	----	04-Oct-2018	25-Oct-2018	✓
EK057G: Nitrite as N by Discrete Analyser								
Clear Plastic Bottle - Natural (EK057G) NEL-ENV-BH022, QC2_20180927	QC1_20180927,	27-Sep-2018	----	----	----	27-Sep-2018	29-Sep-2018	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK059G) NEL-ENV-BH022, QC2_20180927	QC1_20180927,	27-Sep-2018	----	----	----	03-Oct-2018	25-Oct-2018	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK061G) NEL-ENV-BH022, QC2_20180927	QC1_20180927,	27-Sep-2018	02-Oct-2018	25-Oct-2018	✓	02-Oct-2018	25-Oct-2018	✓
EK067G: Total Phosphorus as P by Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK067G) NEL-ENV-BH022, QC2_20180927	QC1_20180927,	27-Sep-2018	02-Oct-2018	25-Oct-2018	✓	02-Oct-2018	25-Oct-2018	✓
EK071G: Reactive Phosphorus as P by discrete analyser								
Clear Plastic Bottle - Natural (EK071G) NEL-ENV-BH022, QC2_20180927	QC1_20180927,	27-Sep-2018	----	----	----	27-Sep-2018	29-Sep-2018	✓
EP066: Polychlorinated Biphenyls (PCB)								
Amber Glass Bottle - Unpreserved (EP066) NEL-ENV-BH022, QC2_20180927	QC1_20180927,	27-Sep-2018	02-Oct-2018	04-Oct-2018	✓	03-Oct-2018	11-Nov-2018	✓
EP068A: Organochlorine Pesticides (OC)								
Amber Glass Bottle - Unpreserved (EP068) NEL-ENV-BH022, QC2_20180927	QC1_20180927,	27-Sep-2018	02-Oct-2018	04-Oct-2018	✓	03-Oct-2018	11-Nov-2018	✓
EP068B: Organophosphorus Pesticides (OP)								
Amber Glass Bottle - Unpreserved (EP068) NEL-ENV-BH022, QC2_20180927	QC1_20180927,	27-Sep-2018	02-Oct-2018	04-Oct-2018	✓	03-Oct-2018	11-Nov-2018	✓



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method		Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074A: Monocyclic Aromatic Hydrocarbons								
Amber VOC Vial - Sulfuric Acid (EP074) NEL-ENV-BH022, QC2_20180927,	QC1_20180927, TRIP BLANKS	27-Sep-2018	03-Oct-2018	11-Oct-2018	✓	04-Oct-2018	11-Oct-2018	✓
EP074B: Oxygenated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) NEL-ENV-BH022, QC2_20180927,	QC1_20180927, TRIP BLANKS	27-Sep-2018	03-Oct-2018	11-Oct-2018	✓	04-Oct-2018	11-Oct-2018	✓
EP074C: Sulfonated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) NEL-ENV-BH022, QC2_20180927,	QC1_20180927, TRIP BLANKS	27-Sep-2018	03-Oct-2018	11-Oct-2018	✓	04-Oct-2018	11-Oct-2018	✓
EP074D: Fumigants								
Amber VOC Vial - Sulfuric Acid (EP074) NEL-ENV-BH022, QC2_20180927,	QC1_20180927, TRIP BLANKS	27-Sep-2018	03-Oct-2018	11-Oct-2018	✓	04-Oct-2018	11-Oct-2018	✓
EP074E: Halogenated Aliphatic Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) NEL-ENV-BH022, QC2_20180927,	QC1_20180927, TRIP BLANKS	27-Sep-2018	03-Oct-2018	11-Oct-2018	✓	04-Oct-2018	11-Oct-2018	✓
EP074F: Halogenated Aromatic Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) NEL-ENV-BH022, QC2_20180927,	QC1_20180927, TRIP BLANKS	27-Sep-2018	03-Oct-2018	11-Oct-2018	✓	04-Oct-2018	11-Oct-2018	✓
EP074G: Trihalomethanes								
Amber VOC Vial - Sulfuric Acid (EP074) NEL-ENV-BH022, QC2_20180927,	QC1_20180927, TRIP BLANKS	27-Sep-2018	03-Oct-2018	11-Oct-2018	✓	04-Oct-2018	11-Oct-2018	✓
EP074H: Naphthalene								
Amber VOC Vial - Sulfuric Acid (EP074) TRIP BLANKS		27-Sep-2018	03-Oct-2018	11-Oct-2018	✓	04-Oct-2018	11-Oct-2018	✓
EP075A: Phenolic Compounds								
Amber Glass Bottle - Unpreserved (EP075) NEL-ENV-BH022, QC2_20180927	QC1_20180927,	27-Sep-2018	02-Oct-2018	04-Oct-2018	✓	03-Oct-2018	11-Nov-2018	✓
EP075B: Polynuclear Aromatic Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP075) NEL-ENV-BH022, QC2_20180927	QC1_20180927,	27-Sep-2018	02-Oct-2018	04-Oct-2018	✓	03-Oct-2018	11-Nov-2018	✓



Matrix: **WATER**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method		Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075C: Phthalate Esters								
Amber Glass Bottle - Unpreserved (EP075) NEL-ENV-BH022, QC2_20180927	QC1_20180927,	27-Sep-2018	02-Oct-2018	04-Oct-2018	✔	03-Oct-2018	11-Nov-2018	✔
EP075D: Nitrosamines								
Amber Glass Bottle - Unpreserved (EP075) NEL-ENV-BH022, QC2_20180927	QC1_20180927,	27-Sep-2018	02-Oct-2018	04-Oct-2018	✔	03-Oct-2018	11-Nov-2018	✔
EP075E: Nitroaromatics and Ketones								
Amber Glass Bottle - Unpreserved (EP075) NEL-ENV-BH022, QC2_20180927	QC1_20180927,	27-Sep-2018	02-Oct-2018	04-Oct-2018	✔	03-Oct-2018	11-Nov-2018	✔
EP075F: Haloethers								
Amber Glass Bottle - Unpreserved (EP075) NEL-ENV-BH022, QC2_20180927	QC1_20180927,	27-Sep-2018	02-Oct-2018	04-Oct-2018	✔	03-Oct-2018	11-Nov-2018	✔
EP075G: Chlorinated Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP075) NEL-ENV-BH022, QC2_20180927	QC1_20180927,	27-Sep-2018	02-Oct-2018	04-Oct-2018	✔	03-Oct-2018	11-Nov-2018	✔
EP075H: Anilines and Benzidines								
Amber Glass Bottle - Unpreserved (EP075) NEL-ENV-BH022, QC2_20180927	QC1_20180927,	27-Sep-2018	02-Oct-2018	04-Oct-2018	✔	03-Oct-2018	11-Nov-2018	✔
EP075I: Organochlorine Pesticides								
Amber Glass Bottle - Unpreserved (EP075) NEL-ENV-BH022, QC2_20180927	QC1_20180927,	27-Sep-2018	02-Oct-2018	04-Oct-2018	✔	03-Oct-2018	11-Nov-2018	✔
EP075J: Organophosphorus Pesticides								
Amber Glass Bottle - Unpreserved (EP075) NEL-ENV-BH022, QC2_20180927	QC1_20180927,	27-Sep-2018	02-Oct-2018	04-Oct-2018	✔	03-Oct-2018	11-Nov-2018	✔
EP080/071: Total Petroleum Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP071) NEL-ENV-BH022, QC2_20180927	QC1_20180927,	27-Sep-2018	02-Oct-2018	04-Oct-2018	✔	03-Oct-2018	11-Nov-2018	✔
Amber VOC Vial - Sulfuric Acid (EP080) NEL-ENV-BH022, QC2_20180927	QC1_20180927,	27-Sep-2018	03-Oct-2018	11-Oct-2018	✔	04-Oct-2018	11-Oct-2018	✔



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method		Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Amber Glass Bottle - Unpreserved (EP071) NEL-ENV-BH022, QC2_20180927	QC1_20180927,	27-Sep-2018	02-Oct-2018	04-Oct-2018	✓	03-Oct-2018	11-Nov-2018	✓
Amber VOC Vial - Sulfuric Acid (EP080) NEL-ENV-BH022, QC2_20180927	QC1_20180927,	27-Sep-2018	03-Oct-2018	11-Oct-2018	✓	04-Oct-2018	11-Oct-2018	✓
EP080: BTEXN								
Amber VOC Vial - Sulfuric Acid (EP080) NEL-ENV-BH022, QC2_20180927	QC1_20180927,	27-Sep-2018	03-Oct-2018	11-Oct-2018	✓	04-Oct-2018	11-Oct-2018	✓
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE (no PTFE) (EP231X-LL) NEL-ENV-BH022, QC2_20180927	QC1_20180927,	27-Sep-2018	03-Oct-2018	26-Mar-2019	✓	03-Oct-2018	26-Mar-2019	✓
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE (no PTFE) (EP231X-LL) NEL-ENV-BH022, QC2_20180927	QC1_20180927,	27-Sep-2018	03-Oct-2018	26-Mar-2019	✓	03-Oct-2018	26-Mar-2019	✓
EP231C: Perfluoroalkyl Sulfonamides								
HDPE (no PTFE) (EP231X-LL) NEL-ENV-BH022, QC2_20180927	QC1_20180927,	27-Sep-2018	03-Oct-2018	26-Mar-2019	✓	03-Oct-2018	26-Mar-2019	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE (no PTFE) (EP231X-LL) NEL-ENV-BH022, QC2_20180927	QC1_20180927,	27-Sep-2018	03-Oct-2018	26-Mar-2019	✓	03-Oct-2018	26-Mar-2019	✓
EP231P: PFAS Sums								
HDPE (no PTFE) (EP231X-LL) NEL-ENV-BH022, QC2_20180927	QC1_20180927,	27-Sep-2018	03-Oct-2018	26-Mar-2019	✓	03-Oct-2018	26-Mar-2019	✓
MM669: Sulphate Reducing Bacteria								
Sterile Plastic Bottle - Sodium Thiosulfate (MM669) NEL-ENV-BH022, QC2_20180927	QC1_20180927,	27-Sep-2018	----	----	----	08-Oct-2018	28-Sep-2018	✗



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Alkalinity by PC Titrator	ED037-P	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	1	9	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	7	14.29	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by PC Titrator	EA010-P	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Fluoride by PC Titrator	EK040P	1	10	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	15	13.33	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	13	15.38	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	3	22	13.64	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS by LCMSMS	EP231X-LL	2	19	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	5	0.00	10.00	✗	NEPM 2013 B3 & ALS QC Standard
pH by PC Titrator	EA005-P	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	3	0.00	10.00	✗	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	17	11.76	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	0	4	0.00	10.00	✗	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	10	20.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	19	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	14	14.29	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	19	0.00	10.00	✗	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	14	14.29	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	9	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Alkalinity by PC Titrator	ED037-P	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	1	9	11.11	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	7	28.57	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by PC Titrator	EA010-P	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Fluoride by PC Titrator	EK040P	1	10	10.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	15	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	13	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	2	22	9.09	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS by LCMSMS	EP231X-LL	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard



Matrix: **WATER**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Control Samples (LCS) - Continued							
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	1	4	25.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	10	20.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	9	11.11	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Ammonia as N by Discrete analyser	EK055G	1	9	11.11	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	7	14.29	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by PC Titrator	EA010-P	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Fluoride by PC Titrator	EK040P	1	10	10.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	15	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	13	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	2	22	9.09	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS by LCMSMS	EP231X-LL	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	1	4	25.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	10	10.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	9	11.11	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	1	9	11.11	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	7	14.29	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Fluoride by PC Titrator	EK040P	1	10	10.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	13	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	2	22	9.09	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS by LCMSMS	EP231X-LL	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	5	0.00	5.00	✗	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	3	0.00	5.00	✗	NEPM 2013 B3 & ALS QC Standard



Matrix: **WATER**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Matrix Spikes (MS) - Continued							
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	17	5.88	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	0	4	0.00	5.00	✖	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	10	10.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	19	5.26	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	14	7.14	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	19	0.00	5.00	✖	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	14	7.14	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	9	11.11	5.00	✔	NEPM 2013 B3 & ALS QC Standard



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH by PC Titrator	EA005-P	WATER	In house: Referenced to APHA 4500 H+ B. This procedure determines pH of water samples by automated ISE. This method is compliant with NEPM (2013) Schedule B(3)
Conductivity by PC Titrator	EA010-P	WATER	In house: Referenced to APHA 2510 B. This procedure determines conductivity by automated ISE. This method is compliant with NEPM (2013) Schedule B(3)
Calculated TDS (from Electrical Conductivity)	EA016	WATER	In house: Calculation from Electrical Conductivity (APHA 2510 B) using a conversion factor specified in the analytical report. This method is compliant with NEPM (2013) Schedule B(3)
Alkalinity by PC Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM (2013) Schedule B(3)
Sulfate (Turbidimetric) as SO ₄ 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO ₄ . Dissolved sulfate is determined in a 0.45µm filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO ₄ suspension is measured by a photometer and the SO ₄ -2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM (2013) Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G. The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocyanate forms highly-coloured ferric thiocyanate which is measured at 480 nm APHA 21st edition seal method 2 017-1-L april 2003
Major Cations - Dissolved	ED093F	WATER	In house: Referenced to APHA 3120 and 3125; USEPA SW 846 - 6010 and 6020; Cations are determined by either ICP-AES or ICP-MS techniques. This method is compliant with NEPM (2013) Schedule B(3) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM (2013) Schedule B(3) Hardness parameters are calculated based on APHA 2340 B. This method is compliant with NEPM (2013) Schedule B(3)
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) Samples are 0.45µm filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)



Analytical Methods	Method	Matrix	Method Descriptions
Fluoride by PC Titrator	EK040P	WATER	In house: Referenced to APHA 4500-F C: CDTA is added to the sample to provide a uniform ionic strength background, adjust pH, and break up complexes. Fluoride concentration is determined by either manual or automatic ISE measurement. This method is compliant with NEPM (2013) Schedule B(3)
Ammonia as N by Discrete analyser	EK055G	WATER	In house: Referenced to APHA 4500-NH3 G Ammonia is determined by direct colorimetry by Discrete Analyser. This method is compliant with NEPM (2013) Schedule B(3)
Nitrite as N by Discrete Analyser	EK057G	WATER	In house: Referenced to APHA 4500-NO2- B. Nitrite is determined by direct colourimetry by Discrete Analyser. This method is compliant with NEPM (2013) Schedule B(3)
Nitrate as N by Discrete Analyser	EK058G	WATER	In house: Referenced to APHA 4500-NO3- F. Nitrate is reduced to nitrite by way of a chemical reduction followed by quantification by Discrete Analyser. Nitrite is determined separately by direct colourimetry and result for Nitrate calculated as the difference between the two results. This method is compliant with NEPM (2013) Schedule B(3)
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	WATER	In house: Referenced to APHA 4500-NO3- F. Combined oxidised Nitrogen (NO2+NO3) is determined by Chemical Reduction and direct colourimetry by Discrete Analyser. This method is compliant with NEPM (2013) Schedule B(3)
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	WATER	In house: Referenced to APHA 4500-Norg D (In house). An aliquot of sample is digested using a high temperature Kjeldahl digestion to convert nitrogenous compounds to ammonia. Ammonia is determined colorimetrically by discrete analyser. This method is compliant with NEPM (2013) Schedule B(3)
Total Nitrogen as N (TKN + Nox) By Discrete Analyser	EK062G	WATER	In house: Referenced to APHA 4500-Norg / 4500-NO3-. This method is compliant with NEPM (2013) Schedule B(3)
Total Phosphorus as P By Discrete Analyser	EK067G	WATER	In house: Referenced to APHA 4500-P H, Jirka et al (1976), Zhang et al (2006). This procedure involves sulphuric acid digestion of a sample aliquot to break phosphorus down to orthophosphate. The orthophosphate reacts with ammonium molybdate and antimony potassium tartrate to form a complex which is then reduced and its concentration measured at 880nm using discrete analyser. This method is compliant with NEPM (2013) Schedule B(3)
Reactive Phosphorus as P-By Discrete Analyser	EK071G	WATER	In house: Referenced to APHA 4500-P F Ammonium molybdate and potassium antimonyl tartrate reacts in acid medium with orthophosphate to form a heteropoly acid -phosphomolybdic acid - which is reduced to intensely coloured molybdenum blue by ascorbic acid. Quantification is by Discrete Analyser. This method is compliant with NEPM (2013) Schedule B(3)
Ionic Balance by PCT DA and Turbi SO4 DA	EN055 - PG	WATER	In house: Referenced to APHA 1030F. This method is compliant with NEPM (2013) Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	WATER	In house: Referenced to USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Pesticides by GCMS	EP068	WATER	In house: Referenced to USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)
Volatile Organic Compounds	EP074	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)



Analytical Methods	Method	Matrix	Method Descriptions
Semivolatile Organic Compounds	EP075	WATER	In house: Referenced to USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)
Per- and Polyfluoroalkyl Substances (PFAS by LCMSMS)	EP231X-LL	WATER	In-house: Analysis of fresh and saline waters by solid phase extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM. Where commercially available, isotopically labelled analogues of the target analytes are used as internal standards for quantification. Where a labelled analogue is not commercially available, the internal standard with similar chemistry and the closest retention time to the target is used for quantification. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. This method complies with the quality control definitions as stated in QSM 5.1. Data is reviewed in line with the DQOs as stated in QSM5.1
Sulphate Reducing Bacteria (BART)	MM669	WATER	Specialist microbiological analysis subcontracted to ALS Scoresby (NATA accreditation does not cover this service).
Preparation Methods	Method	Matrix	Method Descriptions
TKN/TP Digestion	EK061/EK067	WATER	In house: Referenced to APHA 4500 Norg - D; APHA 4500 P - H. This method is compliant with NEPM (2013) Schedule B(3)
SPE preparation for LL and saline PFCs	EP231-SPE	WATER	In house
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.