



Envirolab Services Pty Ltd

ABN 37 112 535 645

12 Ashley St Chatswood NSW 2067

ph 02 9910 6200 fax 02 9910 6201

customerservice@envirolab.com.au

www.envirolab.com.au

CERTIFICATE OF ANALYSIS 293430-A

Client Details

Client	Douglas Partners Pty Ltd (Port Macquarie)
Attention	Joel Cowan
Address	PO Box 5463, Port Macquarie, NSW, 2444

Sample Details

Your Reference	89781.00, Kempsey Lanfill Water & Gas Monitoring
Number of Samples	additional analysis
Date samples received	14/04/2022
Date completed instructions received	21/04/2022

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by 29/04/2022

Date of Issue 29/04/2022

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Results Approved By

Alexander Mitchell Maclean, Senior Chemist
Dragana Tomas, Senior Chemist
Giovanni Agosti, Group Technical Manager
Hannah Nguyen, Metals Supervisor
Priya Samarawickrama, Senior Chemist
Steven Luong, Senior Chemist

Authorised By

Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Water		
Our Reference		293430-A-11
Your Reference	UNITS	L8
Date Sampled		12/04/2022
Type of sample		Water
Date extracted	-	28/04/2022
Date analysed	-	29/04/2022
TRH C ₆ - C ₉	µg/L	<100
TRH C ₆ - C ₁₀	µg/L	<100
TRH C ₆ - C ₁₀ less BTEX (F1)	µg/L	<100
Benzene	µg/L	<10
Toluene	µg/L	<10
Ethylbenzene	µg/L	<10
m+p-xylene	µg/L	<20
o-xylene	µg/L	<10
Naphthalene	µg/L	<10
Surrogate Dibromofluoromethane	%	95
Surrogate toluene-d8	%	99
Surrogate 4-BFB	%	101

svTRH (C10-C40) in Water		
Our Reference		293430-A-11
Your Reference	UNITS	L8
Date Sampled		12/04/2022
Type of sample		Water
Date extracted	-	26/04/2022
Date analysed	-	26/04/2022
TRH C ₁₀ - C ₁₄	µg/L	150
TRH C ₁₅ - C ₂₈	µg/L	300
TRH C ₂₉ - C ₃₆	µg/L	<100
TRH >C ₁₀ - C ₁₆	µg/L	200
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	µg/L	200
TRH >C ₁₆ - C ₃₄	µg/L	250
TRH >C ₃₄ - C ₄₀	µg/L	<100
Surrogate o-Terphenyl	%	81

PAHs in Water		
Our Reference		293430-A-11
Your Reference	UNITS	L8
Date Sampled		12/04/2022
Type of sample		Water
Date extracted	-	26/04/2022
Date analysed	-	26/04/2022
Naphthalene	µg/L	<1
Acenaphthylene	µg/L	<1
Acenaphthene	µg/L	<1
Fluorene	µg/L	<1
Phenanthrene	µg/L	<1
Anthracene	µg/L	<1
Fluoranthene	µg/L	<1
Pyrene	µg/L	<1
Benzo(a)anthracene	µg/L	<1
Chrysene	µg/L	<1
Benzo(b,j+k)fluoranthene	µg/L	<2
Benzo(a)pyrene	µg/L	<1
Indeno(1,2,3-c,d)pyrene	µg/L	<1
Dibenzo(a,h)anthracene	µg/L	<1
Benzo(g,h,i)perylene	µg/L	<1
Benzo(a)pyrene TEQ	µg/L	<5
Total +ve PAH's	µg/L	NIL (+)VE
Surrogate <i>p</i> -Terphenyl-d14	%	85

Organochlorine Pesticides in Water		
Our Reference		293430-A-11
Your Reference	UNITS	L8
Date Sampled		12/04/2022
Type of sample		Water
Date extracted	-	26/04/2022
Date analysed	-	26/04/2022
alpha-BHC	µg/L	<0.2
HCB	µg/L	<0.2
beta-BHC	µg/L	<0.2
gamma-BHC	µg/L	<0.2
Heptachlor	µg/L	<0.2
delta-BHC	µg/L	<0.2
Aldrin	µg/L	<0.2
Heptachlor Epoxide	µg/L	<0.2
gamma-Chlordane	µg/L	<0.2
alpha-Chlordane	µg/L	<0.2
Endosulfan I	µg/L	<0.2
pp-DDE	µg/L	<0.2
Dieldrin	µg/L	<0.2
Endrin	µg/L	<0.2
Endosulfan II	µg/L	<0.2
pp-DDD	µg/L	<0.2
Endrin Aldehyde	µg/L	<0.2
pp-DDT	µg/L	<0.2
Endosulfan Sulphate	µg/L	<0.2
Methoxychlor	µg/L	<0.2
Surrogate TCMX	%	73

OP Pesticides in Water		
Our Reference		293430-A-11
Your Reference	UNITS	L8
Date Sampled		12/04/2022
Type of sample		Water
Date extracted	-	26/04/2022
Date analysed	-	26/04/2022
Dichlorvos	µg/L	<0.2
Dimethoate	µg/L	<0.2
Diazinon	µg/L	<0.2
Chlorpyrifos-methyl	µg/L	<0.2
Ronnel	µg/L	<0.2
Fenitrothion	µg/L	<0.2
Malathion	µg/L	<0.2
Chlorpyrifos	µg/L	<0.2
Parathion	µg/L	<0.2
Bromophos ethyl	µg/L	<0.2
Ethion	µg/L	<0.2
Azinphos-methyl (Guthion)	µg/L	<0.2
Surrogate TCMX	%	73

PCBs in Water		
Our Reference		293430-A-11
Your Reference	UNITS	L8
Date Sampled		12/04/2022
Type of sample		Water
Date extracted	-	26/04/2022
Date analysed	-	26/04/2022
Aroclor 1016	µg/L	<2
Aroclor 1221	µg/L	<2
Aroclor 1232	µg/L	<2
Aroclor 1242	µg/L	<2
Aroclor 1248	µg/L	<2
Aroclor 1254	µg/L	<2
Aroclor 1260	µg/L	<2
Surrogate TCMX	%	73

Speciated Phenols in water		
Our Reference		293430-A-11
Your Reference	UNITS	L8
Date Sampled		12/04/2022
Type of sample		Water
Date extracted	-	26/04/2022
Date analysed	-	26/04/2022
Phenol	µg/L	<1
2-Chlorophenol	µg/L	<1
4-Chloro-3-Methylphenol	µg/L	<5
2-Methylphenol (0-Cresol)	µg/L	<1
3/4-Methylphenol (m/p-Cresol)	µg/L	<2
2-Nitrophenol	µg/L	<1
2,4-Dimethylphenol	µg/L	<1
2,4-Dichlorophenol	µg/L	<1
2,6-Dichlorophenol	µg/L	<1
2,4,5-Trichlorophenol	µg/L	<1
2,4,6-Trichlorophenol	µg/L	<1
2,4-Dinitrophenol	µg/L	<20
4-Nitrophenol	µg/L	<20
2346-Tetrachlorophenol	µg/L	<1
2-methyl-4,6-Dinitrophenol	µg/L	<10
Pentachlorophenol	µg/L	<5
Surrogate 2-fluorophenol	%	53
Surrogate Phenol-d ₆	%	35
Surrogate 2,4,6-Tribromophenol	%	82
Surrogate p-Terphenyl-d ₁₄	%	63

HM in water - dissolved		
Our Reference		293430-A-11
Your Reference	UNITS	L8
Date Sampled		12/04/2022
Type of sample		Water
Date prepared	-	22/04/2022
Date analysed	-	22/04/2022
Aluminium-Dissolved	µg/L	240
Boron-Dissolved	µg/L	470
Cadmium-Dissolved	µg/L	<0.1
Chromium-Dissolved	µg/L	61
Cobalt-Dissolved	µg/L	5
Copper-Dissolved	µg/L	2
Iron-Dissolved	µg/L	3,700
Manganese-Dissolved	µg/L	240
Molybdenum-Dissolved	µg/L	1
Lead-Dissolved	µg/L	<1
Nickel-Dissolved	µg/L	13
Zinc-Dissolved	µg/L	10

HM in water - total		
Our Reference		293430-A-11
Your Reference	UNITS	L8
Date Sampled		12/04/2022
Type of sample		Water
Date prepared	-	22/04/2022
Date analysed	-	22/04/2022
Arsenic-Total	µg/L	16
Mercury-Total	µg/L	<0.05
Selenium-Total	µg/L	<1
Iron-Total	µg/L	4,100
Manganese-Total	µg/L	300

Miscellaneous Inorganics		
Our Reference		293430-A-11
Your Reference	UNITS	L8
Date Sampled		12/04/2022
Type of sample		Water
Date prepared	-	22/04/2022
Date analysed	-	22/04/2022
COD	mg O ₂ /L	320
pH	pH Units	7.4
Total Dissolved Solids (grav)	mg/L	1,300
Total Suspended Solids	mg/L	65
Total Nitrogen in water	mg/L	120
TKN in water	mg/L	120
Nitrate as N in water	mg/L	3.1
Nitrite as N in water	mg/L	3.7
NOx as N in water	mg/L	6.8
Ammonia as N in water	mg/L	110
Organic Nitrogen as N	mg/L	10
Phosphate as P in water	mg/L	0.38
Total Cyanide	mg/L	<0.004
Fluoride, F	mg/L	0.1
Formaldehyde in waters	mg/L	9.2
Total Organic Carbon	mg/L	93

Metals in Waters - Total		
Our Reference		293430-A-11
Your Reference	UNITS	L8
Date Sampled		12/04/2022
Type of sample		Water
Date prepared	-	22/04/2022
Date analysed	-	22/04/2022
Phosphorus - Total	mg/L	0.8

PFAS in Waters Extended		
Our Reference		293430-A-11
Your Reference	UNITS	L8
Date Sampled		12/04/2022
Type of sample		Water
Date prepared	-	22/04/2022
Date analysed	-	22/04/2022
Perfluorobutanesulfonic acid	µg/L	0.23
Perfluoropentanesulfonic acid	µg/L	0.02
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.34
Perfluoroheptanesulfonic acid	µg/L	0.03
Perfluorooctanesulfonic acid PFOS	µg/L	0.53
Perfluorodecanesulfonic acid	µg/L	<0.02
Perfluorobutanoic acid	µg/L	0.06
Perfluoropentanoic acid	µg/L	0.30
Perfluorohexanoic acid	µg/L	0.58
Perfluoroheptanoic acid	µg/L	0.19
Perfluorooctanoic acid PFOA	µg/L	0.81
Perfluorononanoic acid	µg/L	0.02
Perfluorodecanoic acid	µg/L	<0.02
Perfluoroundecanoic acid	µg/L	<0.02
Perfluorododecanoic acid	µg/L	<0.05
Perfluorotridecanoic acid	µg/L	<0.1
Perfluorotetradecanoic acid	µg/L	<0.5
4:2 FTS	µg/L	<0.01
6:2 FTS	µg/L	0.04
8:2 FTS	µg/L	<0.02
10:2 FTS	µg/L	<0.02
Perfluorooctane sulfonamide	µg/L	<0.1
N-Methyl perfluorooctane sulfonamide	µg/L	<0.05
N-Ethyl perfluorooctanesulfonamide	µg/L	<0.1
N-Me perfluorooctanesulfonamid oethanol	µg/L	<0.05
N-Et perfluorooctanesulfonamid oethanol	µg/L	<0.5
MePerfluorooctanesulf- amid oacetic acid	µg/L	0.03
EtPerfluorooctanesulf- amid oacetic acid	µg/L	<0.02
Surrogate ¹³ C ₈ PFOS	%	103
Surrogate ¹³ C ₂ PFOA	%	103
Extracted ISTD ¹³ C ₃ PFBS	%	100
Extracted ISTD ¹⁸ O ₂ PFHxS	%	106
Extracted ISTD ¹³ C ₄ PFOS	%	109
Extracted ISTD ¹³ C ₄ PFBA	%	51

PFAS in Waters Extended		
Our Reference		293430-A-11
Your Reference	UNITS	L8
Date Sampled		12/04/2022
Type of sample		Water
Extracted ISTD ¹³ C ₃ PFPeA	%	92
Extracted ISTD ¹³ C ₂ PFHxA	%	101
Extracted ISTD ¹³ C ₄ PFHpA	%	113
Extracted ISTD ¹³ C ₄ PFOA	%	118
Extracted ISTD ¹³ C ₅ PFNA	%	129
Extracted ISTD ¹³ C ₂ PFDA	%	138
Extracted ISTD ¹³ C ₂ PFUnDA	%	114
Extracted ISTD ¹³ C ₂ PFDoDA	%	123
Extracted ISTD ¹³ C ₂ PFTeDA	%	94
Extracted ISTD ¹³ C ₂ 4:2FTS	%	144
Extracted ISTD ¹³ C ₂ 6:2FTS	%	171
Extracted ISTD ¹³ C ₂ 8:2FTS	%	152
Extracted ISTD ¹³ C ₈ FOSA	%	114
Extracted ISTD d ₃ N MeFOSA	%	116
Extracted ISTD d ₅ N EtFOSA	%	113
Extracted ISTD d ₇ N MeFOSE	%	98
Extracted ISTD d ₉ N EtFOSE	%	109
Extracted ISTD d ₃ N MeFOSAA	%	134
Extracted ISTD d ₅ N EtFOSAA	%	138
Total Positive PFHxS & PFOS	µg/L	0.86
Total Positive PFOA & PFOS	µg/L	1.3
Total Positive PFAS	µg/L	3.2

Ion Balance		
Our Reference		293430-A-11
Your Reference	UNITS	L8
Date Sampled		12/04/2022
Type of sample		Water
Date prepared	-	22/04/2022
Date analysed	-	22/04/2022
Calcium - Dissolved	mg/L	29
Potassium - Dissolved	mg/L	55
Sodium - Dissolved	mg/L	310
Magnesium - Dissolved	mg/L	16
Hydroxide Alkalinity (OH ⁻) as CaCO ₃	mg/L	<5
Bicarbonate Alkalinity as CaCO ₃	mg/L	630
Carbonate Alkalinity as CaCO ₃	mg/L	<5
Total Alkalinity as CaCO ₃	mg/L	630
Sulphate, SO ₄	mg/L	28
Chloride, Cl	mg/L	410
Ionic Balance	%	-17

Client Reference: 89781.00, Kempsey Lanfill Water & Gas Monitoring

Method ID	Methodology Summary
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-006	Alkalinity - determined titrimetrically in accordance with APHA latest edition, 2320-B.
Inorg-014	Cyanide - free, total, weak acid dissociable by segmented flow analyser (in line dialysis with colourimetric finish). Solids/Filters and sorbents are extracted in a caustic media prior to analysis. Impingers are pH adjusted as required prior to analysis. Cyanides amenable to Chlorination - samples are analysed untreated and treated with hypochlorite to assess the potential for chlorination of cyanide forms. Based on APHA latest edition, 4500-CN_G,H.
Inorg-018	Total Dissolved Solids - determined gravimetrically. The solids are dried at 180+/-10°C.
Inorg-019	Suspended Solids - determined gravimetrically by filtration of the sample. The samples are dried at 104+/-5°C.
Inorg-026	Fluoride determined by ion selective electrode (ISE) in accordance with APHA latest edition, 4500-F-C.
Inorg-040	The concentrations of the major ions (mg/L) are converted to milliequivalents and summed. The ionic balance should be within +/- 15% ie total anions = total cations +/-15%.
Inorg-055	Nitrate - determined colourimetrically. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-055	Nitrite - determined colourimetrically based on APHA latest edition NO2- B. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-055/062/127	Total Nitrogen - Calculation sum of TKN and oxidised Nitrogen. Alternatively analysed by combustion and chemiluminescence.
Inorg-057	Ammonia - determined colourimetrically, based on APHA latest edition 4500-NH3 F. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a KCl extraction.
Inorg-060	Phosphate determined colourimetrically based on EPA365.1 and APHA latest edition 4500 P E. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-062	TKN - determined colourimetrically based on APHA latest edition 4500 Norg. Alternatively, TKN can be derived from calculation (Total N - NOx).
Inorg-067	Samples are digested in acid with a known excess of potassium dichromate then titrated against ammonium ferrous sulphate in accordance with APHA latest edition 5220 C.
Inorg-079	TOC determined using a TOC analyser using the combustion method. Dissolved requires filtering prior to determination. Analysis using APHA latest edition 5310B.
Inorg-081	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA latest edition, 4110-B. Waters samples are filtered on receipt prior to analysis. Alternatively determined by colourimetry/turbidity using Discrete Analyser.
Inorg-113	Formaldehyde in waters and solids (1:5 extract) using colourimetric analysis and/or LC-DAD.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Metals-022	Determination of various metals by ICP-MS.

Client Reference: 89781.00, Kempsey Lanfill Water & Gas Monitoring

Method ID	Methodology Summary
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-021	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Org-023	Water samples are analysed directly by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-029	<p>Soil samples are extracted with basified Methanol. Waters and soil extracts are directly injected and/or concentrated/extracted using SPE. TCLPs/ASLP leachates are centrifuged, the supernatant is then analysed (including amendment with solvent) - as per the option in AS4439.3.</p> <p>Analysis is undertaken with LC-MS/MS.</p> <p>PFAS results include the sum of branched and linear isomers where applicable.</p> <p>Please note that PFAS results are corrected for Extracted Internal Standards (QSM 5.3 Table B-15 terminology), which are mass labelled analytes added prior to sample preparation to assess matrix effects and verify processing of the sample. PFAS analytes without a commercially available mass labelled analogue are corrected vs a closely eluting mass labelled PFAS compound. Surrogates are also reported, in this context they are mass labelled PFAS compounds added prior to extraction but are used as monitoring compounds only (not used for result correction). Envicarb (or similar) is used discretionally to remove interfering matrix components.</p> <p>Please contact the laboratory if estimates of Measurement Uncertainty are required as per WA DER.</p>

Client Reference: 89781.00, Kempsey Lanfill Water & Gas Monitoring

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			28/04/2022	[NT]	[NT]	[NT]	[NT]	28/04/2022	[NT]
Date analysed	-			29/04/2022	[NT]	[NT]	[NT]	[NT]	29/04/2022	[NT]
TRH C ₆ - C ₉	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	99	[NT]
TRH C ₆ - C ₁₀	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	99	[NT]
Benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	99	[NT]
Toluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	95	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	100	[NT]
m+p-xylene	µg/L	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	101	[NT]
o-xylene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Naphthalene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	97	[NT]	[NT]	[NT]	[NT]	102	[NT]
Surrogate toluene-d8	%		Org-023	99	[NT]	[NT]	[NT]	[NT]	101	[NT]
Surrogate 4-BFB	%		Org-023	102	[NT]	[NT]	[NT]	[NT]	100	[NT]

Client Reference: 89781.00, Kempsey Lanfill Water & Gas Monitoring

QUALITY CONTROL: svTRH (C10-C40) in Water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			26/04/2022	11	26/04/2022	26/04/2022		26/04/2022	[NT]
Date analysed	-			26/04/2022	11	26/04/2022	26/04/2022		26/04/2022	[NT]
TRH C ₁₀ - C ₁₄	µg/L	50	Org-020	<50	11	150	160	6	81	[NT]
TRH C ₁₅ - C ₂₈	µg/L	100	Org-020	<100	11	300	350	15	89	[NT]
TRH C ₂₉ - C ₃₆	µg/L	100	Org-020	<100	11	<100	<100	0	125	[NT]
TRH >C ₁₀ - C ₁₆	µg/L	50	Org-020	<50	11	200	220	10	81	[NT]
TRH >C ₁₆ - C ₃₄	µg/L	100	Org-020	<100	11	250	300	18	89	[NT]
TRH >C ₃₄ - C ₄₀	µg/L	100	Org-020	<100	11	<100	<100	0	125	[NT]
Surrogate o-Terphenyl	%		Org-020	85	11	81	82	1	76	[NT]

Client Reference: 89781.00, Kempsey Lanfill Water & Gas Monitoring

QUALITY CONTROL: PAHs in Water						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			26/04/2022	11	26/04/2022	26/04/2022		26/04/2022	[NT]
Date analysed	-			26/04/2022	11	26/04/2022	26/04/2022		26/04/2022	[NT]
Naphthalene	µg/L	1	Org-022/025	<1	11	<1	<1	0	82	[NT]
Acenaphthylene	µg/L	1	Org-022/025	<1	11	<1	<1	0	[NT]	[NT]
Acenaphthene	µg/L	1	Org-022/025	<1	11	<1	<1	0	83	[NT]
Fluorene	µg/L	1	Org-022/025	<1	11	<1	<1	0	92	[NT]
Phenanthrene	µg/L	1	Org-022/025	<1	11	<1	<1	0	90	[NT]
Anthracene	µg/L	1	Org-022/025	<1	11	<1	<1	0	[NT]	[NT]
Fluoranthene	µg/L	1	Org-022/025	<1	11	<1	<1	0	88	[NT]
Pyrene	µg/L	1	Org-022/025	<1	11	<1	<1	0	95	[NT]
Benzo(a)anthracene	µg/L	1	Org-022/025	<1	11	<1	<1	0	[NT]	[NT]
Chrysene	µg/L	1	Org-022/025	<1	11	<1	<1	0	97	[NT]
Benzo(b,j+k)fluoranthene	µg/L	2	Org-022/025	<2	11	<2	<2	0	[NT]	[NT]
Benzo(a)pyrene	µg/L	1	Org-022/025	<1	11	<1	<1	0	100	[NT]
Indeno(1,2,3-c,d)pyrene	µg/L	1	Org-022/025	<1	11	<1	<1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	1	Org-022/025	<1	11	<1	<1	0	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	1	Org-022/025	<1	11	<1	<1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	92	11	85	80	6	90	[NT]

Client Reference: 89781.00, Kempsey Lanfill Water & Gas Monitoring

QUALITY CONTROL: Organochlorine Pesticides in Water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			26/04/2022	11	26/04/2022	26/04/2022		26/04/2022	[NT]
Date analysed	-			26/04/2022	11	26/04/2022	26/04/2022		26/04/2022	[NT]
alpha-BHC	µg/L	0.2	Org-022/025	<0.2	11	<0.2	<0.2	0	84	[NT]
HCB	µg/L	0.2	Org-022/025	<0.2	11	<0.2	<0.2	0	[NT]	[NT]
beta-BHC	µg/L	0.2	Org-022/025	<0.2	11	<0.2	<0.2	0	85	[NT]
gamma-BHC	µg/L	0.2	Org-022/025	<0.2	11	<0.2	<0.2	0	[NT]	[NT]
Heptachlor	µg/L	0.2	Org-022/025	<0.2	11	<0.2	<0.2	0	97	[NT]
delta-BHC	µg/L	0.2	Org-022/025	<0.2	11	<0.2	<0.2	0	[NT]	[NT]
Aldrin	µg/L	0.2	Org-022/025	<0.2	11	<0.2	<0.2	0	91	[NT]
Heptachlor Epoxide	µg/L	0.2	Org-022/025	<0.2	11	<0.2	<0.2	0	92	[NT]
gamma-Chlordane	µg/L	0.2	Org-022/025	<0.2	11	<0.2	<0.2	0	[NT]	[NT]
alpha-Chlordane	µg/L	0.2	Org-022/025	<0.2	11	<0.2	<0.2	0	[NT]	[NT]
Endosulfan I	µg/L	0.2	Org-022/025	<0.2	11	<0.2	<0.2	0	[NT]	[NT]
pp-DDE	µg/L	0.2	Org-022/025	<0.2	11	<0.2	<0.2	0	84	[NT]
Dieldrin	µg/L	0.2	Org-022/025	<0.2	11	<0.2	<0.2	0	90	[NT]
Endrin	µg/L	0.2	Org-022/025	<0.2	11	<0.2	<0.2	0	68	[NT]
Endosulfan II	µg/L	0.2	Org-022/025	<0.2	11	<0.2	<0.2	0	[NT]	[NT]
pp-DDD	µg/L	0.2	Org-022/025	<0.2	11	<0.2	<0.2	0	90	[NT]
Endrin Aldehyde	µg/L	0.2	Org-022/025	<0.2	11	<0.2	<0.2	0	[NT]	[NT]
pp-DDT	µg/L	0.2	Org-022/025	<0.2	11	<0.2	<0.2	0	[NT]	[NT]
Endosulfan Sulphate	µg/L	0.2	Org-022/025	<0.2	11	<0.2	<0.2	0	90	[NT]
Methoxychlor	µg/L	0.2	Org-022/025	<0.2	11	<0.2	<0.2	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	87	11	73	74	1	87	[NT]

Client Reference: 89781.00, Kempsey Lanfill Water & Gas Monitoring

QUALITY CONTROL: OP Pesticides in Water						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			26/04/2022	11	26/04/2022	26/04/2022		26/04/2022	[NT]
Date analysed	-			26/04/2022	11	26/04/2022	26/04/2022		26/04/2022	[NT]
Dichlorvos	µg/L	0.2	Org-022/025	<0.2	11	<0.2	<0.2	0	110	[NT]
Dimethoate	µg/L	0.2	Org-022/025	<0.2	11	<0.2	<0.2	0	[NT]	[NT]
Diazinon	µg/L	0.2	Org-022/025	<0.2	11	<0.2	<0.2	0	[NT]	[NT]
Chlorpyrifos-methyl	µg/L	0.2	Org-022/025	<0.2	11	<0.2	<0.2	0	[NT]	[NT]
Ronnel	µg/L	0.2	Org-022/025	<0.2	11	<0.2	<0.2	0	83	[NT]
Fenitrothion	µg/L	0.2	Org-022/025	<0.2	11	<0.2	<0.2	0	121	[NT]
Malathion	µg/L	0.2	Org-022/025	<0.2	11	<0.2	<0.2	0	118	[NT]
Chlorpyrifos	µg/L	0.2	Org-022/025	<0.2	11	<0.2	<0.2	0	94	[NT]
Parathion	µg/L	0.2	Org-022/025	<0.2	11	<0.2	<0.2	0	136	[NT]
Bromophos ethyl	µg/L	0.2	Org-022/025	<0.2	11	<0.2	<0.2	0	[NT]	[NT]
Ethion	µg/L	0.2	Org-022/025	<0.2	11	<0.2	<0.2	0	86	[NT]
Azinphos-methyl (Guthion)	µg/L	0.2	Org-022/025	<0.2	11	<0.2	<0.2	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	87	11	73	74	1	87	[NT]

Client Reference: 89781.00, Kempsey Lanfill Water & Gas Monitoring

QUALITY CONTROL: PCBs in Water						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			26/04/2022	11	26/04/2022	26/04/2022		26/04/2022	[NT]
Date analysed	-			26/04/2022	11	26/04/2022	26/04/2022		26/04/2022	[NT]
Aroclor 1016	µg/L	2	Org-021	<2	11	<2	<2	0	[NT]	[NT]
Aroclor 1221	µg/L	2	Org-021	<2	11	<2	<2	0	[NT]	[NT]
Aroclor 1232	µg/L	2	Org-021	<2	11	<2	<2	0	[NT]	[NT]
Aroclor 1242	µg/L	2	Org-021	<2	11	<2	<2	0	[NT]	[NT]
Aroclor 1248	µg/L	2	Org-021	<2	11	<2	<2	0	[NT]	[NT]
Aroclor 1254	µg/L	2	Org-021	<2	11	<2	<2	0	90	[NT]
Aroclor 1260	µg/L	2	Org-021	<2	11	<2	<2	0	[NT]	[NT]
Surrogate TCMX	%		Org-021	87	11	73	74	1	87	[NT]

Client Reference: 89781.00, Kempsey Lanfill Water & Gas Monitoring

QUALITY CONTROL: Speciated Phenols in water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			26/04/2022	11	26/04/2022	26/04/2022		26/04/2022	[NT]
Date analysed	-			26/04/2022	11	26/04/2022	26/04/2022		26/04/2022	[NT]
Phenol	µg/L	1	Org-022/025	<1	11	<1	<1	0	122	[NT]
2-Chlorophenol	µg/L	1	Org-022/025	<1	11	<1	<1	0	124	[NT]
4-Chloro-3-Methylphenol	µg/L	5	Org-022/025	<5	11	<5	<5	0	[NT]	[NT]
2-Methylphenol (O-Cresol)	µg/L	1	Org-022/025	<1	11	<1	<1	0	120	[NT]
3/4-Methylphenol (m/p-Cresol)	µg/L	2	Org-022/025	<2	11	<2	<2	0	[NT]	[NT]
2-Nitrophenol	µg/L	1	Org-022/025	<1	11	<1	<1	0	[NT]	[NT]
2,4-Dimethylphenol	µg/L	1	Org-022/025	<1	11	<1	<1	0	[NT]	[NT]
2,4-Dichlorophenol	µg/L	1	Org-022/025	<1	11	<1	<1	0	[NT]	[NT]
2,6-Dichlorophenol	µg/L	1	Org-022/025	<1	11	<1	<1	0	120	[NT]
2,4,5-Trichlorophenol	µg/L	1	Org-022/025	<1	11	<1	<1	0	[NT]	[NT]
2,4,6-Trichlorophenol	µg/L	1	Org-022/025	<1	11	<1	<1	0	[NT]	[NT]
2,4-Dinitrophenol	µg/L	20	Org-022/025	<20	11	<20	<20	0	[NT]	[NT]
4-Nitrophenol	µg/L	20	Org-022/025	<20	11	<20	<20	0	76	[NT]
2346-Tetrachlorophenol	µg/L	1	Org-022/025	<1	11	<1	<1	0	[NT]	[NT]
2-methyl-4,6-Dinitrophenol	µg/L	10	Org-022/025	<10	11	<10	<10	0	[NT]	[NT]
Pentachlorophenol	µg/L	5	Org-022/025	<5	11	<5	<5	0	128	[NT]
Surrogate 2-fluorophenol	%		Org-022/025	56	11	53	55	4	112	[NT]
Surrogate Phenol-d ₆	%		Org-022/025	26	11	35	36	3	102	[NT]
Surrogate 2,4,6-Tribromophenol	%		Org-022/025	75	11	82	91	10	128	[NT]
Surrogate p-Terphenyl-d ₁₄	%		Org-022/025	68	11	63	62	2	107	[NT]

Client Reference: 89781.00, Kempsey Lanfill Water & Gas Monitoring

QUALITY CONTROL: HM in water - dissolved				Duplicate				Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date prepared	-			22/04/2022	[NT]	[NT]	[NT]	[NT]	22/04/2022	[NT]
Date analysed	-			22/04/2022	[NT]	[NT]	[NT]	[NT]	22/04/2022	[NT]
Aluminium-Dissolved	µg/L	10	Metals-022	<10	[NT]	[NT]	[NT]	[NT]	94	[NT]
Boron-Dissolved	µg/L	20	Metals-022	<20	[NT]	[NT]	[NT]	[NT]	98	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	[NT]	[NT]	[NT]	[NT]	95	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	93	[NT]
Cobalt-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	94	[NT]
Copper-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	98	[NT]
Iron-Dissolved	µg/L	10	Metals-022	<10	[NT]	[NT]	[NT]	[NT]	93	[NT]
Manganese-Dissolved	µg/L	5	Metals-022	<5	[NT]	[NT]	[NT]	[NT]	91	[NT]
Molybdenum-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	89	[NT]
Lead-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	99	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	98	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	87	[NT]

Client Reference: 89781.00, Kempsey Lanfill Water & Gas Monitoring

QUALITY CONTROL: HM in water - total					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date prepared	-			22/04/2022	[NT]	[NT]	[NT]	[NT]	22/04/2022	[NT]
Date analysed	-			22/04/2022	[NT]	[NT]	[NT]	[NT]	22/04/2022	[NT]
Arsenic-Total	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	99	[NT]
Mercury-Total	µg/L	0.05	Metals-021	<0.05	[NT]	[NT]	[NT]	[NT]	97	[NT]
Selenium-Total	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	99	[NT]
Iron-Total	µg/L	10	Metals-022	<10	[NT]	[NT]	[NT]	[NT]	118	[NT]
Manganese-Total	µg/L	5	Metals-022	<5	[NT]	[NT]	[NT]	[NT]	100	[NT]

Client Reference: 89781.00, Kempsey Lanfill Water & Gas Monitoring

QUALITY CONTROL: Miscellaneous Inorganics				Duplicate				Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			22/04/2022	[NT]	[NT]	[NT]	[NT]	22/04/2022	[NT]
Date analysed	-			22/04/2022	[NT]	[NT]	[NT]	[NT]	22/04/2022	[NT]
COD	mg O ₂ /L	50	Inorg-067	<50	[NT]	[NT]	[NT]	[NT]	104	[NT]
pH	pH Units		Inorg-001	[NT]	[NT]	[NT]	[NT]	[NT]	101	[NT]
Total Dissolved Solids (grav)	mg/L	5	Inorg-018	<5	[NT]	[NT]	[NT]	[NT]	110	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	<5	[NT]	[NT]	[NT]	[NT]	91	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	<0.1	[NT]	[NT]	[NT]	[NT]	112	[NT]
TKN in water	mg/L	0.1	Inorg-062	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	<0.005	[NT]	[NT]	[NT]	[NT]	102	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	<0.005	[NT]	[NT]	[NT]	[NT]	97	[NT]
NOx as N in water	mg/L	0.005	Inorg-055	<0.005	[NT]	[NT]	[NT]	[NT]	102	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	<0.005	[NT]	[NT]	[NT]	[NT]	102	[NT]
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	<0.005	[NT]	[NT]	[NT]	[NT]	112	[NT]
Total Cyanide	mg/L	0.004	Inorg-014	<0.004	[NT]	[NT]	[NT]	[NT]	80	[NT]
Fluoride, F	mg/L	0.1	Inorg-026	<0.1	[NT]	[NT]	[NT]	[NT]	105	[NT]
Formaldehyde in waters	mg/L	0.1	Inorg-113	<0.1	[NT]	[NT]	[NT]	[NT]	94	[NT]
Total Organic Carbon	mg/L	1	Inorg-079	<1	[NT]	[NT]	[NT]	[NT]	110	[NT]

Client Reference: 89781.00, Kempsey Lanfill Water & Gas Monitoring

QUALITY CONTROL: Metals in Waters - Total					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date prepared	-			22/04/2022	[NT]	[NT]	[NT]	[NT]	22/04/2022	[NT]
Date analysed	-			22/04/2022	[NT]	[NT]	[NT]	[NT]	22/04/2022	[NT]
Phosphorus - Total	mg/L	0.05	Metals-020	<0.05	[NT]	[NT]	[NT]	[NT]	95	[NT]

Client Reference: 89781.00, Kempsey Lanfill Water & Gas Monitoring

QUALITY CONTROL: PFAS in Waters Extended					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	293430-A-11
Date prepared	-			22/04/2022	11	22/04/2022	22/04/2022		22/04/2022	22/04/2022
Date analysed	-			22/04/2022	11	22/04/2022	22/04/2022		22/04/2022	22/04/2022
Perfluorobutanesulfonic acid	µg/L	0.01	Org-029	<0.01	11	0.23	0.22	4	101	104
Perfluoropentanesulfonic acid	µg/L	0.01	Org-029	<0.01	11	0.02	0.02	0	102	106
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.01	Org-029	<0.01	11	0.34	0.31	9	101	98
Perfluoroheptanesulfonic acid	µg/L	0.01	Org-029	<0.01	11	0.03	0.03	0	103	110
Perfluorooctanesulfonic acid PFOS	µg/L	0.01	Org-029	<0.01	11	0.53	0.54	2	97	110
Perfluorodecanesulfonic acid	µg/L	0.02	Org-029	<0.02	11	<0.02	<0.02	0	95	88
Perfluorobutanoic acid	µg/L	0.02	Org-029	<0.02	11	0.06	0.07	15	102	107
Perfluoropentanoic acid	µg/L	0.02	Org-029	<0.02	11	0.30	0.31	3	101	104
Perfluorohexanoic acid	µg/L	0.01	Org-029	<0.01	11	0.58	0.60	3	113	105
Perfluoroheptanoic acid	µg/L	0.01	Org-029	<0.01	11	0.19	0.18	5	101	93
Perfluorooctanoic acid PFOA	µg/L	0.01	Org-029	<0.01	11	0.81	0.88	8	112	107
Perfluorononanoic acid	µg/L	0.01	Org-029	<0.01	11	0.02	0.02	0	94	111
Perfluorodecanoic acid	µg/L	0.02	Org-029	<0.02	11	<0.02	<0.02	0	103	98
Perfluoroundecanoic acid	µg/L	0.02	Org-029	<0.02	11	<0.02	<0.02	0	92	102
Perfluorododecanoic acid	µg/L	0.05	Org-029	<0.05	11	<0.05	<0.05	0	120	115
Perfluorotridecanoic acid	µg/L	0.1	Org-029	<0.1	11	<0.1	<0.1	0	109	105
Perfluorotetradecanoic acid	µg/L	0.5	Org-029	<0.5	11	<0.5	<0.5	0	107	104
4:2 FTS	µg/L	0.01	Org-029	<0.01	11	<0.01	<0.01	0	112	107
6:2 FTS	µg/L	0.01	Org-029	<0.01	11	0.04	0.03	29	103	104
8:2 FTS	µg/L	0.02	Org-029	<0.02	11	<0.02	<0.02	0	93	92
10:2 FTS	µg/L	0.02	Org-029	<0.02	11	<0.02	<0.02	0	102	121
Perfluorooctane sulfonamide	µg/L	0.1	Org-029	<0.1	11	<0.1	<0.1	0	100	102
N-Methyl perfluorooctane sulfonamide	µg/L	0.05	Org-029	<0.05	11	<0.05	<0.05	0	100	104
N-Ethyl perfluorooctanesulfonamide	µg/L	0.1	Org-029	<0.1	11	<0.1	<0.1	0	101	104
N-Me perfluorooctanesulfonamid ethanol	µg/L	0.05	Org-029	<0.05	11	<0.05	<0.05	0	121	138
N-Et perfluorooctanesulfonamid ethanol	µg/L	0.5	Org-029	<0.5	11	<0.5	<0.5	0	101	92
MePerfluorooctanesulf- amid oacetic acid	µg/L	0.02	Org-029	<0.02	11	0.03	0.03	0	106	114
EtPerfluorooctanesulf- amid oacetic acid	µg/L	0.02	Org-029	<0.02	11	<0.02	<0.02	0	99	117
Surrogate ¹³ C ₈ PFOS	%		Org-029	104	11	103	104	1	95	109
Surrogate ¹³ C ₂ PFOA	%		Org-029	111	11	103	111	7	111	110

Client Reference: 89781.00, Kempsey Lanfill Water & Gas Monitoring

QUALITY CONTROL: PFAS in Waters Extended						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	293430-A-11
Extracted ISTD ¹³ C ₃ PFBS	%		Org-029	99	11	100	105	5	100	101
Extracted ISTD ¹⁸ O ₂ PFHxS	%		Org-029	104	11	106	111	5	102	112
Extracted ISTD ¹³ C ₄ PFOS	%		Org-029	99	11	109	114	4	106	112
Extracted ISTD ¹³ C ₄ PFBA	%		Org-029	104	11	51	49	4	103	50
Extracted ISTD ¹³ C ₃ PFPeA	%		Org-029	102	11	92	93	1	100	93
Extracted ISTD ¹³ C ₂ PFHxA	%		Org-029	97	11	101	102	1	98	107
Extracted ISTD ¹³ C ₄ PFHpA	%		Org-029	105	11	113	115	2	103	112
Extracted ISTD ¹³ C ₄ PFOA	%		Org-029	102	11	118	118	0	98	120
Extracted ISTD ¹³ C ₅ PFNA	%		Org-029	115	11	129	131	2	108	126
Extracted ISTD ¹³ C ₂ PFDA	%		Org-029	116	11	138	146	6	114	154
Extracted ISTD ¹³ C ₂ PFUnDA	%		Org-029	112	11	114	136	18	108	131
Extracted ISTD ¹³ C ₂ PFDoDA	%		Org-029	100	11	123	132	7	99	124
Extracted ISTD ¹³ C ₂ PFTeDA	%		Org-029	79	11	94	93	1	80	94
Extracted ISTD ¹³ C ₂ 4:2FTS	%		Org-029	101	11	144	151	5	97	153
Extracted ISTD ¹³ C ₂ 6:2FTS	%		Org-029	99	11	171	185	8	101	178
Extracted ISTD ¹³ C ₂ 8:2FTS	%		Org-029	99	11	152	151	1	101	162
Extracted ISTD ¹³ C ₈ FOSA	%		Org-029	111	11	114	121	6	108	116
Extracted ISTD d ₃ N MeFOSA	%		Org-029	104	11	116	120	3	108	118
Extracted ISTD d ₅ N EtFOSA	%		Org-029	104	11	113	117	3	108	113
Extracted ISTD d ₇ N MeFOSE	%		Org-029	90	11	98	100	2	98	88

Client Reference: 89781.00, Kempsey Lanfill Water & Gas Monitoring

QUALITY CONTROL: PFAS in Waters Extended						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	293430-A-11
<i>Extracted ISTD d₉ N EtFOSE</i>	%		Org-029	101	11	109	115	5	98	110
<i>Extracted ISTD d₃ N MeFOSAA</i>	%		Org-029	103	11	134	136	1	108	133
<i>Extracted ISTD d₅ N EtFOSAA</i>	%		Org-029	105	11	138	138	0	110	123

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QUALITY CONTROL: Ion Balance				Duplicate				Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			22/04/2022	[NT]	[NT]	[NT]	[NT]	22/04/2022	[NT]
Date analysed	-			22/04/2022	[NT]	[NT]	[NT]	[NT]	22/04/2022	[NT]
Calcium - Dissolved	mg/L	0.5	Metals-020	<0.5	[NT]	[NT]	[NT]	[NT]	106	[NT]
Potassium - Dissolved	mg/L	0.5	Metals-020	<0.5	[NT]	[NT]	[NT]	[NT]	93	[NT]
Sodium - Dissolved	mg/L	0.5	Metals-020	<0.5	[NT]	[NT]	[NT]	[NT]	109	[NT]
Magnesium - Dissolved	mg/L	0.5	Metals-020	<0.5	[NT]	[NT]	[NT]	[NT]	98	[NT]
Hydroxide Alkalinity (OH ⁻) as CaCO ₃	mg/L	5	Inorg-006	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bicarbonate Alkalinity as CaCO ₃	mg/L	5	Inorg-006	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Carbonate Alkalinity as CaCO ₃	mg/L	5	Inorg-006	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Total Alkalinity as CaCO ₃	mg/L	5	Inorg-006	<5	[NT]	[NT]	[NT]	[NT]	101	[NT]
Sulphate, SO ₄	mg/L	1	Inorg-081	<1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Chloride, Cl	mg/L	1	Inorg-081	<1	[NT]	[NT]	[NT]	[NT]	104	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.	
The recommended maximums for analytes in urine are taken from "2018 TLVs and BEIs", as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.	
Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2	

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Report Comments

pH/Nutrients: Samples were out of the recommended holding time for this analysis.

For PFAS Extracted Internal Standards denoted with # or outside the 50-150% acceptance range, the respective target analyte results may be unaffected, in other circumstances the PQL has been raised to accommodate the outlier(s).

vTRH & BTEXN in Water NEPM - The PQL has been raised as sample 293430-11 was foamy and therefore required a dilution.

The mass imbalance may be caused by other ions that have not been measured.