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CERTIFICATE OF ANALYSIS 267864

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
Number of Samples	1 Water
Date samples received	29/04/2021
Date completed instructions received	29/04/2021

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.

Report Details

Date results requested by 06/05/2021

Date of Issue 05/05/2021

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Results Approved By

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Authorised By

Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Water		
Our Reference		267864-1
Your Reference	UNITS	L8
Type of sample		Water
Date extracted	-	29/04/2021
Date analysed	-	30/04/2021
TRH C ₆ - C ₉	µg/L	<10
TRH C ₆ - C ₁₀	µg/L	<10
TRH C ₆ - C ₁₀ less BTEX (F1)	µg/L	<10
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Naphthalene	µg/L	<1
Surrogate Dibromofluoromethane	%	100
Surrogate toluene-d8	%	66
Surrogate 4-BFB	%	103

svTRH (C10-C40) in Water		
Our Reference		267864-1
Your Reference	UNITS	L8
Type of sample		Water
Date extracted	-	29/04/2021
Date analysed	-	30/04/2021
TRH C ₁₀ - C ₁₄	µg/L	160
TRH C ₁₅ - C ₂₈	µg/L	410
TRH C ₂₉ - C ₃₆	µg/L	<100
TRH >C ₁₀ - C ₁₆	µg/L	190
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	µg/L	190
TRH >C ₁₆ - C ₃₄	µg/L	410
TRH >C ₃₄ - C ₄₀	µg/L	<100
Surrogate o-Terphenyl	%	102

PAHs in Water		
Our Reference		267864-1
Your Reference	UNITS	L8
Type of sample		Water
Date extracted	-	29/04/2021
Date analysed	-	29/04/2021
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	%	96

Organochlorine Pesticides in Water		
Our Reference		267864-1
Your Reference	UNITS	L8
Type of sample		Water
Date extracted	-	29/04/2021
Date analysed	-	29/04/2021
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	%	81

OP Pesticides in Water		
Our Reference		267864-1
Your Reference	UNITS	L8
Type of sample		Water
Date extracted	-	29/04/2021
Date analysed	-	29/04/2021
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	%	81

PCBs in Water		
Our Reference		267864-1
Your Reference	UNITS	L8
Type of sample		Water
Date extracted	-	29/04/2021
Date analysed	-	29/04/2021
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	%	81

Speciated Phenols in water		
Our Reference		267864-1
Your Reference	UNITS	L8
Type of sample		Water
Date extracted	-	29/04/2021
Date analysed	-	29/04/2021
Phenol	µg/L	<1
2-Chlorophenol	µg/L	<1
4-Chloro-3-Methylphenol	µg/L	<5
2-Methylphenol (O-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	%	46
Surrogate Phenol-d ₆	%	32
Surrogate 2,4,6-Tribromophenol	%	79
Surrogate p-Terphenyl-d ₁₄	%	81

HM in water - dissolved		
Our Reference		267864-1
Your Reference	UNITS	L8
Type of sample		Water
Date prepared	-	30/04/2021
Date analysed	-	30/04/2021
Aluminium-Dissolved	µg/L	40
Boron-Dissolved	µg/L	500
Cadmium-Dissolved	µg/L	<0.1
Chromium-Dissolved	µg/L	30
Cobalt-Dissolved	µg/L	3
Copper-Dissolved	µg/L	<1
Iron-Dissolved	µg/L	2,500
Manganese-Dissolved	µg/L	620
Molybdenum-Dissolved	µg/L	<1
Lead-Dissolved	µg/L	<1
Nickel-Dissolved	µg/L	11
Zinc-Dissolved	µg/L	7

HM in water - total		
Our Reference		267864-1
Your Reference	UNITS	L8
Type of sample		Water
Date prepared	-	30/04/2021
Date analysed	-	30/04/2021
Arsenic-Total	µg/L	16
Mercury-Total	µg/L	<0.05
Selenium-Total	µg/L	<1

Miscellaneous Inorganics		
Our Reference		267864-1
Your Reference	UNITS	L8
Type of sample		Water
Date prepared	-	29/04/2021
Date analysed	-	29/04/2021
BOD	mg/L	45
COD	mg O ₂ /L	280
pH	pH Units	7.7
Total Dissolved Solids (grav)	mg/L	1,200
Total Suspended Solids	mg/L	26
Total Nitrogen in water	mg/L	140
TKN in water	mg/L	140
Nitrate as N in water	mg/L	<0.005
Nitrite as N in water	mg/L	<0.005
NOx as N in water	mg/L	<0.005
Ammonia as N in water	mg/L	100
Organic Nitrogen as N	mg/L	35
Phosphate as P in water	mg/L	0.35
Total Cyanide	mg/L	<0.004
Fluoride, F	mg/L	<0.1
Formaldehyde in waters	mg/L	3.6
Total Organic Carbon	mg/L	70

Metals in Waters - Total		
Our Reference		267864-1
Your Reference	UNITS	L8
Type of sample		Water
Date prepared	-	30/04/2021
Date analysed	-	30/04/2021
Phosphorus - Total	mg/L	1.3

PFAS in Waters Extended		
Our Reference		267864-1
Your Reference	UNITS	L8
Type of sample		Water
Date prepared	-	29/04/2021
Date analysed	-	29/04/2021
Perfluorobutanesulfonic acid	µg/L	0.20
Perfluoropentanesulfonic acid	µg/L	0.03
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.35
Perfluoroheptanesulfonic acid	µg/L	0.02
Perfluorooctanesulfonic acid PFOS	µg/L	0.47
Perfluorodecanesulfonic acid	µg/L	<0.02
Perfluorobutanoic acid	µg/L	0.06
Perfluoropentanoic acid	µg/L	0.42
Perfluorohexanoic acid	µg/L	0.55
Perfluoroheptanoic acid	µg/L	0.23
Perfluorooctanoic acid PFOA	µg/L	0.75
Perfluorononanoic acid	µg/L	0.01
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	0.04
EtPerfluorooctanesulf- amid oacetic acid	µg/L	<0.02
Surrogate ¹³ C ₈ PFOS	%	96
Surrogate ¹³ C ₂ PFOA	%	109
Extracted ISTD ¹³ C ₃ PFBS	%	75
Extracted ISTD ¹⁸ O ₂ PFHxS	%	115
Extracted ISTD ¹³ C ₄ PFOS	%	88
Extracted ISTD ¹³ C ₄ PFBA	%	63
Extracted ISTD ¹³ C ₃ PFPeA	%	79

PFAS in Waters Extended		
Our Reference		267864-1
Your Reference	UNITS	L8
Type of sample		Water
Extracted ISTD ¹³ C ₂ PFHxA	%	102
Extracted ISTD ¹³ C ₄ PFHpA	%	107
Extracted ISTD ¹³ C ₄ PFOA	%	104
Extracted ISTD ¹³ C ₅ PFNA	%	112
Extracted ISTD ¹³ C ₂ PFDA	%	123
Extracted ISTD ¹³ C ₂ PFUnDA	%	124
Extracted ISTD ¹³ C ₂ PFDoDA	%	84
Extracted ISTD ¹³ C ₂ PFTeDA	%	76
Extracted ISTD ¹³ C ₂ 4:2FTS	%	102
Extracted ISTD ¹³ C ₂ 6:2FTS	%	106
Extracted ISTD ¹³ C ₂ 8:2FTS	%	105
Extracted ISTD ¹³ C ₈ FOSA	%	105
Extracted ISTD d ₃ N MeFOSA	%	132
Extracted ISTD d ₅ N EtFOSA	%	136
Extracted ISTD d ₇ N MeFOSE	%	114
Extracted ISTD d ₉ N EtFOSE	%	112
Extracted ISTD d ₃ N MeFOSAA	%	93
Extracted ISTD d ₅ N EtFOSAA	%	81
Total Positive PFHxS & PFOS	µg/L	0.81
Total Positive PFOA & PFOS	µg/L	1.2
Total Positive PFAS	µg/L	3.2

Ion Balance		
Our Reference		267864-1
Your Reference	UNITS	L8
Type of sample		Water
Date prepared	-	29/04/2021
Date analysed	-	29/04/2021
Calcium - Dissolved	mg/L	51
Potassium - Dissolved	mg/L	52
Sodium - Dissolved	mg/L	310
Magnesium - Dissolved	mg/L	21
Hydroxide Alkalinity (OH ⁻) as CaCO ₃	mg/L	<5
Bicarbonate Alkalinity as CaCO ₃	mg/L	720
Carbonate Alkalinity as CaCO ₃	mg/L	<5
Total Alkalinity as CaCO ₃	mg/L	720
Sulphate, SO ₄	mg/L	8
Chloride, Cl	mg/L	380
Ionic Balance	%	-14

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 hyperchlorite 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 +/- 10% ie total anions = total cations +/-10%.
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-091	BOD - Analysed in accordance with APHA latest edition 5210 D and in house INORG-091.
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.

Method ID	Methodology Summary
Metals-022	Determination of various metals by ICP-MS.
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

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			29/04/2021	[NT]	[NT]	[NT]	[NT]	29/04/2021	[NT]
Date analysed	-			30/04/2021	[NT]	[NT]	[NT]	[NT]	30/04/2021	[NT]
TRH C ₆ - C ₉	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	97	[NT]
TRH C ₆ - C ₁₀	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	97	[NT]
Benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	84	[NT]
Toluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	86	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]
m+p-xylene	µg/L	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	106	[NT]
o-xylene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	107	[NT]
Naphthalene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	105	[NT]	[NT]	[NT]	[NT]	107	[NT]
Surrogate toluene-d8	%		Org-023	85	[NT]	[NT]	[NT]	[NT]	107	[NT]
Surrogate 4-BFB	%		Org-023	102	[NT]	[NT]	[NT]	[NT]	99	[NT]

Client Reference: 89781.00, Kempsey Lanfill Water & Gas

QUALITY CONTROL: svTRH (C10-C40) in Water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			29/04/2021	[NT]	[NT]	[NT]	[NT]	29/04/2021	[NT]
Date analysed	-			30/04/2021	[NT]	[NT]	[NT]	[NT]	30/04/2021	[NT]
TRH C ₁₀ - C ₁₄	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	77	[NT]
TRH C ₁₅ - C ₂₈	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	71	[NT]
TRH C ₂₉ - C ₃₆	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	123	[NT]
TRH >C ₁₀ - C ₁₆	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
TRH >C ₁₆ - C ₃₄	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	71	[NT]
TRH >C ₃₄ - C ₄₀	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	123	[NT]
Surrogate o-Terphenyl	%		Org-020	94	[NT]	[NT]	[NT]	[NT]	101	[NT]

Client Reference: 89781.00, Kempsey Lanfill Water & Gas

QUALITY CONTROL: PAHs in Water				Duplicate				Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			29/04/2021	[NT]	[NT]	[NT]	[NT]	29/04/2021	[NT]
Date analysed	-			29/04/2021	[NT]	[NT]	[NT]	[NT]	29/04/2021	[NT]
Naphthalene	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	111	[NT]
Acenaphthylene	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	88	[NT]
Fluorene	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	96	[NT]
Phenanthrene	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	118	[NT]
Anthracene	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Pyrene	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	107	[NT]
Benzo(a)anthracene	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	88	[NT]
Benzo(b,j+k)fluoranthene	µg/L	2	Org-022/025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Indeno(1,2,3-c,d)pyrene	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	108	[NT]	[NT]	[NT]	[NT]	120	[NT]

Client Reference: 89781.00, Kempsey Lanfill Water & Gas

QUALITY CONTROL: Organochlorine Pesticides in Water				Duplicate				Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			29/04/2021	[NT]	[NT]	[NT]	[NT]	29/04/2021	[NT]
Date analysed	-			29/04/2021	[NT]	[NT]	[NT]	[NT]	29/04/2021	[NT]
alpha-BHC	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	105	[NT]
HCB	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
beta-BHC	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	98	[NT]
gamma-BHC	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Heptachlor	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	106	[NT]
delta-BHC	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aldrin	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	123	[NT]
Heptachlor Epoxide	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	121	[NT]
gamma-Chlordane	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
alpha-Chlordane	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan I	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDE	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	119	[NT]
Dieldrin	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	122	[NT]
Endrin	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	109	[NT]
Endosulfan II	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDD	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	111	[NT]
Endrin Aldehyde	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDT	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan Sulphate	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	96	[NT]
Methoxychlor	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	84	[NT]	[NT]	[NT]	[NT]	103	[NT]

Client Reference: 89781.00, Kempsey Lanfill Water & Gas

QUALITY CONTROL: OP Pesticides in Water				Duplicate				Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			29/04/2021	[NT]	[NT]	[NT]	[NT]	29/04/2021	[NT]
Date analysed	-			29/04/2021	[NT]	[NT]	[NT]	[NT]	29/04/2021	[NT]
Dichlorvos	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	84	[NT]
Dimethoate	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Diazinon	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chlorpyriphos-methyl	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ronnel	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	96	[NT]
Fenitrothion	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	86	[NT]
Malathion	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	96	[NT]
Chlorpyriphos	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	98	[NT]
Parathion	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	77	[NT]
Bromophos ethyl	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ethion	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	84	[NT]
Azinphos-methyl (Guthion)	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	84	[NT]	[NT]	[NT]	[NT]	103	[NT]

Client Reference: 89781.00, Kempsey Lanfill Water & Gas

QUALITY CONTROL: PCBs in Water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			29/04/2021	[NT]	[NT]	[NT]	[NT]	29/04/2021	[NT]
Date analysed	-			29/04/2021	[NT]	[NT]	[NT]	[NT]	29/04/2021	[NT]
Aroclor 1016	µg/L	2	Org-021	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1221	µg/L	2	Org-021	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1232	µg/L	2	Org-021	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1242	µg/L	2	Org-021	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1248	µg/L	2	Org-021	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1254	µg/L	2	Org-021	<2	[NT]	[NT]	[NT]	[NT]	118	[NT]
Aroclor 1260	µg/L	2	Org-021	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate TCMX	%		Org-021	84	[NT]	[NT]	[NT]	[NT]	103	[NT]

Client Reference: 89781.00, Kempsey Lanfill Water & Gas

QUALITY CONTROL: Speciated Phenols in water				Duplicate				Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			29/04/2021	[NT]	[NT]	[NT]	[NT]	29/04/2021	[NT]
Date analysed	-			29/04/2021	[NT]	[NT]	[NT]	[NT]	29/04/2021	[NT]
Phenol	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	100	[NT]
2-Chlorophenol	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	108	[NT]
4-Chloro-3-Methylphenol	µg/L	5	Org-022/025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2-Methylphenol (O-Cresol)	µg/L	1	Org-022/025	[NT]	[NT]	[NT]	[NT]	[NT]	50	[NT]
3/4-Methylphenol (m/p-Cresol)	µg/L	2	Org-022/025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2-Nitrophenol	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,4-Dimethylphenol	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,4-Dichlorophenol	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,6-Dichlorophenol	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	112	[NT]
2,4,5-Trichlorophenol	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,4,6-Trichlorophenol	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,4-Dinitrophenol	µg/L	20	Org-022/025	<20	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-Nitrophenol	µg/L	20	Org-022/025	<20	[NT]	[NT]	[NT]	[NT]	116	[NT]
2346-Tetrachlorophenol	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2-methyl-4,6-Dinitrophenol	µg/L	10	Org-022/025	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Pentachlorophenol	µg/L	5	Org-022/025	<5	[NT]	[NT]	[NT]	[NT]	52	[NT]
Surrogate 2-fluorophenol	%		Org-022/025	110	[NT]	[NT]	[NT]	[NT]	89	[NT]
Surrogate Phenol-d ₆	%		Org-022/025	101	[NT]	[NT]	[NT]	[NT]	82	[NT]
Surrogate 2,4,6-Tribromophenol	%		Org-022/025	98	[NT]	[NT]	[NT]	[NT]	89	[NT]
Surrogate p-Terphenyl-d ₁₄	%		Org-022/025	106	[NT]	[NT]	[NT]	[NT]	107	[NT]

Client Reference: 89781.00, Kempsey Lanfill Water & Gas

QUALITY CONTROL: HM in water - dissolved				Duplicate				Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W10	[NT]
Date prepared	-			30/04/2021	[NT]	[NT]	[NT]	[NT]	30/04/2021	[NT]
Date analysed	-			30/04/2021	[NT]	[NT]	[NT]	[NT]	30/04/2021	[NT]
Aluminium-Dissolved	µg/L	10	Metals-022	<10	[NT]	[NT]	[NT]	[NT]	113	[NT]
Boron-Dissolved	µg/L	20	Metals-022	<20	[NT]	[NT]	[NT]	[NT]	120	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	[NT]	[NT]	[NT]	[NT]	111	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	104	[NT]
Cobalt-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Copper-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Iron-Dissolved	µg/L	10	Metals-022	<10	[NT]	[NT]	[NT]	[NT]	109	[NT]
Manganese-Dissolved	µg/L	5	Metals-022	<5	[NT]	[NT]	[NT]	[NT]	108	[NT]
Molybdenum-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	105	[NT]
Lead-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	106	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	105	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	109	[NT]

Client Reference: 89781.00, Kempsey Lanfill Water & Gas

QUALITY CONTROL: HM in water - total				Duplicate				Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W10	[NT]
Date prepared	-			30/04/2021	[NT]	[NT]	[NT]	[NT]	30/04/2021	[NT]
Date analysed	-			30/04/2021	[NT]	[NT]	[NT]	[NT]	30/04/2021	[NT]
Arsenic-Total	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	119	[NT]
Mercury-Total	µg/L	0.05	Metals-021	<0.05	[NT]	[NT]	[NT]	[NT]	99	[NT]
Selenium-Total	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	118	[NT]

Client Reference: 89781.00, Kempsey Lanfill Water & Gas

QUALITY CONTROL: Miscellaneous Inorganics				Duplicate				Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			29/04/2021	1	29/04/2021	29/04/2021		29/04/2021	[NT]
Date analysed	-			29/04/2021	1	29/04/2021	29/04/2021		29/04/2021	[NT]
BOD	mg/L	5	Inorg-091	<5	1	45	[NT]		86	[NT]
COD	mg O ₂ /L	50	Inorg-067	<50	1	280	270	4	88	[NT]
pH	pH Units		Inorg-001	[NT]	1	7.7	[NT]		100	[NT]
Total Dissolved Solids (grav)	mg/L	5	Inorg-018	<5	1	1200	[NT]		89	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	<5	1	26	[NT]		94	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	<0.1	1	140	[NT]		102	[NT]
TKN in water	mg/L	0.1	Inorg-062	<0.1	1	140	[NT]		102	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	<0.005	1	<0.005	[NT]		94	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	<0.005	1	<0.005	[NT]		104	[NT]
NOx as N in water	mg/L	0.005	Inorg-055	<0.005	1	<0.005	[NT]		94	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	<0.005	1	100	[NT]		102	[NT]
Organic Nitrogen as N	mg/L	0.2		<0.2	1	35	[NT]		[NT]	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	<0.005	1	0.35	[NT]		102	[NT]
Total Cyanide	mg/L	0.004	Inorg-014	<0.004	1	<0.004	[NT]		99	[NT]
Fluoride, F	mg/L	0.1	Inorg-026	<0.1	1	<0.1	[NT]		94	[NT]
Formaldehyde in waters	mg/L	0.1	Inorg-113	<0.1	1	3.6	[NT]		111	[NT]
Total Organic Carbon	mg/L	1	Inorg-079	<1	1	70	[NT]		103	[NT]

Client Reference: 89781.00, Kempsey Lanfill Water & Gas

QUALITY CONTROL: Metals in Waters - Total				Duplicate				Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			30/04/2021	[NT]	[NT]	[NT]	[NT]	30/04/2021	[NT]
Date analysed	-			30/04/2021	[NT]	[NT]	[NT]	[NT]	30/04/2021	[NT]
Phosphorus - Total	mg/L	0.05	Metals-020	<0.05	[NT]	[NT]	[NT]	[NT]	100	[NT]

Client Reference: 89781.00, Kempsey Lanfill Water & Gas

QUALITY CONTROL: PFAS in Waters Extended					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			29/04/2021	[NT]	[NT]	[NT]	[NT]	29/04/2021	[NT]
Date analysed	-			29/04/2021	[NT]	[NT]	[NT]	[NT]	29/04/2021	[NT]
Perfluorobutanesulfonic acid	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	108	[NT]
Perfluoropentanesulfonic acid	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	98	[NT]
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	94	[NT]
Perfluoroheptanesulfonic acid	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	92	[NT]
Perfluorooctanesulfonic acid PFOS	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	100	[NT]
Perfluorodecanesulfonic acid	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	82	[NT]
Perfluorobutanoic acid	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	98	[NT]
Perfluoropentanoic acid	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	104	[NT]
Perfluorohexanoic acid	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	91	[NT]
Perfluoroheptanoic acid	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	95	[NT]
Perfluorooctanoic acid PFOA	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	100	[NT]
Perfluorononanoic acid	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	83	[NT]
Perfluorodecanoic acid	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	86	[NT]
Perfluoroundecanoic acid	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	84	[NT]
Perfluorododecanoic acid	µg/L	0.05	Org-029	<0.05	[NT]	[NT]	[NT]	[NT]	92	[NT]
Perfluorotridecanoic acid	µg/L	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	89	[NT]
Perfluorotetradecanoic acid	µg/L	0.5	Org-029	<0.5	[NT]	[NT]	[NT]	[NT]	104	[NT]
4:2 FTS	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	108	[NT]
6:2 FTS	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	107	[NT]
8:2 FTS	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	110	[NT]
10:2 FTS	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	122	[NT]
Perfluorooctane sulfonamide	µg/L	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	96	[NT]
N-Methyl perfluorooctane sulfonamide	µg/L	0.05	Org-029	<0.05	[NT]	[NT]	[NT]	[NT]	97	[NT]
N-Ethyl perfluorooctanesulfonamide	µg/L	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	95	[NT]
N-Me perfluorooctanesulfonamid ethanol	µg/L	0.05	Org-029	<0.05	[NT]	[NT]	[NT]	[NT]	96	[NT]
N-Et perfluorooctanesulfonamid ethanol	µg/L	0.5	Org-029	<0.5	[NT]	[NT]	[NT]	[NT]	85	[NT]
MePerfluorooctanesulf- amid oacetic acid	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	97	[NT]
EtPerfluorooctanesulf- amid oacetic acid	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	119	[NT]
Surrogate ¹³ C ₈ PFOS	%		Org-029	94	[NT]	[NT]	[NT]	[NT]	97	[NT]
Surrogate ¹³ C ₂ PFOA	%		Org-029	98	[NT]	[NT]	[NT]	[NT]	102	[NT]

Client Reference: 89781.00, Kempsey Lanfill Water & Gas

QUALITY CONTROL: PFAS in Waters Extended					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Extracted ISTD ¹³ C ₃ PFBS	%		Org-029	85	[NT]	[NT]	[NT]	[NT]	80	[NT]
Extracted ISTD ¹⁸ O ₂ PFHxS	%		Org-029	110	[NT]	[NT]	[NT]	[NT]	106	[NT]
Extracted ISTD ¹³ C ₄ PFOS	%		Org-029	91	[NT]	[NT]	[NT]	[NT]	89	[NT]
Extracted ISTD ¹³ C ₄ PFBA	%		Org-029	100	[NT]	[NT]	[NT]	[NT]	99	[NT]
Extracted ISTD ¹³ C ₃ PFPeA	%		Org-029	85	[NT]	[NT]	[NT]	[NT]	84	[NT]
Extracted ISTD ¹³ C ₂ PFHxA	%		Org-029	92	[NT]	[NT]	[NT]	[NT]	91	[NT]
Extracted ISTD ¹³ C ₄ PFHpA	%		Org-029	98	[NT]	[NT]	[NT]	[NT]	100	[NT]
Extracted ISTD ¹³ C ₄ PFOA	%		Org-029	101	[NT]	[NT]	[NT]	[NT]	94	[NT]
Extracted ISTD ¹³ C ₅ PFNA	%		Org-029	105	[NT]	[NT]	[NT]	[NT]	100	[NT]
Extracted ISTD ¹³ C ₂ PFDA	%		Org-029	106	[NT]	[NT]	[NT]	[NT]	103	[NT]
Extracted ISTD ¹³ C ₂ PFUnDA	%		Org-029	105	[NT]	[NT]	[NT]	[NT]	98	[NT]
Extracted ISTD ¹³ C ₂ PFDoDA	%		Org-029	85	[NT]	[NT]	[NT]	[NT]	86	[NT]
Extracted ISTD ¹³ C ₂ PFTeDA	%		Org-029	65	[NT]	[NT]	[NT]	[NT]	67	[NT]
Extracted ISTD ¹³ C ₂ 4:2FTS	%		Org-029	76	[NT]	[NT]	[NT]	[NT]	71	[NT]
Extracted ISTD ¹³ C ₂ 6:2FTS	%		Org-029	82	[NT]	[NT]	[NT]	[NT]	81	[NT]
Extracted ISTD ¹³ C ₂ 8:2FTS	%		Org-029	83	[NT]	[NT]	[NT]	[NT]	82	[NT]
Extracted ISTD ¹³ C ₈ FOSA	%		Org-029	106	[NT]	[NT]	[NT]	[NT]	102	[NT]
Extracted ISTD d ₃ N MeFOSA	%		Org-029	128	[NT]	[NT]	[NT]	[NT]	128	[NT]
Extracted ISTD d ₅ N EtFOSA	%		Org-029	137	[NT]	[NT]	[NT]	[NT]	132	[NT]
Extracted ISTD d ₇ N MeFOSE	%		Org-029	108	[NT]	[NT]	[NT]	[NT]	108	[NT]

Client Reference: 89781.00, Kempsey Lanfill Water & Gas

QUALITY CONTROL: PFAS in Waters Extended					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
<i>Extracted ISTD d₉ N EtFOSE</i>	%		Org-029	107	[NT]	[NT]	[NT]	[NT]	107	[NT]
<i>Extracted ISTD d₃ N MeFOSAA</i>	%		Org-029	94	[NT]	[NT]	[NT]	[NT]	95	[NT]
<i>Extracted ISTD d₅ N EtFOSAA</i>	%		Org-029	75	[NT]	[NT]	[NT]	[NT]	71	[NT]

Client Reference: 89781.00, Kempsey Lanfill Water & Gas

QUALITY CONTROL: Ion Balance				Duplicate				Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			29/04/2021	[NT]	[NT]	[NT]	[NT]	29/04/2021	[NT]
Date analysed	-			29/04/2021	[NT]	[NT]	[NT]	[NT]	29/04/2021	[NT]
Calcium - Dissolved	mg/L	0.5	Metals-020	<0.5	[NT]	[NT]	[NT]	[NT]	102	[NT]
Potassium - Dissolved	mg/L	0.5	Metals-020	<0.5	[NT]	[NT]	[NT]	[NT]	98	[NT]
Sodium - Dissolved	mg/L	0.5	Metals-020	<0.5	[NT]	[NT]	[NT]	[NT]	96	[NT]
Magnesium - Dissolved	mg/L	0.5	Metals-020	<0.5	[NT]	[NT]	[NT]	[NT]	107	[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]	102	[NT]
Sulphate, SO ₄	mg/L	1	Inorg-081	<1	[NT]	[NT]	[NT]	[NT]	98	[NT]
Chloride, Cl	mg/L	1	Inorg-081	<1	[NT]	[NT]	[NT]	[NT]	106	[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.