



CHAIN OF CUSTODY RECORD

Eurofins | mgt ABN 50 005 085 521

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Company Dept of Env & Science		Project No Swanbank Sampling		Project Manager Graham Cordingley		Sampler(s) Brenda Baddileg									
Address 400 George St Brisbane QLD		Project Name		EDD Format ESol, EQUIS etc		Handed over by									
Contact Name Graham Cordingley		Analyses Where results are requested, please specify 'Total' or 'Filtered'. SUITE code must be used to attract SUITE pricing.		Containers Change container type & size if necessary.		Email for Invoice ipswich.esr@des.qld.gov.au									
Phone No sch4p4(6) Personal Information						Email for Results sinead.summerville@des.qld.gov.au									
Special Directions						Required Turnaround Time Default will be 5 days if not ticked.									
Purchase Order						Surcharge will apply ☐ Overnight (reporting by 9am) ♦ ☐ Same day ♦ ☐ 1 day ♦ ☐ 2 days ♦ ☐ 3 days ♦ ☐ 5 days (Standard) ☐ Other()									
Quote ID No															
No	Client Sample ID	Sampled Date/Time dd/mm/yyyy hh:mm	Matrix Solid (S) Water (W)	PFAS ultra trace	PFAS low level (TOP)	NEPM Metals suite (Total) 15 metals	Major cations & anions	500mL Plastic	250mL Plastic	125mL Plastic	200mL Amber Glass	40mL Vial	500mL PFAS PET Jar (Glass or HDPE)	Sample Comments / Dangerous Goods Hazard Warning	
1	SLSW-2	28/8/18 3pm	W	✓	✓	✓	✓						2		
2	SLSW-1														
3	SS07-N	30/8	S	✓	✓	✓								2 Jars 1x Plastic 1x Glass	
4	BCK-U/504	30/8	W	✓	✓								1		
5															
6															
7															
8															
9															
10															
Total Counts															
Method of Shipment		☐ Courier (#) ☐ Hand Delivered ☐ Postal		Name		wergher		Signature		Date		Time		Temperature	
Eurofins mgt Laboratory Use Only		Received By G. Brand		SYD BNE MEL PER ADL NTL DRW		Signature		Personal		Date 31/8/18		Time 11.07		Report No 12.18	

DES	SLSW-2	SLSW-2	SS07-N	SS07-N	BCK-U/S04	BCK-U/S04
SWANBAN	B18-Se010	B18-Se010	B18-Se010	B18-Se010	B18-Se010	B18-Se01050

% Moisture				22		
Ammonia (	0.28					
Chloride	270					
Chromium < 0.001			< 1			
Chromium	0.002			58		
Nitrate (as	0.09					
Sulphate (a	30					

Alkali Metals						
Calcium	41					
Magnesium	49					
Potassium	13					
Sodium	180					

Alkalinity (speciated)						
Bicarbonat	250					
Carbonate	29					

Heavy Metals						
Arsenic	0.003			6.8		
Barium	0.07			51		
Beryllium < 0.001			< 2			
Boron	0.07		< 10			
Cadmium < 0.0002			< 0.4			
Chromium	0.002			58		
Cobalt < 0.001				8		
Copper	0.009			42		
Lead	0.001			8.7		
Manganese	0.038			250		
Mercury < 0.0001			< 0.1			
Nickel	0.001			24		
Vanadium < 0.005				24		
Zinc	0.007			54		

n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace

1H.1H.2H.2H-perfluor	0.01	< 5		< 0.01
1H.1H.2H.2H-perfluor	< 0.01	< 5		< 0.01
1H.1H.2H.2H-perfluor	< 0.01	< 5		< 0.01
1H.1H.2H.2H-perfluor	< 0.05	< 10		< 0.05
13C2-4:2 FTSA (surr.)	100		116	109
13C2-6:2 FTSA (surr.)	115		119	136
13C2-8:2 FTSA (surr.)	104		119	115

n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Ultra Trace

1H.1H.2H.2	< 0.001	0.3	< 0.001
1H.1H.2H.2	< 0.001	< 0.1	< 0.001
1H.1H.2H.2	< 0.001	< 0.1	< 0.001
1H.1H.2H.2	0.011	1.4	< 0.005

13C2-4:2 F	117	85	123
13C2-6:2 F	145	102	154
13C2-8:2 F	139	123	166

Perfluoroalkyl carboxylic acids (PFCAs) - Trace

Perfluorobutanoic acid	0.06	< 5	< 0.05
Perfluorodecanoic acid	< 0.01	< 5	< 0.01
Perfluorododecanoic acid	< 0.01	< 5	< 0.01
Perfluoroheptanoic acid	0.04	< 5	< 0.01
Perfluorohexanoic acid	0.17	< 5	< 0.01
Perfluorononanoic acid	0.01	< 5	< 0.01
Perfluorooctanoic acid	0.05	< 5	< 0.01
Perfluoropentanoic acid	0.13	< 5	< 0.01
Perfluorotetradecanoic acid	< 0.01	< 5	< 0.01
Perfluorotridecanoic acid	< 0.01	< 5	< 0.01
Perfluoroundecanoic acid	< 0.01	< 5	< 0.01

13C4-PFBA (surr.)	85	81	86
13C5-PFNA (surr.)	68	109	73
13C6-PFDA (surr.)	125	126	138
13C8-PFOA (surr.)	128	118	139
13C4-PFHpA (surr.)	135	121	146
13C5-PFHxA (surr.)	125	115	136
13C5-PFPeA (surr.)	101	91	102
13C2-PFDoDA (surr.)	117	71	150
13C2-PFTeDA (surr.)	127	65	143
13C2-PFUnDA (surr.)	152	112	165

Perfluoroalkyl carboxylic acids (PFCAs) - Ultra Trace

Perfluorobutanoic acid	0.036	0.3	< 0.005
Perfluorodecanoic acid	< 0.001	0.1	< 0.001
Perfluorododecanoic acid	< 0.001	< 0.1	< 0.001
Perfluoroheptanoic acid	0.022	0.1	< 0.001
Perfluorohexanoic acid	0.085	1.6	< 0.001
Perfluorononanoic acid	0.006	< 0.1	< 0.001
Perfluorooctanoic acid	0.028	0.3	< 0.001
Perfluoropentanoic acid	0.067	< 0.5	< 0.001
Perfluorotetradecanoic acid	< 0.001	< 0.1	< 0.001
Perfluorotridecanoic acid	< 0.001	< 0.1	< 0.001
Perfluoroundecanoic acid	< 0.001	< 0.1	< 0.001

13C4-PFBA	86	92	52
13C5-PFNA	102	60	103
13C6-PFDA	89	102	102
13C8-PFOA	88	108	88
13C4-PFHp	80	119	67
13C5-PFHx	81	114	55
13C5-PFPe	104	88	51
13C2-PFDo	55	83	86
13C2-PFTel	26	73	79
13C2-PFUn	77	113	95

Perfluoroalkyl sulfonamido substances- Trace

2-(N-ethylperfluoro-1-	< 0.05	< 5	< 0.05
2-(N-methylperfluoro-	< 0.05	< 5	< 0.05
N-ethylperfluoro-1-oct	< 0.05	< 5	< 0.05
N-ethyl-perfluorooctan	< 0.05	< 10	< 0.05
N-methylperfluoro-1-c	< 0.05	< 5	< 0.05
N-methyl-perfluorooct	< 0.05	< 10	< 0.05
Perfluorooctane sulfor	< 0.05	< 5	< 0.05
13C8-FOSA (surr.)	115	92	118
D3-N-MeFOSA (surr.)	61	59	85
D5-N-EtFOSA (surr.)	76	64	108
D7-N-MeFOSE (surr.)	61	64	89
D9-N-EtFOSE (surr.)	57	55	85
D3-N-MeFOSAA (surr.)	141	103	163
D5-N-EtFOSAA (surr.)	165	107	168

Perfluoroalkyl sulfonamido substances- Ultra Trace

2-(N-ethyl-	< 0.005	< 0.5	< 0.005
2-(N-methyl-	< 0.005	< 0.5	< 0.005
N-ethylper-	< 0.005	< 0.5	< 0.005
N-ethyl-per-	< 0.005	< 0.5	< 0.005
N-methylper-	< 0.005	< 0.5	< 0.005
N-methyl-	< 0.005	< 0.5	< 0.005
Perfluoroo-	< 0.005	< 0.5	< 0.005
13C8-FOSA	103	94	130
D3-N-MeF	27	29	55
D5-N-EtFO	21	33	50
D7-N-MeF	24	27	36
D9-N-EtFO	22	21	39
D3-N-MeF	11	68	INT
D5-N-EtFO	15	126	14

Perfluoroalkyl sulfonic acids (PFSAAs)- Trace

Perfluorobutanesulfon	0.02	< 5	< 0.01
Perfluorodecanesulfor	< 0.01	< 5	< 0.01
Perfluoroheptanesulfo	< 0.01	< 5	< 0.01
Perfluorohexanesulfor	0.09	< 5	0.01
Perfluorooctanesulfon	0.23	< 5	< 0.01
Perfluoropentanesulfo	0.01	< 5	< 0.01
13C3-PFBS (surr.)	122	125	130
13C8-PFOS (surr.)	129	120	141
18O2-PFHxS (surr.)	123	133	134

Perfluoroalkyl sulfonic acids (PFSAAs)- Ultra Trace

Perfluorob	0.015	0.1	0.001
Perfluorod	< 0.001	< 0.1	< 0.001
Perfluoroh	0.003	< 0.1	< 0.001
Perfluoroh	0.052	0.8	0.006
Perfluoroo	0.15	3.9	0.0014
Perfluorop	0.008	< 0.1	< 0.001
13C3-PFBS	99	142	116
13C8-PFOS	124	107	133

1802-PFHx	116		130		134
PFASs Summations					
Sum (PFHx)	0.202	0.32	4.7 < 5	0.0074	0.01
Sum of ent	0.23	0.37	5 < 5	0.0074	0.01
Sum of PFA	0.483	0.82	8.9 < 50	0.0084 < 0.1	
Sum of US	0.178	0.28	4.2 < 5	0.0014 < 0.01	
Sum of WA	0.466	0.8	8.8 < 10	0.0084 < 0.05	

Published on DES Disclosure Log
RTI Act 2009

Sample Receipt Advice

Company name: **Department of Environment and Science**
Contact name: **Sinead Summerville**
Project name: **SWANBANK SAMPLING**
COC number: **Not provided**
Turn around time: **5 Day**
Date/Time received: **Aug 31, 2018 11:07 AM**
Eurofins | mgt reference: **615361**

Sample information

- ☒ A detailed list of analytes logged into our LIMS, is included in the attached summary table.
- ☒ Sample Temperature of a random sample selected from the batch as recorded by Eurofins | mgt
Sample Receipt : 12.1 degrees Celsius.
- ☒ 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:

Ryan Gilbert on Phone : or by e.mail: RyanGilbert@eurofins.com

Results will be delivered electronically via e.mail to Sinead Summerville - sinead.summerville@des.qld.gov.au.

Note: A copy of these results will also be delivered to the general Department of Environment and Science email address.

Company Name: Department of Environment and Science
Address: Level 7, 400 George St
Brisbane
QLD 4000
Project Name: SWANBANK SAMPLING

Order No.:
Report #: 615361
Phone: 07 3330 5698
Fax: 07 3330 5634

Received: Aug 31, 2018 11:07 AM
Due: Sep 7, 2018
Priority: 5 Day
Contact Name: Sinead Summerville

Eurofins | mgt Analytical Services Manager : Ryan Gilbert

Sample Detail						Total Oxidisable Precursor	Major Anions	Major Cations	NEPM 1999 Metals : Metals M15	Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs) - Trace	Per- and Polyfluoroalkyl Substances (PFASs) - Ultra Trace
Melbourne Laboratory - NATA Site # 1254 & 14271							X	X	X	X		
Sydney Laboratory - NATA Site # 18217												
Brisbane Laboratory - NATA Site # 20794						X					X	X
Perth Laboratory - NATA Site # 23736												
External Laboratory												
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID							
1	SLSW-2	Aug 28, 2018	3:00PM	Water	B18-Se01045		X	X	X			X
2	SLSW-2	Aug 28, 2018	3:00PM	TOP - Water	B18-Se01046	X					X	
3	SS07-N	Aug 28, 2018	3:00PM	Soil	B18-Se01047				X	X		X
4	SS07-N	Aug 28, 2018	3:00PM	TOP - Soil	B18-Se01048	X					X	
5	BCK-U/S04	Aug 28, 2018	3:00PM	Water	B18-Se01049							X
6	BCK-U/S04	Aug 28, 2018	3:00PM	TOP - Water	B18-Se01050	X					X	
Test Counts						3	1	1	2	1	3	3

Certificate of Analysis

DES
Level 7, 400 George St
Brisbane
QLD 4000



NATA Accredited
Accreditation Number 1261
Site Number 20794

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: Sinead Summerville

Report 615361-S

Project name SWANBANK SAMPLING

Received Date Aug 31, 2018

Client Sample ID			SS07-N	SS07-N
Sample Matrix			Soil	TOP - Soil
Eurofins mgt Sample No.			B18-Se01047	B18-Se01048
Date Sampled			Aug 28, 2018	Aug 28, 2018
Test/Reference	LOR	Unit		
PFASs Summations				
Sum (PFHxS + PFOS)*	0.1	ug/kg	4.7	< 5
Sum of US EPA PFAS (PFOS + PFOA)*	0.1	ug/kg	4.2	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.1	ug/kg	5	< 5
Sum of WA DWER PFAS (n=10)*	0.5	ug/kg	8.8	< 10
Sum of PFASs (n=28)*	0.5	ug/kg	8.9	< 50
Perfluoroalkyl carboxylic acids (PFCAs) - Trace				
Perfluorobutanoic acid (PFBA) ^{N11}	5	ug/kg	-	< 5
Perfluoropentanoic acid (PFPeA) ^{N11}	5	ug/kg	-	< 5
Perfluorohexanoic acid (PFHxA) ^{N11}	5	ug/kg	-	< 5
Perfluoroheptanoic acid (PFHpA) ^{N11}	5	ug/kg	-	< 5
Perfluorooctanoic acid (PFOA) ^{N11}	5	ug/kg	-	< 5
Perfluorononanoic acid (PFNA) ^{N11}	5	ug/kg	-	< 5
Perfluorodecanoic acid (PFDA) ^{N11}	5	ug/kg	-	< 5
Perfluoroundecanoic acid (PFUnDA) ^{N11}	5	ug/kg	-	< 5
Perfluorododecanoic acid (PFDoDA) ^{N11}	5	ug/kg	-	< 5
Perfluorotridecanoic acid (PFTeDA) ^{N15}	5	ug/kg	-	< 5
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	5	ug/kg	-	< 5
13C4-PFBA (surr.)	1	%	-	81
13C5-PFPeA (surr.)	1	%	-	91
13C5-PFHxA (surr.)	1	%	-	115
13C4-PFHpA (surr.)	1	%	-	121
13C8-PFOA (surr.)	1	%	-	118
13C5-PFNA (surr.)	1	%	-	109
13C6-PFDA (surr.)	1	%	-	126
13C2-PFUnDA (surr.)	1	%	-	112
13C2-PFDoDA (surr.)	1	%	-	71
13C2-PFTeDA (surr.)	1	%	-	65
Perfluoroalkyl sulfonic acids (PFSA)s - Trace				
Perfluorobutanesulfonic acid (PFBS) ^{N11}	5	ug/kg	-	< 5
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	5	ug/kg	-	< 5
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	5	ug/kg	-	< 5
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	5	ug/kg	-	< 5
Perfluorooctanesulfonic acid (PFOS) ^{N11}	5	ug/kg	-	< 5
Perfluorodecanesulfonic acid (PFDS) ^{N15}	5	ug/kg	-	< 5
13C3-PFBS (surr.)	1	%	-	125
18O2-PFHxS (surr.)	1	%	-	133
13C8-PFOS (surr.)	1	%	-	120

Client Sample ID			SS07-N	SS07-N
Sample Matrix			Soil	TOP - Soil
Eurofins mgt Sample No.			B18-Se01047	B18-Se01048
Date Sampled			Aug 28, 2018	Aug 28, 2018
Test/Reference	LOR	Unit		
Perfluoroalkyl sulfonamido substances- Trace				
Perfluorooctane sulfonamide (FOSA) ^{N11}	5	ug/kg	-	< 5
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	5	ug/kg	-	< 5
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	5	ug/kg	-	< 5
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) ^{N11}	5	ug/kg	-	< 5
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE) ^{N11}	5	ug/kg	-	< 5
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	10	ug/kg	-	< 10
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	10	ug/kg	-	< 10
13C8-FOSA (surr.)	1	%	-	92
D3-N-MeFOSA (surr.)	1	%	-	59
D5-N-EtFOSA (surr.)	1	%	-	64
D7-N-MeFOSE (surr.)	1	%	-	64
D9-N-EtFOSE (surr.)	1	%	-	55
D5-N-EtFOSAA (surr.)	1	%	-	107
D3-N-MeFOSAA (surr.)	1	%	-	103
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace				
1H,1H,2H,2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	5	ug/kg	-	< 5
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2 FTSA) ^{N11}	10	ug/kg	-	< 10
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	5	ug/kg	-	< 5
1H,1H,2H,2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N15}	5	ug/kg	-	< 5
13C2-4:2 FTSA (surr.)	1	%	-	116
13C2-6:2 FTSA (surr.)	1	%	-	119
13C2-8:2 FTSA (surr.)	1	%	-	119
Perfluoroalkyl carboxylic acids (PFCAs) - Ultra Trace				
Perfluorobutanoic acid (PFBA) ^{N11}	0.1	ug/kg	0.3	-
Perfluoropentanoic acid (PFPeA) ^{N11}	0.5	ug/kg	< 0.5	-
Perfluorohexanoic acid (PFHxA) ^{N11}	0.1	ug/kg	^{N09} 1.6	-
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.1	ug/kg	^{N09} 0.1	-
Perfluorooctanoic acid (PFOA) ^{N11}	0.1	ug/kg	^{N09} 0.3	-
Perfluorononanoic acid (PFNA) ^{N11}	0.1	ug/kg	< 0.1	-
Perfluorodecanoic acid (PFDA) ^{N11}	0.1	ug/kg	0.1	-
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.1	ug/kg	< 0.1	-
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.1	ug/kg	< 0.1	-
Perfluorotridecanoic acid (PFTTrDA) ^{N15}	0.1	ug/kg	< 0.1	-
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.1	ug/kg	< 0.1	-
13C4-PFBA (surr.)	1	%	92	-
13C5-PFPeA (surr.)	1	%	88	-
13C5-PFHxA (surr.)	1	%	114	-
13C4-PFHpA (surr.)	1	%	119	-
13C8-PFOA (surr.)	1	%	108	-
13C5-PFNA (surr.)	1	%	60	-
13C6-PFDA (surr.)	1	%	102	-
13C2-PFUnDA (surr.)	1	%	113	-
13C2-PFDoDA (surr.)	1	%	83	-
13C2-PFTeDA (surr.)	1	%	73	-

Client Sample ID			SS07-N	SS07-N
Sample Matrix			Soil	TOP - Soil
Eurofins mgt Sample No.			B18-Se01047	B18-Se01048
Date Sampled			Aug 28, 2018	Aug 28, 2018
Test/Reference	LOR	Unit		
Perfluoroalkyl sulfonic acids (PFSA)s- Ultra Trace				
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.1	ug/kg	0.1	-
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.1	ug/kg	< 0.1	-
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.1	ug/kg	^{N09} 0.8	-
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.1	ug/kg	< 0.1	-
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.1	ug/kg	^{N09} 3.9	-
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.1	ug/kg	< 0.1	-
13C3-PFBS (surr.)	1	%	142	-
18O2-PFHxS (surr.)	1	%	130	-
13C8-PFOS (surr.)	1	%	107	-
Perfluoroalkyl sulfonamido substances- Ultra Trace				
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.5	ug/kg	< 0.5	-
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.5	ug/kg	< 0.5	-
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.5	ug/kg	< 0.5	-
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) ^{N11}	0.5	ug/kg	< 0.5	-
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE) ^{N11}	0.5	ug/kg	< 0.5	-
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.5	ug/kg	< 0.5	-
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.5	ug/kg	< 0.5	-
13C8-FOSA (surr.)	1	%	94	-
D3-N-MeFOSA (surr.)	1	%	29	-
D5-N-EtFOSA (surr.)	1	%	33	-
D7-N-MeFOSE (surr.)	1	%	27	-
D9-N-EtFOSE (surr.)	1	%	21	-
D5-N-EtFOSAA (surr.)	1	%	126	-
D3-N-MeFOSAA (surr.)	1	%	68	-
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Ultra Trace				
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.1	ug/kg	< 0.1	-
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA) ^{N11}	0.1	ug/kg	1.4	-
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.1	ug/kg	0.3	-
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N15}	0.1	ug/kg	< 0.1	-
13C2-4:2 FTSA (surr.)	1	%	85	-
13C2-6:2 FTSA (surr.)	1	%	102	-
13C2-8:2 FTSA (surr.)	1	%	123	-
Chromium (hexavalent)	1	mg/kg	< 1	-
Chromium (trivalent)	5	mg/kg	58	-
% Moisture	1	%	22	-
Heavy Metals				
Arsenic	2	mg/kg	6.8	-
Barium	10	mg/kg	51	-
Beryllium	2	mg/kg	< 2	-
Boron	10	mg/kg	< 10	-
Cadmium	0.4	mg/kg	< 0.4	-
Chromium	5	mg/kg	58	-

Client Sample ID			SS07-N	SS07-N
Sample Matrix			Soil	TOP - Soil
Eurofins mgt Sample No.			B18-Se01047	B18-Se01048
Date Sampled			Aug 28, 2018	Aug 28, 2018
Test/Reference	LOR	Unit		
Heavy Metals				
Cobalt	5	mg/kg	8.0	-
Copper	5	mg/kg	42	-
Lead	5	mg/kg	8.7	-
Manganese	5	mg/kg	250	-
Mercury	0.1	mg/kg	< 0.1	-
Nickel	5	mg/kg	24	-
Vanadium	10	mg/kg	24	-
Zinc	5	mg/kg	54	-

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Sample History

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

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

Description	Testing Site	Extracted	Holding Time
Per- and Polyfluoroalkyl Substances (PFASs) - Ultra Trace			
Perfluoroalkyl carboxylic acids (PFCAs) - Ultra Trace	Brisbane	Sep 03, 2018	180 Day
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonic acids (PFASs)- Ultra Trace	Brisbane	Sep 03, 2018	180 Day
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonamido substances- Ultra Trace	Brisbane	Sep 03, 2018	180 Day
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Ultra Trace	Brisbane	Sep 03, 2018	180 Day
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Per- and Polyfluoroalkyl Substances (PFASs) - Trace			
Perfluoroalkyl carboxylic acids (PFCAs) - Trace	Brisbane	Sep 03, 2018	180 Day
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonic acids (PFASs)- Trace	Brisbane	Sep 03, 2018	180 Day
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonamido substances- Trace	Brisbane	Sep 03, 2018	180 Day
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Trace	Brisbane	Sep 03, 2018	180 Day
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Chromium (hexavalent)	Melbourne	Sep 04, 2018	28 Day
- Method: APHA 3500-Cr Hexavalent Chromium- (Extraction:- USEPA3060)			
Heavy Metals	Melbourne	Sep 04, 2018	180 Day
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
% Moisture	Melbourne	Sep 02, 2018	14 Day
- Method: LTM-GEN-7080 Moisture			

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Company Name: Department of Environment and Science
Address: Level 7, 400 George St
Brisbane
QLD 4000
Project Name: SWANBANK SAMPLING

Order No.:
Report #: 615361
Phone: 07 3330 5698
Fax: 07 3330 5634

Received: Aug 31, 2018 11:07 AM
Due: Sep 7, 2018
Priority: 5 Day
Contact Name: Sinead Summerville

Eurofins | mgt Analytical Services Manager : Ryan Gilbert

Sample Detail						Total Oxidisable Precursor	Major Anions	Major Cations	NEPM 1999 Metals : Metals M15	Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs) - Trace	Per- and Polyfluoroalkyl Substances (PFASs) - Ultra Trace
Melbourne Laboratory - NATA Site # 1254 & 14271							X	X	X	X		
Sydney Laboratory - NATA Site # 18217												
Brisbane Laboratory - NATA Site # 20794						X					X	X
Perth Laboratory - NATA Site # 23736												
External Laboratory												
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID							
1	SLSW-2	Aug 28, 2018	3:00PM	Water	B18-Se01045		X	X	X			X
2	SLSW-2	Aug 28, 2018	3:00PM	TOP - Water	B18-Se01046	X					X	
3	SS07-N	Aug 28, 2018	3:00PM	Soil	B18-Se01047				X	X		X
4	SS07-N	Aug 28, 2018	3:00PM	TOP - Soil	B18-Se01048	X					X	
5	BCK-U/S04	Aug 28, 2018	3:00PM	Water	B18-Se01049							X
6	BCK-U/S04	Aug 28, 2018	3:00PM	TOP - Water	B18-Se01050	X					X	
Test Counts						3	1	1	2	1	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
TCCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	Quality Systems Manual ver 5.1 US Department of Defense
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

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

Results <10 times the LOR : No Limit

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

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

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

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

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

QC Data General Comments

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

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	ug/kg	< 0.1			0.1	Pass	
Perfluoropentanoic acid (PFPeA)	ug/kg	< 0.5			0.5	Pass	
Perfluorohexanoic acid (PFHxA)	ug/kg	< 0.1			0.1	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/kg	< 0.1			0.1	Pass	
Perfluorooctanoic acid (PFOA)	ug/kg	< 0.1			0.1	Pass	
Perfluorononanoic acid (PFNA)	ug/kg	< 0.1			0.1	Pass	
Perfluorodecanoic acid (PFDA)	ug/kg	< 0.1			0.1	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/kg	< 0.1			0.1	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/kg	< 0.1			0.1	Pass	
Perfluorotridecanoic acid (PFTTrDA)	ug/kg	< 0.1			0.1	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/kg	< 0.1			0.1	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSA)s- Trace							
Perfluorobutanesulfonic acid (PFBS)	ug/kg	< 0.1			0.1	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/kg	< 0.1			0.1	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/kg	< 0.1			0.1	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/kg	< 0.1			0.1	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/kg	< 0.1			0.1	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/kg	< 0.1			0.1	Pass	
Method Blank							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	ug/kg	< 0.5			0.5	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/kg	< 0.5			0.5	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/kg	< 0.5			0.5	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	ug/kg	< 0.5			0.5	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	ug/kg	< 0.5			0.5	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/kg	< 0.5			0.5	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/kg	< 0.5			0.5	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/kg	< 0.1			0.1	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	ug/kg	< 0.1			0.1	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/kg	< 0.1			0.1	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/kg	< 0.1			0.1	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs) - Ultra Trace							
Perfluorobutanoic acid (PFBA)	ug/kg	< 0.1			0.1	Pass	
Perfluoropentanoic acid (PFPeA)	ug/kg	< 0.5			0.5	Pass	
Perfluorohexanoic acid (PFHxA)	ug/kg	< 0.1			0.1	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/kg	< 0.1			0.1	Pass	
Perfluorooctanoic acid (PFOA)	ug/kg	< 0.1			0.1	Pass	
Perfluorononanoic acid (PFNA)	ug/kg	< 0.1			0.1	Pass	
Perfluorodecanoic acid (PFDA)	ug/kg	< 0.1			0.1	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/kg	< 0.1			0.1	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/kg	< 0.1			0.1	Pass	
Perfluorotridecanoic acid (PFTTrDA)	ug/kg	< 0.1			0.1	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/kg	< 0.1			0.1	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSA)s- Ultra Trace							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorobutanesulfonic acid (PFBS)	ug/kg	< 0.1			0.1	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/kg	< 0.1			0.1	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/kg	< 0.1			0.1	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/kg	< 0.1			0.1	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/kg	< 0.1			0.1	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/kg	< 0.1			0.1	Pass	
Method Blank							
Perfluoroalkyl sulfonamido substances- Ultra Trace							
Perfluorooctane sulfonamide (FOSA)	ug/kg	< 0.5			0.5	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/kg	< 0.5			0.5	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/kg	< 0.5			0.5	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	ug/kg	< 0.5			0.5	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	ug/kg	< 0.5			0.5	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/kg	< 0.5			0.5	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/kg	< 0.5			0.5	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Ultra Trace							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/kg	< 0.1			0.1	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	ug/kg	< 0.1			0.1	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/kg	< 0.1			0.1	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/kg	< 0.1			0.1	Pass	
Method Blank							
Chromium (hexavalent)	mg/kg	< 1			1	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Barium	mg/kg	< 10			10	Pass	
Beryllium	mg/kg	< 2			2	Pass	
Boron	mg/kg	< 10			10	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Cobalt	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Manganese	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Vanadium	mg/kg	< 10			10	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	%	111			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	131			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	124			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	110			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	113			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	105			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	112			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	107			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	110			50-150	Pass	
Perfluorotridecanoic acid (PFTTrDA)	%	112			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	133			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSA)- Trace							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorobutanesulfonic acid (PFBS)	%	88			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	122			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	101			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	121			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	128			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	127			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	%	89			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	124			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	112			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	%	106			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	%	75			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	111			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	115			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	95			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	%	109			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	111			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	132			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs) - Ultra Trace							
Perfluorobutanoic acid (PFBA)	%	111			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	131			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	124			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	110			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	113			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	105			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	112			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	107			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	110			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	112			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	133			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSAs)- Ultra Trace							
Perfluorobutanesulfonic acid (PFBS)	%	88			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	122			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	101			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	121			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	128			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	127			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances- Ultra Trace							
Perfluorooctane sulfonamide (FOSA)	%	89			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	124			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	112			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	%	106			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	%	75			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	111			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	115			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Ultra Trace							

Test		Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)		%	95			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)		%	109			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)		%	111			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)		%	132			50-150	Pass	
LCS - % Recovery								
Chromium (hexavalent)		%	95			70-130	Pass	
LCS - % Recovery								
Heavy Metals								
Arsenic		%	110			80-120	Pass	
Barium		%	113			80-120	Pass	
Beryllium		%	110			80-120	Pass	
Boron		%	104			80-120	Pass	
Cadmium		%	105			80-120	Pass	
Chromium		%	117			80-120	Pass	
Cobalt		%	114			80-120	Pass	
Copper		%	118			80-120	Pass	
Lead		%	118			80-120	Pass	
Manganese		%	118			80-120	Pass	
Mercury		%	102			75-125	Pass	
Nickel		%	119			80-120	Pass	
Vanadium		%	118			80-120	Pass	
Zinc		%	120			80-120	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery								
Perfluoroalkyl carboxylic acids (PFCAs) - Trace				Result 1				
Perfluorobutanoic acid (PFBA)	B18-Au12709	NCP	%	118		50-150	Pass	
Perfluoropentanoic acid (PFPeA)	B18-Au12709	NCP	%	116		50-150	Pass	
Perfluorohexanoic acid (PFHxA)	B18-Au12709	NCP	%	92		50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	B18-Au12709	NCP	%	110		50-150	Pass	
Perfluorooctanoic acid (PFOA)	B18-Au12709	NCP	%	62		50-150	Pass	
Perfluorononanoic acid (PFNA)	B18-Au12709	NCP	%	110		50-150	Pass	
Perfluorodecanoic acid (PFDA)	B18-Au12709	NCP	%	131		50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	B18-Au12709	NCP	%	120		50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	B18-Au12709	NCP	%	101		50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	B18-Au12709	NCP	%	103		50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	B18-Au12709	NCP	%	132		50-150	Pass	
Spike - % Recovery								
Perfluoroalkyl sulfonic acids (PFSA)s- Trace				Result 1				
Perfluorobutanesulfonic acid (PFBS)	B18-Au12709	NCP	%	107		50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	B18-Au12709	NCP	%	133		50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	B18-Se01519	NCP	%	102		50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	B18-Au12709	NCP	%	105		50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	B18-Se01519	NCP	%	146		50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	B18-Au12709	NCP	%	131		50-150	Pass	
Spike - % Recovery								
Perfluoroalkyl sulfonamido substances- Trace				Result 1				

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorooctane sulfonamide (FOSA)	B18-Au12709	NCP	%	76			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B18-Au12709	NCP	%	131			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B18-Au12709	NCP	%	68			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	B18-Au12709	NCP	%	111			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	B18-Se01519	NCP	%	75			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B18-Au12709	NCP	%	126			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B18-Au12709	NCP	%	123			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B18-Au12709	NCP	%	116			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	B18-Au12709	NCP	%	52			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B18-Au12709	NCP	%	146			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B18-Au12709	NCP	%	140			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs) - Ultra Trace				Result 1					
Perfluorobutanoic acid (PFBA)	B18-Au12709	NCP	%	118			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	B18-Au12709	NCP	%	116			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	B18-Au12709	NCP	%	92			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	B18-Au12709	NCP	%	110			50-150	Pass	
Perfluorooctanoic acid (PFOA)	B18-Au12709	NCP	%	62			50-150	Pass	
Perfluorononanoic acid (PFNA)	B18-Au12709	NCP	%	110			50-150	Pass	
Perfluorodecanoic acid (PFDA)	B18-Au12709	NCP	%	131			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	B18-Au12709	NCP	%	120			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	B18-Au12709	NCP	%	101			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	B18-Au12709	NCP	%	103			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	B18-Au12709	NCP	%	132			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSA)- Ultra Trace				Result 1					
Perfluorobutanesulfonic acid (PFBS)	B18-Au12709	NCP	%	107			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	B18-Au12709	NCP	%	133			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	B18-Se01519	NCP	%	102			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	B18-Au12709	NCP	%	105			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	B18-Se01519	NCP	%	146			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	B18-Au12709	NCP	%	131			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances- Ultra Trace				Result 1					

Test	Lab Sample ID	QA Source	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Perfluorooctane sulfonamide (FOSA)	B18-Au12709	NCP	%	76		50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B18-Au12709	NCP	%	131		50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B18-Au12709	NCP	%	68		50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	B18-Au12709	NCP	%	111		50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	B18-Se01519	NCP	%	75		50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B18-Au12709	NCP	%	126		50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B18-Au12709	NCP	%	123		50-150	Pass	
Spike - % Recovery								
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Ultra Trace				Result 1				
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B18-Au12709	NCP	%	116		50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	B18-Au12709	NCP	%	52		50-150	Pass	
1H.1H.2H.2H-perfluorodecane sulfonic acid (8:2 FTSA)	B18-Au12709	NCP	%	146		50-150	Pass	
1H.1H.2H.2H-perfluorododecane sulfonic acid (10:2 FTSA)	B18-Au12709	NCP	%	140		50-150	Pass	
Spike - % Recovery								
				Result 1				
Chromium (hexavalent)	M18-Se00126	NCP	%	82		70-130	Pass	
Spike - % Recovery								
Heavy Metals				Result 1				
Arsenic	M18-Se00470	NCP	%	112		75-125	Pass	
Barium	M18-Se00470	NCP	%	107		75-125	Pass	
Beryllium	M18-Se00470	NCP	%	114		75-125	Pass	
Boron	M18-Se00470	NCP	%	101		75-125	Pass	
Cadmium	M18-Se00470	NCP	%	109		75-125	Pass	
Chromium	M18-Se00470	NCP	%	107		75-125	Pass	
Cobalt	M18-Se00470	NCP	%	121		75-125	Pass	
Copper	M18-Se00470	NCP	%	122		75-125	Pass	
Lead	M18-Se00470	NCP	%	95		75-125	Pass	
Manganese	M18-Se00470	NCP	%	116		75-125	Pass	
Mercury	M18-Se00470	NCP	%	102		70-130	Pass	
Nickel	M18-Se00470	NCP	%	114		75-125	Pass	
Vanadium	M18-Se00470	NCP	%	121		75-125	Pass	
Zinc	M18-Se00470	NCP	%	109		75-125	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
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

Ryan Gilbert	Analytical Services Manager
Alex Petridis	Senior Analyst-Metal (VIC)
Jonathon Angell	Senior Analyst-Organic (QLD)
Michael Brancati	Senior Analyst-Inorganic (VIC)

h4p4(6) Personal Information

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

DES
Level 7, 400 George St
Brisbane
QLD 4000



NATA Accredited
Accreditation Number 1261
Site Number 20794

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: **Sinead Summerville**

Report **615361-W**
Project name **SWANBANK SAMPLING**
Received Date **Aug 31, 2018**

Client Sample ID			SLSW-2	SLSW-2	BCK-U/S04	BCK-U/S04
Sample Matrix			Water	TOP - Water	Water	TOP - Water
Eurofins mgt Sample No.			B18-Se01045	B18-Se01046	B18-Se01049	B18-Se01050
Date Sampled			Aug 28, 2018	Aug 28, 2018	Aug 28, 2018	Aug 28, 2018
Test/Reference	LOR	Unit				
PFASs Summations						
Sum (PFHxS + PFOS)*	0.001	ug/L	0.202	0.32	0.0074	0.01
Sum of US EPA PFAS (PFOS + PFOA)*	0.001	ug/L	0.178	0.28	0.0014	< 0.01
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.001	ug/L	0.23	0.37	0.0074	0.01
Sum of WA DWER PFAS (n=10)*	0.005	ug/L	0.466	0.8	0.0084	< 0.05
Sum of PFASs (n=28)*	0.005	ug/L	0.483	0.82	0.0084	< 0.1
Perfluoroalkyl carboxylic acids (PFCAs) - Trace						
Perfluorobutanoic acid (PFBA) ^{N11}	0.05	ug/L	-	0.06	-	< 0.05
Perfluoropentanoic acid (PFPeA) ^{N11}	0.01	ug/L	-	0.13	-	< 0.01
Perfluorohexanoic acid (PFHxA) ^{N11}	0.01	ug/L	-	0.17	-	< 0.01
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.01	ug/L	-	0.04	-	< 0.01
Perfluorooctanoic acid (PFOA) ^{N11}	0.01	ug/L	-	0.05	-	< 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 (PFTeDA) ^{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	%	-	85	-	86
13C5-PFPeA (surr.)	1	%	-	101	-	102
13C5-PFHxA (surr.)	1	%	-	125	-	136
13C4-PFHpA (surr.)	1	%	-	135	-	146
13C8-PFOA (surr.)	1	%	-	128	-	139
13C5-PFNA (surr.)	1	%	-	68	-	73
13C6-PFDA (surr.)	1	%	-	125	-	138
13C2-PFUnDA (surr.)	1	%	-	152	-	165
13C2-PFDoDA (surr.)	1	%	-	117	-	150
13C2-PFTeDA (surr.)	1	%	-	127	-	143
Perfluoroalkyl sulfonic acids (PFSA)s - Trace						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.01	ug/L	-	0.02	-	< 0.01
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.01	ug/L	-	0.01	-	< 0.01
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.01	ug/L	-	0.09	-	0.01
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.01	ug/L	-	< 0.01	-	< 0.01
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.01	ug/L	-	0.23	-	< 0.01
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.01	ug/L	-	< 0.01	-	< 0.01
13C3-PFBS (surr.)	1	%	-	122	-	130
18O2-PFHxS (surr.)	1	%	-	123	-	134
13C8-PFOS (surr.)	1	%	-	129	-	141

Client Sample ID			SLSW-2	SLSW-2	BCK-U/S04	BCK-U/S04
Sample Matrix			Water	TOP - Water	Water	TOP - Water
Eurofins mgt Sample No.			B18-Se01045	B18-Se01046	B18-Se01049	B18-Se01050
Date Sampled			Aug 28, 2018	Aug 28, 2018	Aug 28, 2018	Aug 28, 2018
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonamido substances- Trace						
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	%	-	115	-	118
D3-N-MeFOSA (surr.)	1	%	-	61	-	85
D5-N-EtFOSA (surr.)	1	%	-	76	-	108
D7-N-MeFOSE (surr.)	1	%	-	61	-	89
D9-N-EtFOSE (surr.)	1	%	-	57	-	85
D5-N-EtFOSAA (surr.)	1	%	-	165	-	168
D3-N-MeFOSAA (surr.)	1	%	-	141	-	163
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace						
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	%	-	100	-	109
13C2-6:2 FTSA (surr.)	1	%	-	115	-	136
13C2-8:2 FTSA (surr.)	1	%	-	104	-	115
Perfluoroalkyl carboxylic acids (PFCAs) - Ultra Trace						
Perfluorobutanoic acid (PFBA) ^{N11}	0.005	ug/L	0.036	-	< 0.005	-
Perfluoropentanoic acid (PFPeA) ^{N11}	0.001	ug/L	0.067	-	< 0.001	-
Perfluorohexanoic acid (PFHxA) ^{N11}	0.001	ug/L	^{N09} 0.085	-	< 0.001	-
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.001	ug/L	^{N09} 0.022	-	< 0.001	-
Perfluorooctanoic acid (PFOA) ^{N11}	0.001	ug/L	^{N09} 0.028	-	< 0.001	-
Perfluorononanoic acid (PFNA) ^{N11}	0.001	ug/L	0.006	-	< 0.001	-
Perfluorodecanoic acid (PFDA) ^{N11}	0.001	ug/L	< 0.001	-	< 0.001	-
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.001	ug/L	< 0.001	-	< 0.001	-
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.001	ug/L	< 0.001	-	< 0.001	-
Perfluorotridecanoic acid (PFTTrDA) ^{N15}	0.001	ug/L	< 0.001	-	< 0.001	-
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.001	ug/L	< 0.001	-	< 0.001	-
13C4-PFBA (surr.)	1	%	86	-	52	-
13C5-PFPeA (surr.)	1	%	104	-	51	-
13C5-PFHxA (surr.)	1	%	81	-	55	-
13C4-PFHpA (surr.)	1	%	80	-	67	-
13C8-PFOA (surr.)	1	%	88	-	88	-
13C5-PFNA (surr.)	1	%	102	-	103	-
13C6-PFDA (surr.)	1	%	89	-	102	-
13C2-PFUnDA (surr.)	1	%	77	-	95	-
13C2-PFDoDA (surr.)	1	%	55	-	86	-
13C2-PFTeDA (surr.)	1	%	26	-	79	-

Client Sample ID			SLSW-2	SLSW-2	BCK-U/S04	BCK-U/S04
Sample Matrix			Water	TOP - Water	Water	TOP - Water
Eurofins mgt Sample No.			B18-Se01045	B18-Se01046	B18-Se01049	B18-Se01050
Date Sampled			Aug 28, 2018	Aug 28, 2018	Aug 28, 2018	Aug 28, 2018
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonic acids (PFSA)s- Ultra Trace						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.001	ug/L	^{N09} 0.015	-	^{N09} 0.001	-
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.001	ug/L	^{N09} 0.008	-	^{N09} < 0.001	-
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.001	ug/L	^{N09} 0.052	-	^{N09} 0.006	-
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.001	ug/L	^{N09} 0.003	-	< 0.001	-
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.0001	ug/L	^{N09} 0.15	-	^{N09} 0.0014	-
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.001	ug/L	< 0.001	-	< 0.001	-
13C3-PFBS (surr.)	1	%	99	-	116	-
18O2-PFHxS (surr.)	1	%	116	-	134	-
13C8-PFOS (surr.)	1	%	124	-	133	-
Perfluoroalkyl sulfonamido substances- Ultra Trace						
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.005	ug/L	< 0.005	-	< 0.005	-
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.005	ug/L	< 0.005	-	< 0.005	-
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.005	ug/L	< 0.005	-	< 0.005	-
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) ^{N11}	0.005	ug/L	< 0.005	-	< 0.005	-
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE) ^{N11}	0.005	ug/L	< 0.005	-	< 0.005	-
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.005	ug/L	< 0.005	-	< 0.005	-
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.005	ug/L	< 0.005	-	< 0.005	-
13C8-FOSA (surr.)	1	%	103	-	130	-
D3-N-MeFOSA (surr.)	1	%	27	-	55	-
D5-N-EtFOSA (surr.)	1	%	21	-	50	-
D7-N-MeFOSE (surr.)	1	%	24	-	36	-
D9-N-EtFOSE (surr.)	1	%	22	-	39	-
D5-N-EtFOSAA (surr.)	1	%	15	-	14	-
D3-N-MeFOSAA (surr.)	1	%	11	-	INT	-
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Ultra Trace						
1H,1H,2H,2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.001	ug/L	< 0.001	-	< 0.001	-
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2 FTSA) ^{N11}	0.005	ug/L	0.011	-	< 0.005	-
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.001	ug/L	< 0.001	-	< 0.001	-
1H,1H,2H,2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N15}	0.001	ug/L	< 0.001	-	< 0.001	-
13C2-4:2 FTSA (surr.)	1	%	117	-	123	-
13C2-6:2 FTSA (surr.)	1	%	145	-	154	-
13C2-8:2 FTSA (surr.)	1	%	139	-	166	-
Ammonia (as N)	0.01	mg/L	0.28	-	-	-
Chloride	1	mg/L	270	-	-	-
Chromium (hexavalent)	0.001	mg/L	< 0.001	-	-	-
Chromium (trivalent)	0.001	mg/L	0.002	-	-	-
Nitrate (as N)	0.02	mg/L	0.09	-	-	-
Sulphate (as S)	5	mg/L	30	-	-	-
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO ₃)	20	mg/L	250	-	-	-
Carbonate Alkalinity (as CaCO ₃)	10	mg/L	29	-	-	-

Client Sample ID Sample Matrix Eurofins mgt Sample No. Date Sampled Test/Reference	LOR	Unit	SLSW-2 Water B18-Se01045 Aug 28, 2018	SLSW-2 TOP - Water B18-Se01046 Aug 28, 2018	BCK-U/S04 Water B18-Se01049 Aug 28, 2018	BCK-U/S04 TOP - Water B18-Se01050 Aug 28, 2018
Heavy Metals						
Arsenic	0.001	mg/L	0.003	-	-	-
Barium	0.02	mg/L	0.07	-	-	-
Beryllium	0.001	mg/L	< 0.001	-	-	-
Boron	0.05	mg/L	0.07	-	-	-
Cadmium	0.0002	mg/L	< 0.0002	-	-	-
Chromium	0.001	mg/L	0.002	-	-	-
Cobalt	0.001	mg/L	< 0.001	-	-	-
Copper	0.001	mg/L	0.009	-	-	-
Lead	0.001	mg/L	0.001	-	-	-
Manganese	0.005	mg/L	0.038	-	-	-
Mercury	0.0001	mg/L	< 0.0001	-	-	-
Nickel	0.001	mg/L	0.001	-	-	-
Vanadium	0.005	mg/L	< 0.005	-	-	-
Zinc	0.005	mg/L	0.007	-	-	-
Alkali Metals						
Calcium	0.5	mg/L	41	-	-	-
Magnesium	0.5	mg/L	49	-	-	-
Potassium	0.5	mg/L	13	-	-	-
Sodium	0.5	mg/L	180	-	-	-

Published on DES Disclosure Log
RTI Act 2009

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
Per- and Polyfluoroalkyl Substances (PFASs) - Ultra Trace			
Perfluoroalkyl carboxylic acids (PFCAs) - Ultra Trace	Brisbane	Sep 02, 2018	14 Day
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonic acids (PFASs)- Ultra Trace	Brisbane	Sep 02, 2018	14 Day
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonamido substances- Ultra Trace	Brisbane	Sep 02, 2018	14 Day
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Ultra Trace	Brisbane	Sep 02, 2018	14 Day
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Per- and Polyfluoroalkyl Substances (PFASs) - Trace			
Perfluoroalkyl carboxylic acids (PFCAs) - Trace	Brisbane	Sep 02, 2018	14 Day
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonic acids (PFASs)- Trace	Brisbane	Sep 02, 2018	14 Day
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonamido substances- Trace	Brisbane	Sep 02, 2018	14 Day
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)- Trace	Brisbane	Sep 02, 2018	14 Day
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Major Cations			
Ammonia (as N)	Melbourne	Sep 04, 2018	28 Day
- Method: APHA 4500-NH3 Ammonia Nitrogen by FIA			
Alkali Metals	Melbourne	Sep 04, 2018	180 Day
- Method: USEPA 6010 Alkali Metals			
Major Anions			
Chloride	Melbourne	Sep 04, 2018	28 Day
- Method: LTM-INO-4090 Chloride by Discrete Analyser			
Nitrate (as N)	Melbourne	Sep 04, 2018	28 Day
- Method: APHA 4500-NO3 Nitrate Nitrogen by FIA			
Sulphate (as S)	Melbourne	Sep 04, 2018	28 Day
- Method: LTM-INO-4110 Sulfate by Discrete Analyser			
Alkalinity (speciated)	Melbourne	Sep 04, 2018	14 Day
- Method: APHA 2320 Alkalinity by Titration			
Chromium (hexavalent)	Melbourne	Sep 04, 2018	28 Day
- Method: Cr (VI) by MGT 1170A			
Heavy Metals	Melbourne	Sep 07, 2018	180 Day
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			

Company Name: Department of Environment and Science
Address: Level 7, 400 George St
Brisbane
QLD 4000
Project Name: SWANBANK SAMPLING

Order No.:
Report #: 615361
Phone: 07 3330 5698
Fax: 07 3330 5634

Received: Aug 31, 2018 11:07 AM
Due: Sep 7, 2018
Priority: 5 Day
Contact Name: Sinead Summerville

Eurofins | mgt Analytical Services Manager : Ryan Gilbert

Sample Detail						Total Oxidisable Precursor	Major Anions	Major Cations	NEPM 1999 Metals : Metals M15	Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs) - Trace	Per- and Polyfluoroalkyl Substances (PFASs) - Ultra Trace
Melbourne Laboratory - NATA Site # 1254 & 14271							X	X	X	X		
Sydney Laboratory - NATA Site # 18217												
Brisbane Laboratory - NATA Site # 20794						X					X	X
Perth Laboratory - NATA Site # 23736												
External Laboratory												
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID							
1	SLSW-2	Aug 28, 2018	3:00PM	Water	B18-Se01045		X	X	X			X
2	SLSW-2	Aug 28, 2018	3:00PM	TOP - Water	B18-Se01046	X					X	
3	SS07-N	Aug 28, 2018	3:00PM	Soil	B18-Se01047				X	X		X
4	SS07-N	Aug 28, 2018	3:00PM	TOP - Soil	B18-Se01048	X					X	
5	BCK-U/S04	Aug 28, 2018	3:00PM	Water	B18-Se01049							X
6	BCK-U/S04	Aug 28, 2018	3:00PM	TOP - Water	B18-Se01050	X					X	
Test Counts						3	1	1	2	1	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
TCCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	Quality Systems Manual ver 5.1 US Department of Defense
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

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

Results <10 times the LOR : No Limit

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

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

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

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

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

QC Data General Comments

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

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.005			0.005	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.001			0.001	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.001			0.001	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.001			0.001	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotridecanoic acid (PFTTrDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.001			0.001	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSA)s- Trace							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.001			0.001	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.0001			0.0001	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.001			0.001	Pass	
Method Blank							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.005			0.005	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.005			0.005	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.005			0.005	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	ug/L	< 0.005			0.005	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	ug/L	< 0.005			0.005	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.005			0.005	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.005			0.005	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	ug/L	< 0.005			0.005	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.001			0.001	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 (as N)	mg/L	< 0.02			0.02	Pass	
Sulphate (as S)	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	
Method Blank							
Heavy Metals							
Arsenic	mg/L	< 0.001			0.001	Pass	
Barium	mg/L	< 0.02			0.02	Pass	
Beryllium	mg/L	< 0.001			0.001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
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	
Vanadium	mg/L	< 0.005			0.005	Pass	
Zinc	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							
Perfluoroalkyl carboxylic acids (PFCAs) - Trace							
Perfluorobutanoic acid (PFBA)	%	92			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	105			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	90			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	92			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	94			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	98			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	91			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	85			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	96			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	92			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	99			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSA)s- Trace							
Perfluorobutanesulfonic acid (PFBS)	%	83			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	83			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	84			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	88			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	89			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	139			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances- Trace							
Perfluorooctane sulfonamide (FOSA)	%	93			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	85			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	86			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	%	96			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	%	88			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	104			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	86			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s- Trace							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	85			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	%	97			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	84			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	87			50-150	Pass	
LCS - % Recovery							

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Ammonia (as N)			%	99			70-130	Pass	
Chloride			%	123			70-130	Pass	
Chromium (hexavalent)			%	102			70-130	Pass	
Nitrate (as N)			%	98			70-130	Pass	
Sulphate (as S)			%	91			70-130	Pass	
LCS - % Recovery									
Alkalinity (speciated)									
Carbonate Alkalinity (as CaCO ₃)			%	84			70-130	Pass	
LCS - % Recovery									
Heavy Metals									
Arsenic			%	107			80-120	Pass	
Barium			%	104			80-120	Pass	
Beryllium			%	102			80-120	Pass	
Boron			%	104			80-120	Pass	
Cadmium			%	98			80-120	Pass	
Chromium			%	99			80-120	Pass	
Cobalt			%	99			80-120	Pass	
Copper			%	99			80-120	Pass	
Lead			%	95			80-120	Pass	
Manganese			%	102			80-120	Pass	
Mercury			%	91			75-125	Pass	
Nickel			%	98			80-120	Pass	
Vanadium			%	100			80-120	Pass	
Zinc			%	106			80-120	Pass	
LCS - % Recovery									
Alkali Metals									
Calcium			%	94			70-130	Pass	
Magnesium			%	97			70-130	Pass	
Potassium			%	86			70-130	Pass	
Sodium			%	91			70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs) - Trace				Result 1					
Perfluorobutanoic acid (PFBA)	M18-Se06186	NCP	%	94			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	M18-Se06186	NCP	%	109			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	M18-Se06186	NCP	%	94			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	M18-Se06186	NCP	%	96			50-150	Pass	
Perfluorooctanoic acid (PFOA)	M18-Se06186	NCP	%	91			50-150	Pass	
Perfluorononanoic acid (PFNA)	M18-Au39885	NCP	%	79			50-150	Pass	
Perfluorodecanoic acid (PFDA)	M18-Au39885	NCP	%	77			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	M18-Au39885	NCP	%	74			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	M18-Au39885	NCP	%	76			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	M18-Au39885	NCP	%	79			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	M18-Au39885	NCP	%	76			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSA)- Trace				Result 1					
Perfluorobutanesulfonic acid (PFBS)	M18-Au39885	NCP	%	68			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	M18-Au39885	NCP	%	72			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	M18-Au39885	NCP	%	70			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluoroheptanesulfonic acid (PFHpS)	M18-Au39885	NCP	%	75			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	M18-Se06186	NCP	%	82			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	M18-Au39885	NCP	%	71			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances- Trace				Result 1					
Perfluorooctane sulfonamide (FOSA)	M18-Au39885	NCP	%	76			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	M18-Au39885	NCP	%	70			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	M18-Au39885	NCP	%	72			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	M18-Au39885	NCP	%	77			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	M18-Au39885	NCP	%	70			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	M18-Au39885	NCP	%	65			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	M18-Au39885	NCP	%	67			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	M18-Au39885	NCP	%	77			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	M18-Au39885	NCP	%	86			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	M18-Au39885	NCP	%	69			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	M18-Au39885	NCP	%	63			50-150	Pass	
Spike - % Recovery									
				Result 1					
Ammonia (as N)	M18-Se01247	NCP	%	97			70-130	Pass	
Chloride	M18-Se01608	NCP	%	110			70-130	Pass	
Chromium (hexavalent)	M18-Au39754	NCP	%	101			70-130	Pass	
Nitrate (as N)	M18-Se01247	NCP	%	92			70-130	Pass	
Sulphate (as S)	M18-Se02744	NCP	%	83			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	M18-Se01287	NCP	%	104			75-125	Pass	
Barium	M18-Se01287	NCP	%	107			75-125	Pass	
Beryllium	M18-Se01287	NCP	%	99			75-125	Pass	
Boron	M18-Se01287	NCP	%	98			75-125	Pass	
Cadmium	M18-Se01287	NCP	%	96			75-125	Pass	
Chromium	M18-Se01287	NCP	%	96			75-125	Pass	
Cobalt	M18-Se01287	NCP	%	98			75-125	Pass	
Copper	M18-Se01287	NCP	%	97			75-125	Pass	
Lead	M18-Se01287	NCP	%	97			75-125	Pass	
Manganese	M18-Se01287	NCP	%	100			75-125	Pass	
Mercury	M18-Se01287	NCP	%	96			70-130	Pass	
Nickel	M18-Se01287	NCP	%	96			75-125	Pass	
Vanadium	M18-Se01287	NCP	%	97			75-125	Pass	
Zinc	M18-Se01287	NCP	%	105			75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Alkali Metals				Result 1					
Calcium	M18-Se01289	NCP	%	98			70-130	Pass	
Magnesium	M18-Se01289	NCP	%	101			70-130	Pass	
Potassium	M18-Se01289	NCP	%	103			70-130	Pass	
Sodium	M18-Se01289	NCP	%	108			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-Se01247	NCP	mg/L	0.55	0.58	5.0	30%	Pass	
Chloride	M18-Se03125	NCP	mg/L	7200	7200	1.0	30%	Pass	
Chromium (hexavalent)	M18-Se02748	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Nitrate (as N)	M18-Se01247	NCP	mg/L	< 0.02	0.02	12	30%	Pass	
Sulphate (as S)	M18-Se03125	NCP	mg/L	1300	1100	16	30%	Pass	
Duplicate									
Alkalinity (speciated)				Result 1	Result 2	RPD			
Bicarbonate Alkalinity (as CaCO ₃)	M18-Se01256	NCP	mg/L	350	320	10	30%	Pass	
Carbonate Alkalinity (as CaCO ₃)	M18-Se01256	NCP	mg/L	< 10	< 10	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M18-Se01287	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Barium	M18-Se01287	NCP	mg/L	0.11	0.12	1.0	30%	Pass	
Beryllium	M18-Se01287	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Boron	M18-Se03781	NCP	mg/L	1.0	0.97	3.0	30%	Pass	
Cadmium	M18-Se01287	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium	M18-Se01287	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cobalt	M18-Se01287	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper	M18-Se01287	NCP	mg/L	0.019	0.019	2.0	30%	Pass	
Lead	M18-Se01287	NCP	mg/L	0.004	0.004	1.0	30%	Pass	
Manganese	M18-Se01287	NCP	mg/L	0.024	0.023	2.0	30%	Pass	
Mercury	M18-Se01287	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel	M18-Se01287	NCP	mg/L	0.003	0.003	3.0	30%	Pass	
Vanadium	M18-Se01287	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Zinc	M18-Se01287	NCP	mg/L	0.14	0.14	<1	30%	Pass	
Duplicate									
Alkali Metals				Result 1	Result 2	RPD			
Calcium	M18-Se01289	NCP	mg/L	24	24	1.0	30%	Pass	
Magnesium	M18-Se01289	NCP	mg/L	73	73	1.0	30%	Pass	
Potassium	M18-Se01289	NCP	mg/L	280	290	1.0	30%	Pass	
Sodium	M18-Se01289	NCP	mg/L	700	720	2.0	30%	Pass	
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs) - Trace				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	B18-Se01046	CP	ug/L	0.06	0.06	7.0	30%	Pass	
Perfluoropentanoic acid (PFPeA)	B18-Se01046	CP	ug/L	0.13	0.12	8.0	30%	Pass	
Perfluorohexanoic acid (PFHxA)	B18-Se01046	CP	ug/L	0.17	0.17	5.0	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	B18-Se01046	CP	ug/L	0.04	0.04	1.0	30%	Pass	
Perfluorooctanoic acid (PFOA)	B18-Se01046	CP	ug/L	0.05	0.04	3.0	30%	Pass	
Perfluorononanoic acid (PFNA)	B18-Se01046	CP	ug/L	0.01	0.01	<1	30%	Pass	
Perfluorodecanoic acid (PFDA)	B18-Se01046	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluoroundecanoic acid (PFUnDA)	B18-Se01046	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorododecanoic acid (PFDoDA)	B18-Se01046	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorotridecanoic acid (PFTrDA)	B18-Se01046	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorotetradecanoic acid (PFTeDA)	B18-Se01046	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	

Duplicate								
Perfluoroalkyl sulfonic acids (PFASs)- Trace				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	B18-Se01046	CP	ug/L	0.02	0.02	2.0	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	B18-Se01046	CP	ug/L	0.01	0.01	2.0	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	B18-Se01046	CP	ug/L	0.09	0.09	3.0	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	B18-Se01046	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	B18-Se01046	CP	ug/L	0.23	0.21	9.0	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	B18-Se01046	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonamido substances- Trace				Result 1	Result 2	RPD		
Perfluorooctane sulfonamide (FOSA)	B18-Se01046	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	B18-Se01046	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	B18-Se01046	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	B18-Se01046	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	B18-Se01046	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	B18-Se01046	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	B18-Se01046	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
Duplicate								
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)- Trace				Result 1	Result 2	RPD		
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	B18-Se01046	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	B18-Se01046	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	B18-Se01046	CP	ug/L	0.01	< 0.01	16	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	B18-Se01046	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass

Comments

Sample Integrity

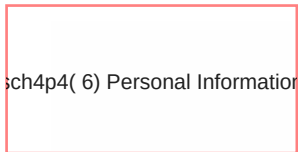
Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted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

Qualifier Codes/Comments

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

Authorised By

Ryan Gilbert	Analytical Services Manager
Alex Petridis	Senior Analyst-Metal (VIC)
Jonathon Angell	Senior Analyst-Organic (QLD)
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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