

CERTIFICATE OF ANALYSIS

Work Order : **EB1821082**
Client : **QLD DEPT OF ENVIRONMENT & SCIENCE**
Contact : **MR SINEAD SUMMERVILLE**
Address : **GPO BOX 2771**
BRISBANE QLD, AUSTRALIA 4001
Telephone : **+61 32245642**
Project : **Swanbank**
Order number :
C-O-C number :
Sampler : **BRENDA BADDILEY, GRAHAM**
Site :
Quote number : **EN/222**
No. of samples received : **11**
No. of samples analysed : **10**

Page : 1 of 15
Laboratory : Environmental Division Brisbane
Contact : Customer Services EB
Address : 2 Byth Street Stafford QLD Australia 4053
Telephone : +61-7-3243 7222
Date Samples Received : 30-Aug-2018 20:20
Date Analysis Commenced : 31-Aug-2018
Issue Date : 11-Sep-2018 15:48



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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	Position	Accreditation Category
Franco Lentini		Sydney Organics, Smithfield, NSW
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
Mark Hallas	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
Tom Maloney	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD



General Comments

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

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

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

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

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

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

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

LOR = Limit of reporting

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

Ø = ALS is not NATA accredited for these tests.

~ = Indicates an estimated value.

- **PFAS analysis will be conducted by ALS Environmental, Sydney, NATA accreditation no. 825, Site No. 10911 (Micro site no. 14913).**
- EK067G (Total Phosphorous as P): Sample EB1821082_008 was diluted due to matrix interference. LOR adjusted accordingly.
- EA016: Calculated TDS is determined from Electrical conductivity using a conversion factor of 0.65.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	SW1-B	SW1-B	SW1-TX	SW3-B	BH06-B
Client sampling date / time					28-Aug-2018 10:15	28-Aug-2018 10:30	28-Aug-2018 11:00	28-Aug-2018 11:20	30-Aug-2018 09:20
Compound	CAS Number	LOR	Unit		EB1821082-001	EB1821082-002	EB1821082-003	EB1821082-004	EB1821082-005
					Result	Result	Result	Result	Result
EA005P: pH by PC Titrator									
pH Value	----	0.01	pH Unit		7.88	----	6.66	8.18	7.95
EA010P: Conductivity by PC Titrator									
Electrical Conductivity @ 25°C	----	1	µS/cm		3570	----	<1	954	4770
EA016: Calculated TDS (from Electrical Conductivity)									
Total Dissolved Solids (Calc.)	----	1	mg/L		2320	----	<1	620	3100
EA065: Total Hardness as CaCO3									
Total Hardness as CaCO3	----	1	mg/L		1130	----	<1	266	602
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	----	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	----	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		381	----	5	272	467
Total Alkalinity as CaCO3	----	1	mg/L		381	----	5	272	467
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		590	----	<1	39	325
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		790	----	<1	147	1240
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		131	----	<1	39	101
Magnesium	7439-95-4	1	mg/L		195	----	<1	41	85
Sodium	7440-23-5	1	mg/L		410	----	<1	96	872
Potassium	7440-09-7	1	mg/L		51	----	<1	14	30
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		0.002	----	<0.001	0.001	0.001
Boron	7440-42-8	0.05	mg/L		0.16	----	<0.05	0.08	0.47
Barium	7440-39-3	0.001	mg/L		0.077	----	<0.001	0.095	0.056
Beryllium	7440-41-7	0.001	mg/L		<0.001	----	<0.001	<0.001	<0.001
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	----	<0.0001	<0.0001	<0.0001
Cobalt	7440-48-4	0.001	mg/L		0.007	----	<0.001	<0.001	<0.001
Chromium	7440-47-3	0.001	mg/L		<0.001	----	<0.001	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L		0.002	----	<0.001	0.001	<0.001
Manganese	7439-96-5	0.001	mg/L		1.02	----	<0.001	0.227	0.087
Nickel	7440-02-0	0.001	mg/L		0.015	----	<0.001	0.004	<0.001
Lead	7439-92-1	0.001	mg/L		<0.001	----	<0.001	<0.001	<0.001
Selenium 18-161	7782-49-2	0.01	mg/L		<0.01	----	<0.01	<0.01	<0.01



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	SW1-B	SW1-B	SW1-TX	SW3-B	BH06-B
Client sampling date / time					28-Aug-2018 10:15	28-Aug-2018 10:30	28-Aug-2018 11:00	28-Aug-2018 11:20	30-Aug-2018 09:20
Compound	CAS Number	LOR	Unit		EB1821082-001	EB1821082-002	EB1821082-003	EB1821082-004	EB1821082-005
					Result	Result	Result	Result	Result
EG020T: Total Metals by ICP-MS - Continued									
Vanadium	7440-62-2	0.01	mg/L		0.01	----	<0.01	<0.01	<0.01
Zinc	7440-66-6	0.005	mg/L		0.011	----	<0.005	<0.005	0.426
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	----	<0.0001	<0.0001	<0.0001
EK040P: Fluoride by PC Titrator									
Fluoride	16984-48-8	0.1	mg/L		0.6	----	<0.1	0.4	0.6
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		----	----	----	----	1.05
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L		----	----	----	----	<0.01
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L		----	----	----	----	0.06
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		----	----	----	----	0.06
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L		----	----	----	----	1.0
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L		----	----	----	----	1.1
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L		----	----	----	----	0.05
EN055: Ionic Balance									
Total Anions	----	0.01	meq/L		42.2	----	0.10	10.4	51.1
Total Cations	----	0.01	meq/L		41.7	----	<0.01	9.85	50.7
Ionic Balance	----	0.01	%		0.54	----	----	2.66	0.34
EP231_TOP_A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.002	µg/L		----	0.013	<0.002	0.028	<0.002
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.002	µg/L		----	0.004	<0.002	0.016	<0.002
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.002	µg/L		----	0.021	<0.002	0.102	<0.002
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.002	µg/L		----	<0.002	<0.002	0.010	<0.002



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	SW1-B	SW1-B	SW1-TX	SW3-B	BH06-B
Client sampling date / time					28-Aug-2018 10:15	28-Aug-2018 10:30	28-Aug-2018 11:00	28-Aug-2018 11:20	30-Aug-2018 09:20
Compound	CAS Number	LOR	Unit		EB1821082-001	EB1821082-002	EB1821082-003	EB1821082-004	EB1821082-005
					Result	Result	Result	Result	Result
EP231_TOP_A: Perfluoroalkyl Sulfonic Acids - Continued									
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.002	µg/L	----		0.070	0.002	0.342	0.004
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.002	µg/L	----		<0.002	<0.002	<0.002	<0.002
EP231_TOP_B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.01	µg/L	----		0.06	<0.01	0.10	<0.01
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.002	µg/L	----		0.106	<0.002	0.262	<0.002
Perfluorohexanoic acid (PFHxA)	307-24-4	0.002	µg/L	----		0.090	<0.002	0.212	<0.002
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.002	µg/L	----		0.032	<0.002	0.085	<0.002
Perfluorooctanoic acid (PFOA)	335-67-1	0.002	µg/L	----		0.034	<0.002	0.126	<0.002
Perfluorononanoic acid (PFNA)	375-95-1	0.002	µg/L	----		0.004	<0.002	0.011	<0.002
Perfluorodecanoic acid (PFDA)	335-76-2	0.002	µg/L	----		<0.002	<0.002	0.005	<0.002
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.002	µg/L	----		<0.002	<0.002	<0.002	<0.002
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.002	µg/L	----		<0.002	<0.002	<0.002	<0.002
Perfluorotridecanoic acid (PFTTrDA)	72629-94-8	0.002	µg/L	----		<0.002	<0.002	<0.002	<0.002
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.005	µg/L	----		<0.005	<0.005	<0.005	<0.005
EP231_TOP_C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.002	µg/L	----		<0.002	<0.002	<0.002	<0.002
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.005	µg/L	----		<0.005	<0.005	<0.005	<0.005
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.005	µg/L	----		<0.005	<0.005	<0.005	<0.005
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.005	µg/L	----		<0.005	<0.005	<0.005	<0.005
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.005	µg/L	----		<0.005	<0.005	<0.005	<0.005
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.002	µg/L	----		<0.002	<0.002	<0.002	<0.002



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	SW1-B	SW1-B	SW1-TX	SW3-B	BH06-B
Client sampling date / time					28-Aug-2018 10:15	28-Aug-2018 10:30	28-Aug-2018 11:00	28-Aug-2018 11:20	30-Aug-2018 09:20
Compound	CAS Number	LOR	Unit		EB1821082-001	EB1821082-002	EB1821082-003	EB1821082-004	EB1821082-005
					Result	Result	Result	Result	Result
EP231_TOP_C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.002	µg/L		----	<0.002	<0.002	<0.002	<0.002
EP231_TOP_D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.005	µg/L		----	<0.005	<0.005	<0.005	<0.005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.005	µg/L		----	<0.005	<0.005	<0.005	<0.005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.005	µg/L		----	<0.005	<0.005	<0.005	<0.005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.005	µg/L		----	<0.005	<0.005	<0.005	<0.005
EP231_TOP_P: PFAS Sums									
Sum of PFAS	----	0.002	µg/L		----	0.434	0.002	1.30	0.004
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.002	µg/L		----	0.091	0.002	0.444	0.004
^ Sum of TOP C4 - C14 as Fluorine	----	0.002	µg/L		----	0.282	<0.002	0.844	0.002
Sum of TOP C4 - C14 Carboxylates and C4 - C8 Sulfonates	----	0.002	µg/L		----	0.434	0.002	1.30	0.004
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0005	µg/L		----	0.0127	<0.0005	0.0250	0.0010
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0005	µg/L		----	0.0038	<0.0005	0.0152	<0.0005
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0005	µg/L		----	0.0143	<0.0005	0.0705	0.0007
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0005	µg/L		----	0.0020	<0.0005	0.0086	<0.0005
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0003	µg/L		----	0.0874	<0.0003	0.289	0.0039
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0005	µg/L		----	<0.0005	<0.0005	<0.0005	<0.0005
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.002	µg/L		----	<0.002	<0.002	<0.002	<0.002
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0005	µg/L		----	0.0897	<0.0005	0.169	<0.0005



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Client sample ID

				SW1-B	SW1-B	SW1-TX	SW3-B	BH06-B
Client sampling date / time				28-Aug-2018 10:15	28-Aug-2018 10:30	28-Aug-2018 11:00	28-Aug-2018 11:20	30-Aug-2018 09:20
Compound	CAS Number	LOR	Unit	EB1821082-001	EB1821082-002	EB1821082-003	EB1821082-004	EB1821082-005
				Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued								
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0005	µg/L	----	0.0617	<0.0005	0.180	<0.0005
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0005	µg/L	----	0.0348	<0.0005	0.0902	<0.0005
Perfluorooctanoic acid (PFOA)	335-67-1	0.0005	µg/L	----	0.0460	<0.0005	0.174	<0.0005
Perfluorononanoic acid (PFNA)	375-95-1	0.0005	µg/L	----	0.0074	<0.0005	0.0137	<0.0005
Perfluorodecanoic acid (PFDA)	335-76-2	0.0005	µg/L	----	0.0037	<0.0005	0.0088	<0.0005
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0005	µg/L	----	<0.0005	<0.0005	<0.0005	<0.0005
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0005	µg/L	----	<0.0005	<0.0005	<0.0005	<0.0005
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0005	µg/L	----	<0.0005	<0.0005	<0.0005	<0.0005
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	µg/L	----	<0.0005	<0.0005	<0.0005	<0.0005
EP231C: Perfluoroalkyl Sulfonamides								
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0005	µg/L	----	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.001	µg/L	----	<0.001	<0.001	<0.001	<0.001
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.001	µg/L	----	<0.001	<0.001	<0.001	<0.001
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.001	µg/L	----	<0.001	<0.001	<0.001	<0.001
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.001	µg/L	----	<0.001	<0.001	<0.001	<0.001
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0005	µg/L	----	<0.0005	<0.0005	0.0013	<0.0005
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0005	µg/L	----	<0.0005	<0.0005	<0.0005	<0.0005
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.001	µg/L	----	<0.001	<0.001	<0.001	<0.001
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.001	µg/L	----	0.042	<0.001	<0.001	<0.001



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	SW1-B	SW1-B	SW1-TX	SW3-B	BH06-B
Client sampling date / time					28-Aug-2018 10:15	28-Aug-2018 10:30	28-Aug-2018 11:00	28-Aug-2018 11:20	30-Aug-2018 09:20
Compound	CAS Number	LOR	Unit		EB1821082-001	EB1821082-002	EB1821082-003	EB1821082-004	EB1821082-005
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.001	µg/L	----	0.001	<0.001	<0.001	<0.001	<0.001
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.001	µg/L	----	<0.001	<0.001	<0.001	<0.001	<0.001
EP231P: PFAS Sums									
Sum of PFAS	----	0.0003	µg/L	----	0.406	<0.0003	1.04	0.0056	
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0003	µg/L	----	0.102	<0.0003	0.360	0.0046	
Sum of PFAS (WA DER List)	----	0.0003	µg/L	----	0.390	<0.0003	0.998	0.0056	
EP231_TOP_S: PFAS Surrogate									
13C4-PFOS	----	0.002	%	----	69.9	78.5	86.3	63.4	
13C8-PFOA	----	0.002	%	----	92.6	89.2	100	92.3	
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0005	%	----	74.2	69.0	69.7	72.3	
13C8-PFOA	----	0.0005	%	----	92.7	89.5	87.0	95.3	



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	SW3-B	BH01-B	SW1-B	BH10-B	SW1-TX
Client sampling date / time					30-Aug-2018 09:15	30-Aug-2018 09:40	30-Aug-2018 10:10	30-Aug-2018 10:20	30-Aug-2018 14:30
Compound	CAS Number	LOR	Unit		EB1821082-006	EB1821082-008	EB1821082-009	EB1821082-010	EB1821082-011
					Result	Result	Result	Result	Result
EA005P: pH by PC Titrator									
pH Value	----	0.01	pH Unit		----	7.85	----	6.59	----
EA010P: Conductivity by PC Titrator									
Electrical Conductivity @ 25°C	----	1	µS/cm		----	9530	----	3280	----
EA016: Calculated TDS (from Electrical Conductivity)									
Total Dissolved Solids (Calc.)	----	1	mg/L		----	6190	----	2130	----
EA065: Total Hardness as CaCO₃									
Total Hardness as CaCO ₃	----	1	mg/L		----	1230	----	987	----
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO ₃	DMO-210-001	1	mg/L		----	<1	----	<1	----
Carbonate Alkalinity as CaCO ₃	3812-32-6	1	mg/L		----	<1	----	<1	----
Bicarbonate Alkalinity as CaCO ₃	71-52-3	1	mg/L		----	608	----	140	----
Total Alkalinity as CaCO ₃	----	1	mg/L		----	608	----	140	----
ED041G: Sulfate (Turbidimetric) as SO₄ 2- by DA									
Sulfate as SO ₄ - Turbidimetric	14808-79-8	1	mg/L		----	<1	----	844	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		----	3500	----	642	----
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		----	210	----	100	----
Magnesium	7439-95-4	1	mg/L		----	172	----	179	----
Sodium	7440-23-5	1	mg/L		----	1810	----	360	----
Potassium	7440-09-7	1	mg/L		----	40	----	36	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		----	<0.001	----	0.005	----
Boron	7440-42-8	0.05	mg/L		----	0.94	----	0.19	----
Barium	7440-39-3	0.001	mg/L		----	7.12	----	0.032	----
Beryllium	7440-41-7	0.001	mg/L		----	<0.001	----	<0.001	----
Cadmium	7440-43-9	0.0001	mg/L		----	<0.0001	----	<0.0001	----
Cobalt	7440-48-4	0.001	mg/L		----	<0.001	----	0.048	----
Chromium	7440-47-3	0.001	mg/L		----	<0.001	----	<0.001	----
Copper	7440-50-8	0.001	mg/L		----	0.001	----	<0.001	----
Manganese	7439-96-5	0.001	mg/L		----	0.140	----	5.23	----
Nickel	7440-02-0	0.001	mg/L		----	0.006	----	0.051	----
Lead	7439-92-1	0.001	mg/L		----	<0.001	----	<0.001	----
Selenium 18-161	7782-49-2	0.01	mg/L		----	<0.01	----	<0.01	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	SW3-B	BH01-B	SW1-B	BH10-B	SW1-TX
Client sampling date / time					30-Aug-2018 09:15	30-Aug-2018 09:40	30-Aug-2018 10:10	30-Aug-2018 10:20	30-Aug-2018 14:30
Compound	CAS Number	LOR	Unit		EB1821082-006	EB1821082-008	EB1821082-009	EB1821082-010	EB1821082-011
					Result	Result	Result	Result	Result
EG020T: Total Metals by ICP-MS - Continued									
Vanadium	7440-62-2	0.01	mg/L		----	<0.01	----	<0.01	----
Zinc	7440-66-6	0.005	mg/L		----	1.22	----	0.094	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		----	<0.0001	----	<0.0001	----
EK040P: Fluoride by PC Titrator									
Fluoride	16984-48-8	0.1	mg/L		----	0.8	----	0.2	----
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		0.24	3.21	0.26	0.12	0.05
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L		----	<0.01	----	0.01	----
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L		----	0.02	----	<0.01	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		0.15	0.02	2.54	0.01	0.03
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L		1.2	3.3	0.6	0.3	<0.1
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L		1.4	3.3	3.1	0.3	<0.1
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L		0.04	<0.05	0.04	0.01	0.01
EN055: Ionic Balance									
Total Anions	----	0.01	meq/L		----	111	----	38.5	----
Total Cations	----	0.01	meq/L		----	104	----	36.3	----
Ionic Balance	----	0.01	%		----	3.01	----	2.91	----
EP231_TOP_A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.002	µg/L		----	<0.002	----	0.005	<0.002
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.002	µg/L		----	<0.002	----	<0.002	<0.002
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.002	µg/L		----	0.002	----	0.003	<0.002
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.002	µg/L		----	<0.002	----	<0.002	<0.002



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID				
Client sampling date / time				SW3-B	BH01-B	SW1-B	BH10-B	SW1-TX
Compound				CAS Number	LOR	Unit		
				EB1821082-006	EB1821082-008	EB1821082-009	EB1821082-010	EB1821082-011
				Result	Result	Result	Result	Result
EP231_TOP_A: Perfluoroalkyl Sulfonic Acids - Continued								
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.002	µg/L	----	0.006	----	0.003	<0.002
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.002	µg/L	----	<0.002	----	<0.002	<0.002
EP231_TOP_B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.01	µg/L	----	<0.01	----	<0.01	<0.01
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.002	µg/L	----	<0.002	----	0.026	<0.002
Perfluorohexanoic acid (PFHxA)	307-24-4	0.002	µg/L	----	0.002	----	0.017	<0.002
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.002	µg/L	----	<0.002	----	0.003	<0.002
Perfluorooctanoic acid (PFOA)	335-67-1	0.002	µg/L	----	<0.002	----	0.002	<0.002
Perfluorononanoic acid (PFNA)	375-95-1	0.002	µg/L	----	<0.002	----	<0.002	<0.002
Perfluorodecanoic acid (PFDA)	335-76-2	0.002	µg/L	----	<0.002	----	<0.002	<0.002
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.002	µg/L	----	<0.002	----	<0.002	<0.002
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.002	µg/L	----	<0.002	----	<0.002	<0.002
Perfluorotridecanoic acid (PFTTrDA)	72629-94-8	0.002	µg/L	----	<0.002	----	<0.002	<0.002
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.005	µg/L	----	<0.005	----	<0.005	<0.005
EP231_TOP_C: Perfluoroalkyl Sulfonamides								
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.002	µg/L	----	<0.002	----	<0.002	<0.002
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.005	µg/L	----	<0.005	----	<0.005	<0.005
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.005	µg/L	----	<0.005	----	<0.005	<0.005
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.005	µg/L	----	<0.005	----	<0.005	<0.005
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.005	µg/L	----	<0.005	----	<0.005	<0.005
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.002	µg/L	----	<0.002	----	<0.002	<0.002



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	SW3-B	BH01-B	SW1-B	BH10-B	SW1-TX
Client sampling date / time					30-Aug-2018 09:15	30-Aug-2018 09:40	30-Aug-2018 10:10	30-Aug-2018 10:20	30-Aug-2018 14:30
Compound	CAS Number	LOR	Unit		EB1821082-006	EB1821082-008	EB1821082-009	EB1821082-010	EB1821082-011
					Result	Result	Result	Result	Result
EP231_TOP_C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.002	µg/L		----	<0.002	----	<0.002	<0.002
EP231_TOP_D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.005	µg/L		----	<0.005	----	<0.005	<0.005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.005	µg/L		----	<0.005	----	<0.005	<0.005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.005	µg/L		----	<0.005	----	<0.005	<0.005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.005	µg/L		----	<0.005	----	<0.005	<0.005
EP231_TOP_P: PFAS Sums									
Sum of PFAS	----	0.002	µg/L		----	0.010	----	0.059	<0.002
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.002	µg/L		----	0.008	----	0.006	<0.002
^ Sum of TOP C4 - C14 as Fluorine	----	0.002	µg/L		----	0.006	----	0.038	<0.002
Sum of TOP C4 - C14 Carboxylates and C4 - C8 Sulfonates	----	0.002	µg/L		----	0.010	----	0.059	<0.002
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0005	µg/L		----	<0.0005	----	0.0049	<0.0005
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0005	µg/L		----	<0.0005	----	0.0008	<0.0005
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0005	µg/L		----	0.0009	----	0.0020	<0.0005
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0005	µg/L		----	<0.0005	----	<0.0005	<0.0005
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0003	µg/L		----	0.0055	----	0.0025	<0.0003
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0005	µg/L		----	<0.0005	----	<0.0005	<0.0005
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.002	µg/L		----	<0.002	----	<0.002	<0.002
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0005	µg/L		----	<0.0005	----	0.0203	<0.0005



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Client sample ID

				SW3-B	BH01-B	SW1-B	BH10-B	SW1-TX
Client sampling date / time				30-Aug-2018 09:15	30-Aug-2018 09:40	30-Aug-2018 10:10	30-Aug-2018 10:20	30-Aug-2018 14:30
Compound	CAS Number	LOR	Unit	EB1821082-006	EB1821082-008	EB1821082-009	EB1821082-010	EB1821082-011
				Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued								
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0005	µg/L	----	<0.0005	----	0.0127	<0.0005
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0005	µg/L	----	<0.0005	----	0.0033	<0.0005
Perfluorooctanoic acid (PFOA)	335-67-1	0.0005	µg/L	----	0.0008	----	0.0028	<0.0005
Perfluorononanoic acid (PFNA)	375-95-1	0.0005	µg/L	----	<0.0005	----	<0.0005	<0.0005
Perfluorodecanoic acid (PFDA)	335-76-2	0.0005	µg/L	----	<0.0005	----	0.0006	<0.0005
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0005	µg/L	----	<0.0005	----	<0.0005	<0.0005
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0005	µg/L	----	<0.0005	----	<0.0005	<0.0005
Perfluorotridecanoic acid (PFTTrDA)	72629-94-8	0.0005	µg/L	----	<0.0005	----	<0.0005	<0.0005
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	µg/L	----	<0.0005	----	<0.0005	<0.0005
EP231C: Perfluoroalkyl Sulfonamides								
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0005	µg/L	----	<0.0005	----	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.001	µg/L	----	<0.001	----	<0.001	<0.001
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.001	µg/L	----	<0.001	----	<0.001	<0.001
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.001	µg/L	----	<0.001	----	<0.001	<0.001
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.001	µg/L	----	<0.001	----	<0.001	<0.001
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0005	µg/L	----	<0.0005	----	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0005	µg/L	----	<0.0005	----	<0.0005	<0.0005
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.001	µg/L	----	<0.001	----	<0.001	<0.001
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.001	µg/L	----	<0.001	----	<0.001	<0.001



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	SW3-B	BH01-B	SW1-B	BH10-B	SW1-TX
Client sampling date / time					30-Aug-2018 09:15	30-Aug-2018 09:40	30-Aug-2018 10:10	30-Aug-2018 10:20	30-Aug-2018 14:30
Compound	CAS Number	LOR	Unit		EB1821082-006	EB1821082-008	EB1821082-009	EB1821082-010	EB1821082-011
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.001	µg/L		----	<0.001	----	<0.001	<0.001
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.001	µg/L		----	<0.001	----	<0.001	<0.001
EP231P: PFAS Sums									
Sum of PFAS	----	0.0003	µg/L		----	0.0072	----	0.0499	<0.0003
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0003	µg/L		----	0.0064	----	0.0045	<0.0003
Sum of PFAS (WA DER List)	----	0.0003	µg/L		----	0.0072	----	0.0485	<0.0003
EP231_TOP_S: PFAS Surrogate									
13C4-PFOS	----	0.002	%		----	68.2	----	68.3	67.1
13C8-PFOA	----	0.002	%		----	95.4	----	84.3	70.8
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0005	%		----	74.7	----	72.8	64.2
13C8-PFOA	----	0.0005	%		----	99.6	----	96.1	88.4



Surrogate Control Limits

Sub-Matrix: **WATER**

		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP231_TOP_S: PFAS Surrogate			
13C4-PFOS	----	60	130
13C8-PFOA	----	60	130
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

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QUALITY CONTROL REPORT

Work Order	: EB1821082	Page	: 1 of 16
Client	: QLD DEPT OF ENVIRONMENT & SCIENCE	Laboratory	: Environmental Division Brisbane
Contact	: MR SINEAD SUMMERVILLE	Contact	: Customer Services EB
Address	: GPO BOX 2771 BRISBANE QLD, AUSTRALIA 4001	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: +61 32245642	Telephone	: +61-7-3243 7222
Project	: Swanbank	Date Samples Received	: 30-Aug-2018
Order number	:	Date Analysis Commenced	: 31-Aug-2018
C-O-C number	: ----	Issue Date	: 11-Sep-2018
Sampler	: BRENDA BADDILEY, GRAHAM		
Site	: ----		
Quote number	: EN/222		
No. of samples received	: 11		
No. of samples analysed	: 10		



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

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

This Quality Control Report contains the following information:

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

Signatories

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

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Franco Lentini		Sydney Organics, Smithfield, NSW
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
Mark Hallas	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
Tom Maloney	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD



General Comments

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

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

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

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

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **WATER**

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EA005P: pH by PC Titrator (QC Lot: 1907481)									
EB1821063-008	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	7.18	7.21	0.417	0% - 20%
EB1821082-010	BH10-B	EA005-P: pH Value	----	0.01	pH Unit	6.59	6.56	0.456	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 1907480)									
EB1821063-008	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	1840	1830	0.789	0% - 20%
EB1821082-010	BH10-B	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	3280	3260	0.631	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 1907482)									
EB1821063-008	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.00	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.00	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	728	755	3.63	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	728	755	3.63	0% - 20%
EB1821082-010	BH10-B	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.00	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.00	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	140	134	4.70	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	140	134	4.70	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 1907614)									
EB1821082-010	BH10-B	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	844	815	3.58	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 1907611)									
EB1820038-001	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	376	370	1.54	0% - 20%
EB1821082-010	BH10-B	ED045G: Chloride	16887-00-6	1	mg/L	642	642	0.00	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 1907575)									
EB1820038-001	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	51	51	0.00	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	31	30	0.00	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	219	217	0.816	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	3	3	0.00	No Limit

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Sub-Matrix: **WATER**

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
ED093F: Dissolved Major Cations (QC Lot: 1907575) - continued									
EB1821056-001	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	3	3	0.00	No Limit
		ED093F: Magnesium	7439-95-4	1	mg/L	2	2	0.00	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	96	95	0.00	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	2	2	0.00	No Limit
EG020T: Total Metals by ICP-MS (QC Lot: 1907670)									
EB1821061-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	0.029	0.030	0.00	0% - 20%
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.191	0.193	0.629	0% - 20%
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.001	0.001	0.00	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.013	0.014	7.67	0% - 50%
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.068	0.070	2.64	0% - 50%
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.00	No Limit
EB1821082-003	SW1-TX	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.00	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.00	No Limit
		EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1907672)									
EB1821081-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EB1821083-002	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EK040P: Fluoride by PC Titrator (QC Lot: 1907478)									
EB1821056-007	Anonymous	EK040P: Fluoride	16984-48-8	0.1	mg/L	0.1	0.1	0.00	No Limit
EB1821050-003	Anonymous	EK040P: Fluoride	16984-48-8	0.1	mg/L	0.5	0.5	0.00	No Limit



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EK040P: Fluoride by PC Titrator (QC Lot: 1907483)									
EB1821084-005	Anonymous	EK040P: Fluoride	16984-48-8	0.1	mg/L	0.2	0.2	0.00	No Limit
EB1821082-010	BH10-B	EK040P: Fluoride	16984-48-8	0.1	mg/L	0.2	0.2	0.00	No Limit
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 1911997)									
EB1821081-005	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.17	0.20	18.8	0% - 20%
EB1821083-006	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.04	0.01	114	No Limit
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 1907610)									
EB1820038-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EB1821019-009	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 1907615)									
EB1821082-010	BH10-B	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	0.01	0.03	64.8	No Limit
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 1911998)									
EB1821081-005	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.02	0.01	76.8	No Limit
EB1821083-006	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.08	0.08	0.00	No Limit
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 1912290)									
EB1820532-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.4	0.3	0.00	No Limit
EB1821081-006	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.3	0.4	0.00	No Limit
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 1912291)									
EB1820532-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.01	0.01	0.00	No Limit
EB1821081-006	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.01	0.02	67.7	No Limit
EP231_TOP_A: Perfluoroalkyl Sulfonic Acids (QC Lot: 1914791)									
EB1821081-001	Anonymous	EP231X-LL: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.002	µg/L	0.007	0.007	0.00	No Limit
		EP231X-LL: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.002	µg/L	0.004	0.004	0.00	No Limit
		EP231X-LL: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.002	µg/L	0.004	0.004	0.00	No Limit
		EP231X-LL: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.002	µg/L	<0.002	<0.002	0.00	No Limit
EB1821082-011	SW1-TX	EP231X-LL: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.002	µg/L	<0.002	<0.002	0.00	No Limit



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP231_TOP_A: Perfluoroalkyl Sulfonic Acids (QC Lot: 1914791) - continued									
EB1821082-011	SW1-TX	EP231X-LL: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.002	µg/L	<0.002	<0.002	0.00	No Limit
EP231_TOP_B: Perfluoroalkyl Carboxylic Acids (QC Lot: 1914791)									
EB1821081-001	Anonymous	EP231X-LL: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.002	µg/L	0.061	0.057	6.62	0% - 20%
		EP231X-LL: Perfluorohexanoic acid (PFHxA)	307-24-4	0.002	µg/L	0.039	0.040	0.00	0% - 50%
		EP231X-LL: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.002	µg/L	0.007	0.008	0.00	No Limit
		EP231X-LL: Perfluorooctanoic acid (PFOA)	335-67-1	0.002	µg/L	0.009	0.010	0.00	No Limit
		EP231X-LL: Perfluorononanoic acid (PFNA)	375-95-1	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorodecanoic acid (PFDA)	335-76-2	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: Perfluorobutanoic acid (PFBA)	375-22-4	0.01	µg/L	0.06	0.06	0.00	No Limit
EB1821082-011	SW1-TX	EP231X-LL: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorohexanoic acid (PFHxA)	307-24-4	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorooctanoic acid (PFOA)	335-67-1	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorononanoic acid (PFNA)	375-95-1	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorodecanoic acid (PFDA)	335-76-2	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: Perfluorobutanoic acid (PFBA)	375-22-4	0.01	µg/L	<0.01	<0.01	0.00	No Limit
EP231_TOP_C: Perfluoroalkyl Sulfonamides (QC Lot: 1914791)									
EB1821081-001	Anonymous	EP231X-LL: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.005	µg/L	<0.005	<0.005	0.00	No Limit



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP231_TOP_C: Perfluoroalkyl Sulfonamides (QC Lot: 1914791) - continued									
EB1821081-001	Anonymous	EP231X-LL: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.005	µg/L	<0.005	<0.005	0.00	No Limit
EB1821082-011	SW1-TX	EP231X-LL: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.005	µg/L	<0.005	<0.005	0.00	No Limit
EP231_TOP_D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 1914791)									
EB1821081-001	Anonymous	EP231X-LL: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.005	µg/L	<0.005	<0.005	0.00	No Limit
EB1821082-011	SW1-TX	EP231X-LL: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP231X-LL: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.005	µg/L	<0.005	<0.005	0.00	No Limit
EP231_TOP_P: PFAS Sums (QC Lot: 1914791)									
EB1821081-001	Anonymous	EP231X-LL: Sum of PFAS	----	0.002	µg/L	0.191	0.190	0.525	0% - 20%
		EP231X-LL: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.002	µg/L	0.008	0.008	0.00	No Limit
		EP231X-LL: Sum of TOP C4 - C14 Carboxylates and C4 - C8 Sulfonates	----	0.002	µg/L	0.191	0.190	0.525	0% - 20%
EB1821082-011-161	SW1-TX	EP231X-LL: Sum of PFAS	File D ----	0.002	µg/L	<0.002	<0.002	0.00	No Limit

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Sub-Matrix: **WATER**

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP231_TOP_P: PFAS Sums (QC Lot: 1914791) - continued									
EB1821082-011	SW1-TX	EP231X-LL: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.002	µg/L	<0.002	<0.002	0.00	No Limit
		EP231X-LL: Sum of TOP C4 - C14 Carboxylates and C4 - C8 Sulfonates	----	0.002	µg/L	<0.002	<0.002	0.00	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 1914796)									
EB1821081-001	Anonymous	EP231X-ST: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0003	µg/L	0.0018	0.0023	22.2	No Limit
		EP231X-ST: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0005	µg/L	0.0074	0.0077	4.26	0% - 50%
		EP231X-ST: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0005	µg/L	0.0015	0.0016	9.15	No Limit
		EP231X-ST: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0005	µg/L	0.0023	0.0025	8.20	No Limit
		EP231X-ST: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0005	µg/L	<0.0005	<0.0005	0.00	No Limit
		EP231X-ST: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0005	µg/L	<0.0005	<0.0005	0.00	No Limit
EB1821083-001	Anonymous	EP231X-ST: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0003	µg/L	0.134	0.125	6.88	0% - 20%
		EP231X-ST: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0005	µg/L	0.0184	0.0192	4.26	0% - 20%
		EP231X-ST: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0005	µg/L	0.0109	0.0109	0.00	0% - 20%
		EP231X-ST: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0005	µg/L	0.0588	0.0609	3.61	0% - 20%
		EP231X-ST: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0005	µg/L	0.0039	0.0038	3.62	No Limit
		EP231X-ST: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0005	µg/L	<0.0005	<0.0005	0.00	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 1914796)									
EB1821081-001	Anonymous	EP231X-ST: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0005	µg/L	0.0549	0.0639	15.2	0% - 20%
		EP231X-ST: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0005	µg/L	0.0363	0.0412	12.6	0% - 20%
		EP231X-ST: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0005	µg/L	0.0091	0.0094	2.80	0% - 50%
		EP231X-ST: Perfluorooctanoic acid (PFOA)	335-67-1	0.0005	µg/L	0.0121	0.0134	10.2	0% - 20%
		EP231X-ST: Perfluorononanoic acid (PFNA)	375-95-1	0.0005	µg/L	<0.0005	<0.0005	0.00	No Limit
		EP231X-ST: Perfluorodecanoic acid (PFDA)	335-76-2	0.0005	µg/L	<0.0005	<0.0005	0.00	No Limit
		EP231X-ST: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0005	µg/L	<0.0005	<0.0005	0.00	No Limit
		EP231X-ST: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0005	µg/L	<0.0005	<0.0005	0.00	No Limit
		EP231X-ST: Perfluorotridecanoic acid (PFTTrDA)	72629-94-8	0.0005	µg/L	<0.0005	<0.0005	0.00	No Limit
		EP231X-ST: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	µg/L	<0.0005	<0.0005	0.00	No Limit
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Sub-Matrix: **WATER**

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 1914796) - continued									
EB1821081-001	Anonymous	EP231X-ST: Perfluorobutanoic acid (PFBA)	375-22-4	0.002	µg/L	<0.002	<0.002	0.00	No Limit
EB1821083-001	Anonymous	EP231X-ST: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0005	µg/L	0.0933	0.0941	0.875	0% - 20%
		EP231X-ST: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0005	µg/L	0.108	0.106	2.54	0% - 20%
		EP231X-ST: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0005	µg/L	0.0269	0.0264	1.95	0% - 20%
		EP231X-ST: Perfluorooctanoic acid (PFOA)	335-67-1	0.0005	µg/L	0.0380	0.0385	1.26	0% - 20%
		EP231X-ST: Perfluorononanoic acid (PFNA)	375-95-1	0.0005	µg/L	0.0085	0.0082	3.84	0% - 50%
		EP231X-ST: Perfluorodecanoic acid (PFDA)	335-76-2	0.0005	µg/L	0.0011	0.0011	0.00	No Limit
		EP231X-ST: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0005	µg/L	0.0007	0.0009	23.4	No Limit
		EP231X-ST: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0005	µg/L	<0.0005	<0.0005	0.00	No Limit
		EP231X-ST: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0005	µg/L	<0.0005	<0.0005	0.00	No Limit
		EP231X-ST: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	µg/L	<0.0005	<0.0005	0.00	No Limit
		EP231X-ST: Perfluorobutanoic acid (PFBA)	375-22-4	0.002	µg/L	<0.002	<0.002	0.00	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 1914796)									
EB1821081-001	Anonymous	EP231X-ST: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0005	µg/L	<0.0005	<0.0005	0.00	No Limit
		EP231X-ST: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0005	µg/L	<0.0005	<0.0005	0.00	No Limit
		EP231X-ST: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0005	µg/L	<0.0005	<0.0005	0.00	No Limit
		EP231X-ST: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.001	µg/L	<0.001	<0.001	0.00	No Limit
		EP231X-ST: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.001	µg/L	<0.001	<0.001	0.00	No Limit
		EP231X-ST: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.001	µg/L	<0.001	<0.001	0.00	No Limit
		EP231X-ST: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.001	µg/L	<0.001	<0.001	0.00	No Limit
EB1821083-001	Anonymous	EP231X-ST: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0005	µg/L	<0.0005	<0.0005	0.00	No Limit
		EP231X-ST: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0005	µg/L	<0.0005	<0.0005	0.00	No Limit
		EP231X-ST: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0005	µg/L	<0.0005	<0.0005	0.00	No Limit
		EP231X-ST: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.001	µg/L	<0.001	<0.001	0.00	No Limit
		EP231X-ST: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.001	µg/L	<0.001	<0.001	0.00	No Limit
		EP231X-ST: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.001	µg/L	<0.001	<0.001	0.00	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 1914796) - continued									
EB1821083-001	Anonymous	EP231X-ST: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.001	µg/L	<0.001	<0.001	0.00	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 1914796)									
EB1821081-001	Anonymous	EP231X-ST: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.001	µg/L	<0.001	<0.001	0.00	No Limit
		EP231X-ST: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.001	µg/L	<0.001	<0.001	0.00	No Limit
		EP231X-ST: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.001	µg/L	<0.001	<0.001	0.00	No Limit
		EP231X-ST: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.001	µg/L	<0.001	<0.001	0.00	No Limit
EB1821083-001	Anonymous	EP231X-ST: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.001	µg/L	<0.001	<0.001	0.00	No Limit
		EP231X-ST: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.001	µg/L	0.013	0.014	0.00	0% - 50%
		EP231X-ST: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.001	µg/L	<0.001	<0.001	0.00	No Limit
		EP231X-ST: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.001	µg/L	<0.001	<0.001	0.00	No Limit
EP231P: PFAS Sums (QC Lot: 1914796)									
EB1821081-001	Anonymous	EP231X-ST: Sum of PFAS	----	0.0003	µg/L	0.125	0.142	12.4	0% - 20%
EB1821083-001	Anonymous	EP231X-ST: Sum of PFAS	----	0.0003	µg/L	0.516	0.509	1.27	0% - 20%



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

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

Sub-Matrix: **WATER**

Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
Method: Compound	CAS Number	LOR	Unit		Result	Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High
EA005P: pH by PC Titrator (QCLot: 1907481)								
EA005-P: pH Value	----	----	pH Unit	----	4 pH Unit	100	98	102
				----	7 pH Unit	99.7	98	102
EA010P: Conductivity by PC Titrator (QCLot: 1907480)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	2100 µS/cm	98.2	91	107
				<1	24800 µS/cm	100	91	107
ED037P: Alkalinity by PC Titrator (QCLot: 1907482)								
ED037-P: Total Alkalinity as CaCO3	----	----	mg/L	----	200 mg/L	99.6	80	120
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 1907614)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	105	85	118
				<1	100 mg/L	93.6	85	118
ED045G: Chloride by Discrete Analyser (QCLot: 1907611)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	10 mg/L	98.6	90	115
				<1	1000 mg/L	105	90	115
ED093F: Dissolved Major Cations (QCLot: 1907575)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	----	----	----	----
ED093F: Magnesium	7439-95-4	1	mg/L	<1	----	----	----	----
ED093F: Sodium	7440-23-5	1	mg/L	<1	----	----	----	----
ED093F: Potassium	7440-09-7	1	mg/L	<1	----	----	----	----
EG020T: Total Metals by ICP-MS (QCLot: 1907670)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	105	88	112
EG020A-T: Beryllium	7440-41-7	0.001	mg/L	<0.001	0.1 mg/L	103	81	119
EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	0.5 mg/L	102	70	130
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	99.8	88	111
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	101	89	115
EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	105	89	115
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.2 mg/L	106	88	116
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	103	89	112
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	105	88	114
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	104	88	116
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	102	79	111
EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	104	87	114
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.2 mg/L	101	84	114
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	0.5 mg/L	102	82	128
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1907672)								

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Sub-Matrix: **WATER**

Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1907672) - continued								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	110	84	118
EK040P: Fluoride by PC Titrator (QCLot: 1907478)								
EK040P: Fluoride	16984-48-8	0.1	mg/L	<0.1	0.5 mg/L	96.0	80	117
EK040P: Fluoride by PC Titrator (QCLot: 1907483)								
EK040P: Fluoride	16984-48-8	0.1	mg/L	<0.1	5 mg/L	99.6	80	117
EK055G: Ammonia as N by Discrete Analyser (QCLot: 1911997)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	0.5 mg/L	104	86	112
EK057G: Nitrite as N by Discrete Analyser (QCLot: 1907610)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	97.6	90	110
EK057G: Nitrite as N by Discrete Analyser (QCLot: 1907615)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	101	90	110
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 1911998)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	96.5	89	115
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 1912290)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	77.8	70	111
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 1912291)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	87.9	77	109
EP231_TOP_A: Perfluoroalkyl Sulfonic Acids (QCLot: 1914791)								
EP231X-LL: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.002	µg/L	<0.002	----	----	----	----
EP231X-LL: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.002	µg/L	<0.002	----	----	----	----
EP231X-LL: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.002	µg/L	<0.002	0.5 µg/L	77.9	50	150
EP231X-LL: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.002	µg/L	<0.002	----	----	----	----
EP231X-LL: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.002	µg/L	<0.002	0.5 µg/L	57.7	50	150
EP231X-LL: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.002	µg/L	<0.002	----	----	----	----
EP231_TOP_B: Perfluoroalkyl Carboxylic Acids (QCLot: 1914791)								
EP231X-LL: Perfluorobutanoic acid (PFBA)	375-22-4	0.01	µg/L	<0.01	----	----	----	----
EP231X-LL: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.002	µg/L	<0.002	----	----	----	----
EP231X-LL: Perfluorohexanoic acid (PFHxA)	307-24-4	0.002	µg/L	<0.002	----	----	----	----
EP231X-LL: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.002	µg/L	<0.002	----	----	----	----
EP231X-LL: Perfluorooctanoic acid (PFOA)	335-67-1	0.002	µg/L	<0.002	0.5 µg/L	77.2	50	150
EP231X-LL: Perfluorononanoic acid (PFNA)	375-95-1	0.002	µg/L	<0.002	----	----	----	----
EP231X-LL: Perfluorodecanoic acid (PFDA)	335-76-2	0.002	µg/L	<0.002	----	----	----	----
EP231X-LL: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.002	µg/L	<0.002	----	----	----	----
EP231X-LL: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.002	µg/L	<0.002	----	----	----	----
EP231X-LL: Perfluorotridecanoic acid (PFTTrDA)	72629-94-8	0.002	µg/L	<0.002	----	----	----	----
EP231X-LL: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.005	µg/L	<0.005	----	----	----	----
EP231_TOP_C: Perfluoroalkyl Sulfonamides (QCLot: 1914791)								

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Sub-Matrix: **WATER**

Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EP231_TOP_C: Perfluoroalkyl Sulfonamides (QCLot: 1914791) - continued								
EP231X-LL: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.002	µg/L	<0.002	----	----	----	----
EP231X-LL: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.005	µg/L	<0.005	----	----	----	----
EP231X-LL: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.005	µg/L	<0.005	----	----	----	----
EP231X-LL: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.005	µg/L	<0.005	----	----	----	----
EP231X-LL: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.005	µg/L	<0.005	----	----	----	----
EP231X-LL: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.002	µg/L	<0.002	----	----	----	----
EP231X-LL: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.002	µg/L	<0.002	----	----	----	----
EP231_TOP_D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 1914791)								
EP231X-LL: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.005	µg/L	<0.005	----	----	----	----
EP231X-LL: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.005	µg/L	<0.005	0.025 µg/L	-10.8	0	200
EP231X-LL: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.005	µg/L	<0.005	----	----	----	----
EP231X-LL: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.005	µg/L	<0.005	----	----	----	----
EP231_TOP_P: PFAS Sums (QCLot: 1914791)								
EP231X-LL: Sum of PFAS	----	0.002	µg/L	<0.002	----	----	----	----
EP231X-LL: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.002	µg/L	<0.002	----	----	----	----
EP231X-LL: Sum of TOP C4 - C14 Carboxylates and C4 - C8 Sulfonates	----	0.002	µg/L	<0.002	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 1914796)								
EP231X-ST: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0005	µg/L	<0.0005	0.01 µg/L	100	50	130
EP231X-ST: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0005	µg/L	<0.0005	0.01 µg/L	94.8	50	130
EP231X-ST: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0005	µg/L	<0.0005	0.01 µg/L	74.2	50	130
EP231X-ST: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0005	µg/L	<0.0005	0.01 µg/L	91.8	50	130
EP231X-ST: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0003	µg/L	<0.0003	0.01 µg/L	77.2	50	130
EP231X-ST: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0005	µg/L	<0.0005	0.01 µg/L	50.8	50	130
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 1914796)								
EP231X-ST: Perfluorobutanoic acid (PFBA)	375-22-4	0.002	µg/L	<0.002	0.05 µg/L	58.6	30	130
EP231X-ST: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0005	µg/L	<0.0005	0.01 µg/L	113	50	130
EP231X-ST: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0005	µg/L	<0.0005	0.01 µg/L	109	50	130
EP231X-ST: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0005	µg/L	<0.0005	0.01 µg/L	118	50	130
EP231X-ST: Perfluorooctanoic acid (PFOA)	335-67-1	0.0005	µg/L	<0.0005	0.01 µg/L	107	50	130
EP231X-ST: Perfluorononanoic acid (PFNA)	375-95-1	0.0005	µg/L	<0.0005	0.01 µg/L	109	50	130
EP231X-ST: Perfluorodecanoic acid (PFDA)	335-76-2	0.0005	µg/L	<0.0005	0.01 µg/L	75.8	50	130
EP231X-ST: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0005	µg/L	<0.0005	0.01 µg/L	53.0	40	130

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Sub-Matrix: **WATER**

Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 1914796) - continued								
EP231X-ST: Perfluorododecanoic acid (PFDODA)	307-55-1	0.0005	µg/L	<0.0005	0.01 µg/L	47.2	40	130
EP231X-ST: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0005	µg/L	<0.0005	0.01 µg/L	52.4	40	130
EP231X-ST: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	µg/L	<0.0005	0.025 µg/L	64.0	40	130
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 1914796)								
EP231X-ST: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0005	µg/L	<0.0005	0.01 µg/L	55.2	40	130
EP231X-ST: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.001	µg/L	<0.001	0.025 µg/L	63.4	40	130
EP231X-ST: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.001	µg/L	<0.001	0.025 µg/L	65.7	40	130
EP231X-ST: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.001	µg/L	<0.001	0.025 µg/L	64.8	40	130
EP231X-ST: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.001	µg/L	<0.001	0.025 µg/L	66.8	40	130
EP231X-ST: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0005	µg/L	<0.0005	0.01 µg/L	51.2	40	130
EP231X-ST: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0005	µg/L	<0.0005	0.01 µg/L	49.0	40	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 1914796)								
EP231X-ST: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.001	µg/L	<0.001	0.01 µg/L	102	50	130
EP231X-ST: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.001	µg/L	<0.001	0.01 µg/L	100	50	130
EP231X-ST: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.001	µg/L	<0.001	0.01 µg/L	94.4	50	130
EP231X-ST: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.001	µg/L	<0.001	0.01 µg/L	50.2	50	130
EP231P: PFAS Sums (QCLot: 1914796)								
EP231X-ST: Sum of PFAS	----	0.0003	µg/L	<0.0003	----	----	----	----

Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery (%) MS	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number			Low	High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 1907614)							
EB1821081-002	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	20 mg/L	# Not Determined	70	130
ED045G: Chloride by Discrete Analyser (QCLot: 1907611)							
EB1820038-003	Anonymous	ED045G: Chloride	16887-00-6	400 mg/L	105	70	130
EG020T: Total Metals by ICP-MS (QCLot: 1907670)							
EB1821061-002	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	104	70	130



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 1907670) - continued							
EB1821061-002	Anonymous	EG020A-T: Beryllium	7440-41-7	0.1 mg/L	108	70	130
		EG020A-T: Barium	7440-39-3	1 mg/L	104	70	130
		EG020A-T: Cadmium	7440-43-9	0.5 mg/L	102	70	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	101	70	130
		EG020A-T: Cobalt	7440-48-4	1 mg/L	104	70	130
		EG020A-T: Copper	7440-50-8	1 mg/L	105	70	130
		EG020A-T: Lead	7439-92-1	1 mg/L	103	70	130
		EG020A-T: Manganese	7439-96-5	1 mg/L	105	70	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	102	70	130
		EG020A-T: Vanadium	7440-62-2	1 mg/L	102	70	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	104	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1907672)							
EB1821081-002	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	118	70	130
EK040P: Fluoride by PC Titrator (QCLot: 1907478)							
EB1821050-002	Anonymous	EK040P: Fluoride	16984-48-8	5 mg/L	83.6	70	130
EK040P: Fluoride by PC Titrator (QCLot: 1907483)							
EB1821083-001	Anonymous	EK040P: Fluoride	16984-48-8	5 mg/L	110	70	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 1911997)							
EB1821081-006	Anonymous	EK055G: Ammonia as N	7664-41-7	0.4 mg/L	86.7	70	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 1907610)							
EB1820038-003	Anonymous	EK057G: Nitrite as N	14797-65-0	0.4 mg/L	101	70	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 1911998)							
EB1821081-006	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.4 mg/L	95.1	70	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 1912290)							
EB1820532-002	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	84.5	70	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 1912291)							
EB1820532-002	Anonymous	EK067G: Total Phosphorus as P	----	1 mg/L	102	70	130
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 1914796)							
EB1821081-002	Anonymous	EP231X-ST: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.01 µg/L	# Not Determined	50	130
		EP231X-ST: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.01 µg/L	# Not Determined	50	130
		EP231X-ST: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01 µg/L	# Not Determined	50	130
		EP231X-ST: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.01 µg/L	# Not Determined	50	130
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Sub-Matrix: **WATER**

Sub-Matrix: WATER				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 1914796) - continued							
EB1821081-002	Anonymous	EP231X-ST: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01 µg/L	# Not Determined	50	130
		EP231X-ST: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.01 µg/L	50.4	30	130
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 1914796)							
EB1821081-002	Anonymous	EP231X-ST: Perfluorobutanoic acid (PFBA)	375-22-4	0.05 µg/L	98.6	30	130
		EP231X-ST: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.01 µg/L	# Not Determined	50	130
		EP231X-ST: Perfluorohexanoic acid (PFHxA)	307-24-4	0.01 µg/L	# Not Determined	50	130
		EP231X-ST: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.01 µg/L	# Not Determined	50	130
		EP231X-ST: Perfluorooctanoic acid (PFOA)	335-67-1	0.01 µg/L	# Not Determined	50	130
		EP231X-ST: Perfluorononanoic acid (PFNA)	375-95-1	0.01 µg/L	113	50	130
		EP231X-ST: Perfluorodecanoic acid (PFDA)	335-76-2	0.01 µg/L	84.2	50	130
		EP231X-ST: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.01 µg/L	61.6	30	130
		EP231X-ST: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.01 µg/L	50.4	30	130
		EP231X-ST: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.01 µg/L	47.6	30	130
EP231X-ST: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.025 µg/L	43.1	30	130		
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 1914796)							
EB1821081-002	Anonymous	EP231X-ST: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.01 µg/L	54.6	30	130
		EP231X-ST: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.025 µg/L	61.6	30	130
		EP231X-ST: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.025 µg/L	66.4	30	130
		EP231X-ST: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.025 µg/L	56.5	30	130
		EP231X-ST: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.025 µg/L	54.5	30	130
		EP231X-ST: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.01 µg/L	53.2	30	130
		EP231X-ST: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.01 µg/L	49.2	30	130
		EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 1914796)					
EB1821081-002	Anonymous	EP231X-ST: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.01 µg/L	86.2	50	130
		EP231X-ST: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.01 µg/L	# Not Determined	50	130
		EP231X-ST: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.01 µg/L	83.4	50	130
		EP231X-ST: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.01 µg/L	51.0	50	130

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QA/QC Compliance Assessment to assist with Quality Review

Work Order	: EB1821082	Page	: 1 of 12
Client	: QLD DEPT OF ENVIRONMENT & SCIENCE	Laboratory	: Environmental Division Brisbane
Contact	: MR SINEAD SUMMERVILLE	Telephone	: +61-7-3243 7222
Project	: Swanbank	Date Samples Received	: 30-Aug-2018
Site	: ----	Issue Date	: 11-Sep-2018
Sampler	: BRENDA BADDILEY, GRAHAM	No. of samples received	: 11
Order number	:	No. of samples analysed	: 10

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

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

Outliers : Analysis Holding Time Compliance

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

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



Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
ED041G: Sulfate (Turbidimetric) as SO ₄ 2- by DA	EB1821081--002	Anonymous	Sulfate as SO ₄ - Turbidimetric	14808-79-8	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EP231A: Perfluoroalkyl Sulfonic Acids	EB1821081--002	Anonymous	Perfluorobutane sulfonic acid (PFBS)	375-73-5	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EP231A: Perfluoroalkyl Sulfonic Acids	EB1821081--002	Anonymous	Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EP231A: Perfluoroalkyl Sulfonic Acids	EB1821081--002	Anonymous	Perfluorohexane sulfonic acid (PFHxS)	355-46-4	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EP231A: Perfluoroalkyl Sulfonic Acids	EB1821081--002	Anonymous	Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EP231A: Perfluoroalkyl Sulfonic Acids	EB1821081--002	Anonymous	Perfluorooctane sulfonic acid (PFOS)	1763-23-1	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EP231B: Perfluoroalkyl Carboxylic Acids	EB1821081--002	Anonymous	Perfluoropentanoic acid (PFPeA)	2706-90-3	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EP231B: Perfluoroalkyl Carboxylic Acids	EB1821081--002	Anonymous	Perfluorohexanoic acid (PFHxA)	307-24-4	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EP231B: Perfluoroalkyl Carboxylic Acids	EB1821081--002	Anonymous	Perfluoroheptanoic acid (PFHpA)	375-85-9	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EP231B: Perfluoroalkyl Carboxylic Acids	EB1821081--002	Anonymous	Perfluorooctanoic acid (PFOA)	335-67-1	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EP231D: (n:2) Fluorotelomer Sulfonic Acids	EB1821081--002	Anonymous	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.

Outliers : Analysis Holding Time Compliance

Matrix: **WATER**

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



Matrix: **WATER**

Method	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA005P: pH by PC Titrator - Analysis Holding Time Compliance						
Clear Plastic Bottle - Natural						
SW1-B, SW3-B	SW1-TX,	----	----	31-Aug-2018	28-Aug-2018	3
Clear Plastic Bottle - Natural						
BH06-B, BH10-B	BH01-B,	----	----	31-Aug-2018	30-Aug-2018	1

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
Method					
Matrix Spikes (MS)					
Nitrite as N by Discrete Analyser	1	21	4.76	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **WATER**

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

Method	Sample Date	Extraction / Preparation			Analysis			
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EA005P: pH by PC Titrator								
Clear Plastic Bottle - Natural (EA005-P) SW1-B, SW3-B	SW1-TX,	28-Aug-2018	----	----	----	31-Aug-2018	28-Aug-2018	✘
Clear Plastic Bottle - Natural (EA005-P) BH06-B, BH10-B	BH01-B,	30-Aug-2018	----	----	----	31-Aug-2018	30-Aug-2018	✘
EA010P: Conductivity by PC Titrator								
Clear Plastic Bottle - Natural (EA010-P) SW1-B, SW3-B	SW1-TX,	28-Aug-2018	----	----	----	31-Aug-2018	25-Sep-2018	✔
Clear Plastic Bottle - Natural (EA010-P) BH06-B, BH10-B	BH01-B,	30-Aug-2018	----	----	----	31-Aug-2018	27-Sep-2018	✔



Matrix: **WATER**

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

Method		Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA065: Total Hardness as CaCO3								
Clear Plastic Bottle - Natural (ED093F) SW1-B, SW3-B	SW1-TX,	28-Aug-2018	----	----	----	04-Sep-2018	04-Sep-2018	✓
Clear Plastic Bottle - Natural (ED093F) BH06-B, BH10-B	BH01-B,	30-Aug-2018	----	----	----	04-Sep-2018	06-Sep-2018	✓
ED037P: Alkalinity by PC Titrator								
Clear Plastic Bottle - Natural (ED037-P) SW1-B, SW3-B	SW1-TX,	28-Aug-2018	----	----	----	31-Aug-2018	11-Sep-2018	✓
Clear Plastic Bottle - Natural (ED037-P) BH06-B, BH10-B	BH01-B,	30-Aug-2018	----	----	----	31-Aug-2018	13-Sep-2018	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Clear Plastic Bottle - Natural (ED041G) SW1-B, SW3-B	SW1-TX,	28-Aug-2018	----	----	----	31-Aug-2018	25-Sep-2018	✓
Clear Plastic Bottle - Natural (ED041G) BH06-B, BH10-B	BH01-B,	30-Aug-2018	----	----	----	31-Aug-2018	27-Sep-2018	✓
ED045G: Chloride by Discrete Analyser								
Clear Plastic Bottle - Natural (ED045G) SW1-B, SW3-B	SW1-TX,	28-Aug-2018	----	----	----	31-Aug-2018	25-Sep-2018	✓
Clear Plastic Bottle - Natural (ED045G) BH06-B, BH10-B	BH01-B,	30-Aug-2018	----	----	----	31-Aug-2018	27-Sep-2018	✓
ED093F: Dissolved Major Cations								
Clear Plastic Bottle - Natural (ED093F) SW1-B, SW3-B	SW1-TX,	28-Aug-2018	----	----	----	04-Sep-2018	04-Sep-2018	✓
Clear Plastic Bottle - Natural (ED093F) BH06-B, BH10-B	BH01-B,	30-Aug-2018	----	----	----	04-Sep-2018	06-Sep-2018	✓
EG020T: Total Metals by ICP-MS								
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) SW1-B, SW3-B	SW1-TX,	28-Aug-2018	05-Sep-2018	24-Feb-2019	✓	05-Sep-2018	24-Feb-2019	✓
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) BH06-B, BH10-B	BH01-B,	30-Aug-2018	05-Sep-2018	26-Feb-2019	✓	05-Sep-2018	26-Feb-2019	✓



Matrix: **WATER**

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

Method		Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG035T: Total Recoverable Mercury by FIMS								
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) SW1-B, SW3-B	SW1-TX,	28-Aug-2018	----	----	----	05-Sep-2018	25-Sep-2018	✓
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) BH06-B, BH10-B	BH01-B,	30-Aug-2018	----	----	----	05-Sep-2018	27-Sep-2018	✓
EK040P: Fluoride by PC Titrator								
Clear Plastic Bottle - Natural (EK040P) SW1-B, SW3-B	SW1-TX,	28-Aug-2018	----	----	----	31-Aug-2018	25-Sep-2018	✓
Clear Plastic Bottle - Natural (EK040P) BH06-B, BH10-B	BH01-B,	30-Aug-2018	----	----	----	31-Aug-2018	27-Sep-2018	✓
EK055G: Ammonia as N by Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK055G) BH06-B, BH01-B, BH10-B,	SW3-B, SW1-B, SW1-TX	30-Aug-2018	----	----	----	05-Sep-2018	27-Sep-2018	✓
EK057G: Nitrite as N by Discrete Analyser								
Clear Plastic Bottle - Natural (EK057G) BH06-B, BH10-B	BH01-B,	30-Aug-2018	----	----	----	31-Aug-2018	01-Sep-2018	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK059G) BH06-B, BH01-B, BH10-B,	SW3-B, SW1-B, SW1-TX	30-Aug-2018	----	----	----	05-Sep-2018	27-Sep-2018	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK061G) BH06-B, BH01-B, BH10-B,	SW3-B, SW1-B, SW1-TX	30-Aug-2018	04-Sep-2018	27-Sep-2018	✓	04-Sep-2018	27-Sep-2018	✓
EK067G: Total Phosphorus as P by Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK067G) BH06-B, BH01-B, BH10-B,	SW3-B, SW1-B, SW1-TX	30-Aug-2018	04-Sep-2018	27-Sep-2018	✓	04-Sep-2018	27-Sep-2018	✓



Matrix: **WATER**

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

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231_TOP_A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X-LL (TOP)) SW1-B, SW3-B SW1-TX,	28-Aug-2018	06-Sep-2018	24-Feb-2019	✓	07-Sep-2018	24-Feb-2019	✓
HDPE (no PTFE) (EP231X-LL (TOP)) BH06-B, BH10-B, BH01-B, SW1-TX	30-Aug-2018	06-Sep-2018	26-Feb-2019	✓	07-Sep-2018	26-Feb-2019	✓
EP231_TOP_B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X-LL (TOP)) SW1-B, SW3-B SW1-TX,	28-Aug-2018	06-Sep-2018	24-Feb-2019	✓	07-Sep-2018	24-Feb-2019	✓
HDPE (no PTFE) (EP231X-LL (TOP)) BH06-B, BH10-B, BH01-B, SW1-TX	30-Aug-2018	06-Sep-2018	26-Feb-2019	✓	07-Sep-2018	26-Feb-2019	✓
EP231_TOP_C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X-LL (TOP)) SW1-B, SW3-B SW1-TX,	28-Aug-2018	06-Sep-2018	24-Feb-2019	✓	07-Sep-2018	24-Feb-2019	✓
HDPE (no PTFE) (EP231X-LL (TOP)) BH06-B, BH10-B, BH01-B, SW1-TX	30-Aug-2018	06-Sep-2018	26-Feb-2019	✓	07-Sep-2018	26-Feb-2019	✓
EP231_TOP_D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X-LL (TOP)) SW1-B, SW3-B SW1-TX,	28-Aug-2018	06-Sep-2018	24-Feb-2019	✓	07-Sep-2018	24-Feb-2019	✓
HDPE (no PTFE) (EP231X-LL (TOP)) BH06-B, BH10-B, BH01-B, SW1-TX	30-Aug-2018	06-Sep-2018	26-Feb-2019	✓	07-Sep-2018	26-Feb-2019	✓
EP231_TOP_P: PFAS Sums							
HDPE (no PTFE) (EP231X-LL (TOP)) SW1-B, SW3-B SW1-TX,	28-Aug-2018	06-Sep-2018	24-Feb-2019	✓	07-Sep-2018	24-Feb-2019	✓
HDPE (no PTFE) (EP231X-LL (TOP)) BH06-B, BH10-B, BH01-B, SW1-TX	30-Aug-2018	06-Sep-2018	26-Feb-2019	✓	07-Sep-2018	26-Feb-2019	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X-ST) SW1-B, SW3-B SW1-TX,	28-Aug-2018	05-Sep-2018	24-Feb-2019	✓	05-Sep-2018	24-Feb-2019	✓
HDPE (no PTFE) (EP231X-ST) BH06-B, BH10-B, BH01-B, SW1-TX	30-Aug-2018	05-Sep-2018	26-Feb-2019	✓	05-Sep-2018	26-Feb-2019	✓



Matrix: **WATER**

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

Method		Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE (no PTFE) (EP231X-ST) SW1-B, SW3-B	SW1-TX,	28-Aug-2018	05-Sep-2018	24-Feb-2019	✓	05-Sep-2018	24-Feb-2019	✓
HDPE (no PTFE) (EP231X-ST) BH06-B, BH10-B,	BH01-B, SW1-TX	30-Aug-2018	05-Sep-2018	26-Feb-2019	✓	05-Sep-2018	26-Feb-2019	✓
EP231C: Perfluoroalkyl Sulfonamides								
HDPE (no PTFE) (EP231X-ST) SW1-B, SW3-B	SW1-TX,	28-Aug-2018	05-Sep-2018	24-Feb-2019	✓	05-Sep-2018	24-Feb-2019	✓
HDPE (no PTFE) (EP231X-ST) BH06-B, BH10-B,	BH01-B, SW1-TX	30-Aug-2018	05-Sep-2018	26-Feb-2019	✓	05-Sep-2018	26-Feb-2019	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE (no PTFE) (EP231X-ST) SW1-B, SW3-B	SW1-TX,	28-Aug-2018	05-Sep-2018	24-Feb-2019	✓	05-Sep-2018	24-Feb-2019	✓
HDPE (no PTFE) (EP231X-ST) BH06-B, BH10-B,	BH01-B, SW1-TX	30-Aug-2018	05-Sep-2018	26-Feb-2019	✓	05-Sep-2018	26-Feb-2019	✓
EP231P: PFAS Sums								
HDPE (no PTFE) (EP231X-ST) SW1-B, SW3-B	SW1-TX,	28-Aug-2018	05-Sep-2018	24-Feb-2019	✓	05-Sep-2018	24-Feb-2019	✓
HDPE (no PTFE) (EP231X-ST) BH06-B, BH10-B,	BH01-B, SW1-TX	30-Aug-2018	05-Sep-2018	26-Feb-2019	✓	05-Sep-2018	26-Feb-2019	✓



Quality Control Parameter Frequency Compliance

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

Matrix: **WATER**

Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)		Quality Control Specification	
Analytical Methods	Method	QC	Regular	Actual	Expected		Evaluation
Laboratory Duplicates (DUP)							
Alkalinity by PC Titrator	ED037-P	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	2	19	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by PC Titrator	EA010-P	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Fluoride by PC Titrator	EK040P	4	31	12.90	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	3	21	14.29	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-ST	2	16	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
PFAS by LCMSMS after SPE and oxidation (TOP)	EP231X-LL (TOP)	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
pH by PC Titrator	EA005-P	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	9	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Alkalinity by PC Titrator	ED037-P	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by PC Titrator	EA010-P	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Fluoride by PC Titrator	EK040P	2	31	6.45	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	2	21	9.52	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-ST	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PFAS by LCMSMS after SPE and oxidation (TOP)	EP231X-LL (TOP)	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
pH by PC Titrator	EA005-P	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	9	22.22	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Ammonia as N by Discrete analyser	EK055G	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by PC Titrator	EA010-P	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard

18-161

File D

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Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Method Blanks (MB) - Continued							
Fluoride by PC Titrator	EK040P	2	31	6.45	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	2	21	9.52	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-ST	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PFAS by LCMSMS after SPE and oxidation (TOP)	EP231X-LL (TOP)	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	9	11.11	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Fluoride by PC Titrator	EK040P	2	31	6.45	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	21	4.76	5.00	✗	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-ST	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	9	11.11	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard



Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
pH by PC Titrator	EA005-P	WATER	In house: Referenced to APHA 4500 H+ B. This procedure determines pH of water samples by automated ISE. This method is compliant with NEPM (2013) Schedule B(3)
Conductivity by PC Titrator	EA010-P	WATER	In house: Referenced to APHA 2510 B. This procedure determines conductivity by automated ISE. This method is compliant with NEPM (2013) Schedule B(3)
Calculated TDS (from Electrical Conductivity)	EA016	WATER	In house: Calculation from Electrical Conductivity (APHA 2510 B) using a conversion factor specified in the analytical report. This method is compliant with NEPM (2013) Schedule B(3)
Alkalinity by PC Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM (2013) Schedule B(3)
Sulfate (Turbidimetric) as SO ₄ 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO ₄ . Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO ₄ suspension is measured by a photometer and the SO ₄ -2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM (2013) Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G. The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocyanate forms highly-coloured ferric thiocyanate which is measured at 480 nm APHA 21st edition seal method 2 017-1-L april 2003
Major Cations - Dissolved	ED093F	WATER	In house: Referenced to APHA 3120 and 3125; USEPA SW 846 - 6010 and 6020; Cations are determined by either ICP-AES or ICP-MS techniques. This method is compliant with NEPM (2013) Schedule B(3) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM (2013) Schedule B(3) Hardness parameters are calculated based on APHA 2340 B. This method is compliant with NEPM (2013) Schedule B(3)
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Fluoride by PC Titrator	EK040P	WATER	In house: Referenced to APHA 4500-F C: CDTA is added to the sample to provide a uniform ionic strength background, adjust pH, and break up complexes. Fluoride concentration is determined by either manual or automatic ISE measurement. This method is compliant with NEPM (2013) Schedule B(3)



Analytical Methods	Method	Matrix	Method Descriptions
Ammonia as N by Discrete analyser	EK055G	WATER	In house: Referenced to APHA 4500-NH3 G Ammonia is determined by direct colorimetry by Discrete Analyser. This method is compliant with NEPM (2013) Schedule B(3)
Nitrite as N by Discrete Analyser	EK057G	WATER	In house: Referenced to APHA 4500-NO2- B. Nitrite is determined by direct colourimetry by Discrete Analyser. This method is compliant with NEPM (2013) Schedule B(3)
Nitrate as N by Discrete Analyser	EK058G	WATER	In house: Referenced to APHA 4500-NO3- F. Nitrate is reduced to nitrite by way of a chemical reduction followed by quantification by Discrete Analyser. Nitrite is determined separately by direct colourimetry and result for Nitrate calculated as the difference between the two results. This method is compliant with NEPM (2013) Schedule B(3)
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	WATER	In house: Referenced to APHA 4500-NO3- F. Combined oxidised Nitrogen (NO2+NO3) is determined by Chemical Reduction and direct colourimetry by Discrete Analyser. This method is compliant with NEPM (2013) Schedule B(3)
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	WATER	In house: Referenced to APHA 4500-Norg D (In house). An aliquot of sample is digested using a high temperature Kjeldahl digestion to convert nitrogenous compounds to ammonia. Ammonia is determined colorimetrically by discrete analyser. This method is compliant with NEPM (2013) Schedule B(3)
Total Nitrogen as N (TKN + Nox) By Discrete Analyser	EK062G	WATER	In house: Referenced to APHA 4500-Norg / 4500-NO3-. This method is compliant with NEPM (2013) Schedule B(3)
Total Phosphorus as P By Discrete Analyser	EK067G	WATER	In house: Referenced to APHA 4500-P H, Jirka et al (1976), Zhang et al (2006). This procedure involves sulphuric acid digestion of a sample aliquot to break phosphorus down to orthophosphate. The orthophosphate reacts with ammonium molybdate and antimony potassium tartrate to form a complex which is then reduced and its concentration measured at 880nm using discrete analyser. This method is compliant with NEPM (2013) Schedule B(3)
Ionic Balance by PCT DA and Turbi SO4 DA	EN055 - PG	WATER	In house: Referenced to APHA 1030F. This method is compliant with NEPM (2013) Schedule B(3)
PFAS by LCMSMS after SPE and oxidation (TOP)	EP231X-LL (TOP)	WATER	In-house: Analysis of fresh and saline waters by solid phase extraction followed by oxidation per Houtz, Erika F.; Sedlak, David L. (2012): Oxidative Conversion as a Means of Detecting Precursors to Perfluoroalkyl Acids in Urban Runoff. In Environmental Science & Technology 46 (17), pp. 9342;9349. Sample extracts are analysed by LC-Electrospray-MS-MS, Negative Mode using MRM. Where commercially available, isotopically labelled analogues of the target analytes are used as internal standards for quantification. Where a labelled analogue is not commercially available, the internal standard with similar chemistry and the closest retention time to the target is used for quantification. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers.
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-ST	WATER	In-house: Analysis of fresh and saline waters by solid phase extraction and LC-Electrospray-MS-MS, Negative Mode using MRM. This method is targeted to pristine environmental and drinking waters reportin at sub-parts per trillion. Where commercially available, isotopically labelled analogues of the target analytes are used as internal standards for quantification. Where a labelled analogue is not commercially available, the internal standard with similar chemistry and the closest retention time to the target is used for quantification. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. This method complies with the quality control definitions as stated in QSM 5.1. Data is reviewed in line with the DQOs as stated in QSM5.1

Preparation Methods	Method	Matrix	Method Descriptions
TKN/TP Digestion 18-161	EK061/EK067	WATER	In house: Referenced to APHA 4500 Norg - D; APHA 4500 P - H. This method is compliant with NEPM (2013) Schedule B(3) File D



Preparation Methods	Method	Matrix	Method Descriptions
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
SPE preparation for LL and saline PFCs	EP231-SPE	WATER	In house
Total Oxidisable Precursor Digest for PFAS - Low Level	* ORG70-SPE	WATER	<p>In-House SPE followed by oxidation per Houtz, Erika F.; Sedlak, David L. (2012): Oxidative Conversion as a Means of Detecting Precursors to Perfluoroalkyl Acids in Urban Runoff. In Environmental Science & Technology 46 (17), pp. 9342-9349:</p> <p>A 50 mL sample is concentrated by SPE, taken to near dryness and made up to 5 mL in a reagent solution. The sample is digested with persulfate under alkaline conditions, neutralised and prepared for analysis per EP231.</p>

Published on DES Disclosure Log
RTI Act 2009



CHAIN OF CUSTODY

ALS Laboratory:
please tick →

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Ph: 08 8359 0890 E: adelaide@alsglobal.com
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PERTH 10 Hod Way Malaga WA 6090
Ph: 08 9209 7655 E: samples.perth@alsglobal.com

Environmental Division
Brisbane
Work Order Reference
EB1821082



Telephone : + 61-7-3243 7222

CLIENT: Dept of Environment and Science	TURNAROUND REQUIREMENTS : ☒ Standard TAT (List due date): (Standard TAT may be longer for some tests e.g. Ultra Trace Organics) ☐ Non Standard or urgent TAT (List due date):	FOR LABORATORY Custody Seal intact Free Ice / frozen ice receipt? Random Sample Test Other comment:
OFFICE: Brisbane	ALS QUOTE NO.:	
PROJECT: Swanbank		
ORDER NUMBER:		
PROJECT MANAGER: Sinead Summerville	CONTACT PH: 38948157	
SAMPLER: Brenda Baddiley / Graham	SAMPLER MOBILE: ch4p4(6) Personal Information	RELINQUISHED BY: ch4p4(6) Personal Information
COC emailed to ALS? (YES / NO)	EDD FORMAT (or default):	RECEIVED BY: Greg
Email Reports to (will default to PM if no other addresses are listed): ipswich.csr@des.qld.gov.au	DATE/TIME: 29/8/18	DATE/TIME: 30/6/16 20:20
Email Invoice to (will default to PM if no other addresses are listed): sinead.summerville@des.qld.gov.au		
COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:		

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)		CONTAINER INFORMATION			ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).							Additional Information		
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE <small>codes below</small>	<small>(refer to)</small>	TOTAL CONTAINERS	NT-12	EP231X- ST	EP231X- LC (TOP)	W3 (Total G)	NT-6	EP321 X	EP321 X	S3	Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
1	SW1-B	10:15 (28/8)	W	P.N		2	X			X					
2	SW1-B	10:30 (28/8)	W	P.P.P		3		X	X						
3	SW1-TX	11:00 (28/8)	W	P.N		4	X	X	X	X					
4	SW3-B	11:20 (28/8)	W	P.N		5	X	X	X	X					
5	BH06-B	9:20	W			5	X	X	X	X	X				
6	SW3-B	9:15 (30/8)	W	S		1					X				
7	SW3-B	9:20 30/8	S			2									
8	BH01-B	9:40 (30/8)	W			5	X	X	X	X	X				
9	SW1-B	10:10 30/8	W			1					X				
10	BH10-B	10:20 30/8	W			5	X	X	X	X	X				
11	BH06-B	9:20 30/8	W			5	X	X	X	X	X				
12	SW1-TX	14:30 30/8	W			2		X	X		X				
TOTAL															

Hold min 2 months

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

TAX INVOICE: L732507

QLD DEPT OF ENVIRONMENT & SCIENCE
 MR SINEAD SUMMERVILLE
 GPO BOX 2771
 BRISBANE
 QLD, AUSTRALIA 4001

Page : 1 of 1

Work Order	Project / Overall Description	Site	Order number	C-O-C number	Contact
EB1821082	Swanbank / ----	----		----	MR SINEAD SUMMERVILLE

Issue Date	: 11-Sep-2018	Taxable value	: AUD\$ 4,730.00
		Tax Incurred (GST)	: AUD\$ 473.00
Due Date	: 11-Oct-2018	Amount Payable	: AUD\$ 5,203.00

Work Order Breakdown

Method	Sale Item Descriptions	Quantity	Unit Value (AUD\$)	Value (AUD\$)	GST (AUD\$)	Line Total (AUD\$)
Work Order: EB1821082		Quote number: EN/222		Submatrix summary: 10 WATERS, 1 SOIL		
*Misc	Workorder Admin Fee	1.00	40.00	40.00	4.00	44.00
EK055G	Ammonia as N By Discrete Analyser	3.00	14.00	42.00	4.20	46.20
EP231X-LL (TOP)	PFAS - Total Oxidisable Precursor (TOP) Assay - Low Level	7.00	260.00	1,820.00	182.00	2,002.00
EP231X-ST	PFAS - Super Trace Waters Long Suite (28 analytes)	7.00	290.00	2,030.00	203.00	2,233.00
NT-08	Total Nitrogen + NO2 + NO3 + NH3 + Total P	3.00	57.00	171.00	17.10	188.10
NT-11	Total Nitrogen and Total Phosphorus	3.00	41.00	123.00	12.30	135.30
NT-12	General Water Suite	6.00	46.00	276.00	27.60	303.60
W-03T	15 Metals (Total) (NEPM)	6.00	38.00	228.00	22.80	250.80

* denotes non-discountable item

• Please direct all queries to Environmental Division Brisbane on +61-7-3243 7222.

REMITTANCE ADVICE

POST TO: Australian Laboratory Services Pty Ltd
 P.O. Box 66 Everton Park
 QLD 4053 Australia

EMAIL TO: remittances@alsglobal.com

Vendor bank details

Bank: **Commonwealth Bank**
 BSB: **064 000**
 Account: **12672843**
 Swift Code: **CTBAAU2S**

or **Cheque**

Payable to Australian Laboratory Services Pty Ltd

or **Credit Card**

Visa
 Mastercard

Amount Payable
AUD\$ 5,203.00
ALS Client Reference
ENVPRO
TAX INVOICE
L732507