APPENDIX

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JULY 2020 – JUNE 2021 RESULTS

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								Field						PFAS																						BTEX						Inorganics					
								SWL	Ph	Electrical conductivity	Redox Potential	Dissolved Oxygen	Temp (Field)	Perfluorooctanoate (PFOA)	Sum of PFASs (n=30)*	Sum of US EPA PFAS (PFOS + PFOA)*	Sum of WA DWER PFAS (n=10)*	Perfluorobutanesulfonic acid (PFBS)	Perfluorobutanoic acid (PFBA)	Perfluorodecanesulfonic acid (PFDS)	Perfluorodecanoic acid (PFDA)	Perfluorododecanoic acid (PFDoDA)	Perfluoroheptanesulfonic acid (PFHpS)	Perfluoroheptanoic acid (PFHpA)	Perfluorohexanesulfonic acid (PFHxS)	Perfluorohexanoic acid (PFHxA)	Perfluorononanesulfonic acid (PFNS)	Perfluorononanoic acid (PFNA)	Perfluorooctane sulfonamide (FOSA)	Perfluorooctanesulfonic acid (PFOS)	Perfluoropentanesulfonic acid (PFPeS)	Perfluoropentanoic acid (PFPeA)	Perfluoropropanesulfonic acid (PFPrS)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnDA)	Sum (PFHxS + PFOS)*	Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	Benzene	Ethylbenzene	Toluene	Xylene (m & p)	Xylene (o)	Xylene Total	Carbonate Alkalinity (as CaCO3)	Nitrite + Nitrate as N	Alkalinity (total) as CaCO3	Ammonia as N	Chloride	COD
								mbtoc	pH	uS/cm	mV	mg/L	oC	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	MG/L	mg/L	mg/L	µg/L	mg/L	mg/L
EQL														0.01	0.1	0.01	0.05	0.01	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.05	0.01	0.01	0.01	0.01	0.01	0.01	1	1	1	2	1	3	10	0.05	20	10	1	25
ANZG (2018) Marine water 90% toxicant DGVs									6-8																										900									1200			
PFAS National EMP (2020) Interim marine water 90%														623															2																		
PFAS National EMP (2020) Interim marine water 95%														220															0.13																		
Leachate Impact Indicator																																															
Field ID	Monitoring Round	Sample Date																																														
DW2	Jul-20	7/08/2020	-	7.98	25413	-132.4	1.88	34.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4500
GW1-12	Jul-20	7/08/2020	12.14	6.31	42677	218.9	2.77	29.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	140	40	16,000	450
GW12-12	Jul-20	7/08/2020	11.67	4.3	60.9	210.8	3.72	29.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	<20	120	6.3	<25
GW12-30	Jul-20	7/08/2020	11.59	3.7	43.5	277.6	3.68	29.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	<20	120	3.4	<25
GW13-12	Jul-20	7/08/2020	14.11	5.08	5.2	223.1	5.17	28.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	61	2600	81	<25
GW14-12	Jul-20	7/08/2020	5.07	12.58	16598	-308.4	0.04	29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	<20	70	5800	120
GW15-12	Jul-20	7/08/2020	1.67	6.93	3751	178.6	3.67	27.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	140	60	1100	<25
GW15-12 (1)	Jul-20	7/08/2020	7.2	4.87	2895	224.1	4.25	28.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	<20	60	740	<25
GW2-12	Jul-20	7/08/2020	10.11	5.73	27303	213.6	2.54	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	76	20	10,000	160
GW3-12	Jul-20	7/08/2020	9.69	5.54	826	101.3	1.27	30.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	33	80	380	<25
GW4-12	Jul-20	7/08/2020	10.63	7.74	10279	-49	3.06	27.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	190	80	3100	<25
GW4-30	Jul-20	7/08/2020	1.6	5.78	1222	71.2	4.11	26.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	230	70	21,000	<25
GW7-12	Jul-20	7/08/2020	1.5	6.5	8805	182	1.38	24.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	170	260	2900	57
GW7-3	Jul-20	7/08/2020	2.17	6.14	20613	212.8	5.52	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	130	170	8300	150
GW8-12	Jul-20	7/08/2020	2.65	6.92	77011	222.6	1.37	25.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	240	3300	33,000	110
GW8-3	Jul-20	7/08/2020	1.61	5.66	18001	199.5	1.42	24.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	76	22,000	7200	170
LP01	Jul-20	7/08/2020	-	8.52	11550	112.5	4.16	22.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2700
LP02	Jul-20	7/08/2020	-	8	14762	-451.5	0.17	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2300
LS5A	Jul-20	7/08/2020	-	8.11	30770	45.4	4.38	36.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5400
LS5B	Jul-20	7/08/2020	-	13.24	27698	-246.7	0.11	21.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6200
SW12	Jul-20	7/08/2020	-	7.83	4260	94.3	1.21	23.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	300	300	1900	120
TC SUMP	Jul-20	7/08/2020	-	8.19	20337	9.5	2.08	30.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3700
WHEELWASH	Jul-20	7/08/2020		10.1	337.5	-113	0.63	31.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	220	16,000	120	1800
WW6	Jul-20	7/08/2020	-	7.4	873	40.6	1.68	28.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	27	1200	27,000	250
WW7	Jul-20	7/08/2020	7.66	5.9	57183	-87.6	1.69	29.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	24	5000	930	42
WW9	Jul-20	7/08/2020	7.92	6.14	71462	28.4	1.87	30.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	<20	50	2300	59
DW2	Aug-20	4/09/2020	-	7.9	25577	-64.6	3.57	35.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4200
GW12-30	Aug-20	4/09/2020	12.16	5.7	54.9	110.2	5.07	29.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	<20	<10	6.5	<25
GW13-12	Aug-20	4/09/2020	15.02	4.55	378.2	6.1	3.35	29.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	35	2500	75	79
GW14-12	Aug-20	4/09/2020	6.54	4.82	16768	138.8	6.25	29.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	<20	40	5600	93
GW2-12	Aug-20	4/09/2020	10.8	6.1	27629	158.7	4.4	30.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	69	20	8400	170
GW4-12	Aug-20	4/09/2020	11.77	6.13	10573	-61	5.2	28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	190	50	2700	40
GW5-12	Aug-20	4/09/2020	2.22	6.35	3702	100.6	5.12	28.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	110	<10	870	<25
GW7-12	Aug-20	4/09/2020	2.12	6.26	8872	104.6	0.9	26.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	140	160	2400	<25
GW8-12	Aug-20	4/09/2020	3.91	6.87	52189	207.4	1.43	26.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	270	1300	31,000	180
GW8-3	Aug-20	4/09/2020	2.55	6.2	18326	185.3	1.38	27.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	44	16,000	6800	130
LP01	Aug-20	4/09/2020	-	8.3	12498	176.9	3.84	25.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2600
LP02	Aug-20	4/09/2020	-	8.1	15147	-251.1	0.62	24.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2700
LS5A	Aug-20	4/09/2020	-	8.1	30897	57.4	4.87	37.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5700
LS5B	Aug-20	4/09/2020	-	8.22	31639	-39.9	5.12	36	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5900
SW12	Aug-20	4/09/2020	-	7.36	13780	-78.2	5.62	25.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	250	11,000	4700	1900
TC SUMP	Aug-20	4/09/2020	-	8.06	22461	12	2.73	32.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3500
WHEELWASH	Aug-20	4/09/2020	-	7.01	910	-153.2	1.88	27.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	270	3800	36	800
WW6	Aug-20	4/09/2020	5.18	5.39	68759	4.5	0.62	29.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	21	990	25,000	98
DW2	Sep-20	12/10/2020	-	7.45	18962	91.1	0.74	39.5	0.11	1.42	0.15	1.39	0.78	<0.05	<0.01	<0.01	<0.01	<0.01	0.04	0.03	0.21	<0.01	<0.01	<0.05	0.04	<0.01	0.18	0.03	<0.01	<0.01	<0.01	0.07	0.18	<10	<10	<10	<20	64	64	130	-	4300	-	1600	2900
DW3	Sep-20	12/10/2020	-	7.63	32177	44.1	0.96	37.4	2.3	36.05	3.28	35.23	21	1.7	<0.01	0.12	0.01	0.06	0.66	1.2	4.9	<0.01	0.07	<0.05	0.98	0.02	1.7	0.25	<0.01	0.01	<0.01	2.18	4.48	<10	24	26	52	36	88	490	-	8700	-	2800	6600
GW SUMP	Sep-20	12/10/2020	-	6.77	943	93.7	1.78	30.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	130	-	160	-
GW12-30	Sep-20	12/10/2020	12.15	6.18	85.1	86.6	3.21	30.4	<0.01	<0.1	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1	<2	<1	<3	<10	-	<20	-	5.2	<25
GW13-12	Sep-20	12/10/2020	12.87	5.83	351	-10.2	0.37	31	0.00006	0.86	0.2	0.86	0.19	<0.05	<0.01	<0.01	<0.01	<0.01	0.02	0.08	0.07	<0.01	<0.01	<0.05	0.14	<0.01	0.06	<0.01	<0.01	<0.01	<0.01	0.22	0.28	<1	<1	<1	<2	<1	<3	<10	-	34	-	93	150
GW14-12	Sep-20	12/10/2020	6.06	6.06	16338	169.8	2.83	30.2	<0.01	0.1	<0.01	0.1	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1	<2	<1	<3	<10	-	<20	-	5200	88
GW2-12	Sep-20	12/10/2020	10.08	6.15	16347	177.2	1.26	31	<0.01	<0.1	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1	<2	<1	<3	<10	-	73	-	8700	140

Data Comments

* Quantification of linear and branched isomers has been conducted as a single total response using the relative response factor for the corresponding linear/branched standard.

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			Field						PFAS																								BTEX						Inorganics					
			SWL	Ph	Electrical conductivity	Redox Potential	Dissolved Oxygen	Temp (Field)	Perfluorooctanoate (PFOA)	Sum of PFASs (n=30)*	Sum of US EPA PFAS (PFOS + PFOA)*	Sum of WA DWER PFAS (n=10)*	Perfluorobutanesulfonic acid (PFBS)	Perfluorobutanoic acid (PFBA)	Perfluorodecanesulfonic acid (PFDS)	Perfluorodecanoic acid (PFDA)	Perfluorododecanoic acid (PFDoDA)	Perfluoroheptanesulfonic acid (PFHpS)	Perfluoroheptanoic acid (PFHpA)	Perfluorohexanesulfonic acid (PFHxS)	Perfluorohexanoic acid (PFHxA)	Perfluorononanesulfonic acid (PFNS)	Perfluorononanoic acid (PFNA)	Perfluorooctane sulfonamide (FOSA)	Perfluorooctanesulfonic acid (PFOS)	Perfluoropentanesulfonic acid (PFPeS)	Perfluoropentanoic acid (PFPeA)	Perfluoropropanesulfonic acid (PFPrS)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnDA)	Sum (PFHxS + PFOS)*	Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	Benzene	Ethylbenzene	Toluene	Xylene (m & p)	Xylene (o)	Xylene Total	Carbonate Alkalinity (as CaCO3)	Nitrite + Nitrate as N	Alkalinity (total) as CaCO3	Ammonia as N	Chloride	COD
			mbtoc	pH	uS/cm	mV	mg/L	oC	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	MG/L	mg/L	mg/L	µg/L	mg/L	mg/L
EQL									0.01	0.1	0.01	0.05	0.01	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	1	1	1	2	1	3	10	0.05	20	10	1	25
ANZG (2018) Marine water 90% toxicant DGVs				6-8																													900									1200		
PFAS National EMP (2020) Interim marine water 90%									623																2																			
PFAS National EMP (2020) Interim marine water 95%									220																0.13																			
Leachate Impact Indicator																																												
Field ID	Monitoring Round	Sample Date																																										
GW2-3	Sep-20	12/10/2020	1.2	6.48	991	96.3	4.63	33	<0.01	<0.1	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1	<2	<1	<3	<10	-	<20	-	210	<25
GW4-30	Sep-20	12/10/2020	2.48	6.7	1285	110.6	3.25	28.6	<0.01	<0.1	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1	<2	<1	<3	<10	-	260	-	20,000	<25
GW5-12	Sep-20	12/10/2020	4.48	6.95	2171	128	2.52	29.4	<0.01	<0.1	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1	<2	<1	<3	<10	-	100	-	840	<25
GW7-12	Sep-20	12/10/2020	2.05	6.42	9056	153.4	2.77	27.6	0.01	0.26	0.03	0.26	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.05	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	0.04	0.05	<1	<1	<1	<2	<1	<3	<10	-	140	-	2600	37
GW8-12	Sep-20	12/10/2020	2.44	6.4	79513	196.5	2.83	27.7	<0.01	<0.1	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1	<2	<1	<3	<10	-	230	-	33,000	<25
GW8-3	Sep-20	12/10/2020	1.36	5.99	3381	165.1	2.42	29.4	0.17	1.72	0.52	1.62	0.12	0.24	<0.01	<0.01	<0.01	<0.01	0.05	0.24	0.15	<0.01	0.02	<0.05	0.35	0.05	0.15	0.03	<0.01	<0.01	<0.01	0.59	0.76	<1	<1	<1	<2	<1	<3	<10	-	200	-	550	66
LP01	Sep-20	12/10/2020	-	8.1	19586	66.2	1.31	30.8	1.9	20.72	3.6	19.52	8.4	1.6	<0.01	0.23	<0.01	0.05	0.49	0.63	2.6	<0.01	0.16	<0.05	1.7	0.02	1.3	0.15	<0.01	<0.01	0.02	2.33	4.23	<10	<10	<10	<20	<10	<30	630	-	5500	-	1900	3600
LP02	Sep-20	12/10/2020	-	8.31	11817	76.8	1.4	29.5	1.4	17.92	2.07	17.36	7.2	1.4	<0.01	0.07	<0.01	0.02	0.43	0.59	3.7	<0.01	0.07	<0.05	0.67	0.02	1.5	0.22	<0.01	<0.01	<0.01	1.26	2.66	<10	<10	<10	<20	<10	<30	650	-	4400	-	1800	2900
SW12	Sep-20	12/10/2020	-	7.05	1571	14.7	1.3	29.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	88	-	280	-
TC SUMP	Sep-20	12/10/2020	-	7.82	1914	111.8	2.08	32.9	1.9	20.74	2.4	20.13	10	1.8	<0.01	0.07	<0.01	0.02	0.76	0.61	2.9	<0.01	0.08	<0.05	0.5	0.03	1.1	0.2	<0.01	<0.01	<0.01	1.11	3.01	<10	<10	<10	<20	<10	<30	210	-	5100	-	2100	200
WHEEL WASH	Sep-20	12/10/2020	4.94	6.41	3542	23	0.63	29.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	280	-	380	-	38	-
WW6	Sep-20	12/10/2020	6.82	4.54	6814	234.2	2.79	28.8	<0.01	<0.1	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1	<2	<1	<3	<10	-	<20	-	24,000	320
DW2	Oct-20	4/11/2020	-	7.77	27085	50.6	3.57	38.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4200
DW3	Oct-20	4/11/2020	-	7.65	31874	77	11.2	37.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6200
GW SUMP	Oct-20	4/11/2020	-	7.43	2251	-11.3	3.7	29.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	380	6000	410	400
GW12-12	Oct-20	4/11/2020	6.92	5.45	11.8	76.8	3.56	30.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	<20	30	17	<25
GW12-30	Oct-20	4/11/2020	7.46	4.89	46.2	79.9	2.49	30.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	<20	<10	20	<25
GW13-12	Oct-20	4/11/2020	12.64	6.05	1.8	-83.9	3.61	31.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	33	2700	82	49
GW14-12	Oct-20	4/11/2020	2.88	6.12	17248	93.4	5.16	30.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	<20	<10	4200	370
GW15-12	Oct-20	4/11/2020	10.38	6.26	3252	63.4	6.63	29.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	29	<10	790	<25
GW2-12	Oct-20	4/11/2020	5.95	6.01	29052	114.6	1.86	31.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	61	210	11,000	140
GW4-30	Oct-20	4/11/2020	1.62	6.06	14.3	65.8	5.53	30.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	210	2100	61,000	350
GW5-12	Oct-20	4/11/2020	1.61	6.42	3690	97.1	3.79	30.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	80	<10	790	<25
GW5-3	Oct-20	4/11/2020	2.63	6.6	3498	90.4	6.51	29.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	85	<10	830	<25
GW7-12	Oct-20	4/11/2020	1.37	6.52	9716	113.1	4.59	29.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	130	170	2400	110
GW8-12	Oct-20	4/11/2020	2.54	6.1	82068	110.9	2.42	28.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	220	600	31,000	<250
GW8-3	Oct-20	4/11/2020	1.98	5.8	13400	80.6	3.31	28.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	51	10,000	1800	79
LMP02	Oct-20	4/11/2020	-	7.19	3227	92.4	6.34	28.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	220
LP01	Oct-20	4/11/2020	-	8.26	21092	-162.6	1.71	30.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4100
LP02	Oct-20	4/11/2020	-	8.51	14654	-63.2	3.53		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2900
LS5A	Oct-20	4/11/2020	-	7.96	27513	111.5	30.5	40.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4700
LS5B	Oct-20	4/11/2020	-	7.99	27691	101	6.14	40.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4700
SW12	Oct-20	4/11/2020	-	8.53	2395	16.5	14.79	33.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	170	530	440	110
TC SUMP	Oct-20	4/11/2020	-	8.19	20844	68.2	2.85	32.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3300
WHEEL WASH	Oct-20	4/11/2020	-	7.34	1964	-55.8	1.33	32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	520	52,000	210	230
WW6	Oct-20	4/11/2020	3.83	6.09	73806	94	1.27	31.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	25	1500	57,000	280
WW7	Oct-20	4/11/2020	3.53	7.23	11278	59.2	0.47	31.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	230	14,000	2700	110
WW9	Oct-20	4/11/2020	6.15	5.72	9633	100.2	11.09	29.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	<20	<10	2800	71
DW2	Nov-20	3/12/2020	-	7.59	26178	-20	0.45	37.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4000
DW3	Nov-20	3/12/2020	-	7.51	32180	48	4.71	37.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6100
GW SUMP	Nov-20	3/12/2020	-	7.13	1148	120.7	2.98	36.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	170	3500	500	120
GW12-12	Nov-20	3/12/2020	6.68	5.37	81.8	49.1	3.05	30.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	<20	<10	57	<25
GW12-30	Nov-20	3/12/2020	7.51	5.25	53.5	52.3	0.47	30.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	<20	80	59	<25
GW13-12	Nov-20	3/12/2020	11.84	5.51	445.3	-73.6	1.58	31.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	37	3000	110	<25
GW14-12	Nov-20	3/12/2020	2.43	6.14	17720	67.6	4.5	31.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	<20	30	4800	120
GW15-12	Nov-20	3/12/2020	9.02	5.68	3248	63.3	4.96	29.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	<20	<10	1200	74
GW2-12	Nov-20	3/12/2020	3.23	5.37	24704	95.8	2.55	33.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	56	30	5300	160
GW2-3	Nov-20	3/12/2020	1.29	6.21	1924	53.2	5.36	34	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	<20	30	520	<25
GW3-12	Nov-20	3/12/2020	10.59	6.1	1705	51.6	3.24	31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	81	<10	880	<25
GW4-30	Nov-20	3/12/2020	1.32	6.33	1434	53.7	4.12	31.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	230	2000	34,000	250

Data Comments

* Quantification of linear and branched isomers has been conducted as a single total response using the relative response factor for the corresponding linear/branched standard.

Cardno

			Field						PFAS																								BTEX						Inorganics						
			SWL	Ph	Electrical conductivity	Redox Potential	Dissolved Oxygen	Temp (Field)	Perfluorooctanoate (PFOA)	Sum of PFASs (n=30)*	Sum of US EPA PFAS (PFOS + PFOA)*	Sum of WA DWER PFAS (n=10)*	Perfluorobutanesulfonic acid (PFBS)	Perfluorobutanoic acid (PFBA)	Perfluorodecanesulfonic acid (PFDS)	Perfluorodecanoic acid (PFDA)	Perfluorododecanoic acid (PFDoDA)	Perfluoroheptanesulfonic acid (PFHpS)	Perfluoroheptanoic acid (PFHpA)	Perfluorohexanesulfonic acid (PFHxS)	Perfluorohexanoic acid (PFHxA)	Perfluorononanesulfonic acid (PFNS)	Perfluorononanoic acid (PFNA)	Perfluorooctane sulfonamide (FOSA)	Perfluorooctanesulfonic acid (PFOS)	Perfluoropentanesulfonic acid (PFPeS)	Perfluoropentanoic acid (PFPeA)	Perfluoropropanesulfonic acid (PFPrS)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnDA)	Sum (PFHxS + PFOS)*	Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	Benzene	Ethylbenzene	Toluene	Xylene (m & p)	Xylene (o)	Xylene Total	Carbonate Alkalinity (as CaCO3)	Nitrite + Nitrate as N	Alkalinity (total) as CaCO3	Ammonia as N	Chloride	COD
			mbtoc	pH	uS/cm	mV	mg/L	oC	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	MG/L	mg/L	mg/L	µg/L	mg/L	mg/L
EQL									0.01	0.1	0.01	0.05	0.01	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	1	1	1	2	1	3	10	0.05	20	10	1	25
ANZG (2018) Marine water 90% toxicant DGVs				6-8																													900									1200		
PFAS National EMP (2020) Interim marine water 90%									623																2																			
PFAS National EMP (2020) Interim marine water 95%									220																0.13																			
Leachate Impact Indicator																																												
Field ID	Monitoring Round	Sample Date																																										
GW5-12	Nov-20	3/12/2020	1.32	6.75	3739	66.2	3.6	31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	91	<10	1200	<25
GW7-12	Nov-20	3/12/2020	1.05	6.71	9594	67.3	3.6	29.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	140	300	2400	<25
GW7-3	Nov-20	3/12/2020	1.7	6.34	11068	82.4	2.75	29.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	82	490	3100	83
GW8-12	Nov-20	3/12/2020	2.2	5.7	85362	125	0.49	29.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	280	1600	31,000	350
GW8-3	Nov-20	3/12/2020	1.54	6.22	9297	95	1.24	30.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	40	9100	3900	52
GW9-12	Nov-20	3/12/2020	10.16	5.95	40.4	33.2	3.46	31.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	<20	<10	34	<25
LMP02	Nov-20	3/12/2020	-	6.94	4111	97	7.06	36	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	420
LP01	Nov-20	3/12/2020	-	8.2	14474	-82.1	0.8	31.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4000
LP02	Nov-20	3/12/2020	-	8.01	20535	-168.8	0.22	30.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2800
LS 5B	Nov-20	3/12/2020	-	7.56	20055	7.4	1.45	28.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4400
SW12	Nov-20	3/12/2020	-	7.37	1601	-123.1	3.26	29.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	94	990	320	190
TC SUMP	Nov-20	3/12/2020	-	7.79	21458	50.6	0.93	34.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4100
WHEEL WASH	Nov-20	3/12/2020	-	6.73	831	-103.7	0.21	32.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	220	3800	100	410
WW5	Nov-20	3/12/2020	4	6.06	8638	32.5	3.77	29.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	<20	80	2300	<25
WW6	Nov-20	3/12/2020	3.18	5.47	75123	17.5	1.63	31.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	30	1200	27,000	320
WW7	Nov-20	3/12/2020	2.71	6.52	14148	-158.2	0.65	31.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	320	80,000	2500	150
WW9	Nov-20	3/12/2020	2.95	5.34	3499	39.9	4.73	31.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	<20	<10	880	59
DW2	Dec-20	12/01/2021	-	7.7	16006	94.6	1.87	36.9	0.95	19.64	1.03	19.48	9.5	1.6	<0.01	0.02	<0.01	<0.01	0.63	0.24	3.3	<0.01	0.05	<0.05	0.08	0.03	2.8	0.04	<0.01	<0.01	<0.01	0.32	1.27	<10	<10	<10	<20	42	42	19	<5	5200	1,100,000	1600	2300
GW SUMP	Dec-20	12/01/2021	-	7.17	948	65.7	1.61	32.2	0.07	1.35	0.07	1.35	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.4	<0.05	<0.05	<0.05	<0.05	<0.05	0.68	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	<4	<4	<4	<8	<4	<12	<10	-	190	1400	150	200
GW10-12	Dec-20	12/01/2021	-	-	-	-	-	-	0.02	0.61	0.17	0.6	0.01	<0.05	<0.01	<0.01	<0.01	<0.01	0.05	0.09	0.1	<0.01	<0.01	<0.05	0.15	0.01	0.18	<0.01	<0.01	<0.01	<0.01	0.24	0.26	<1	<1	<1	<2	<1	<3	<10	1.9	<20	110	53	<25
GW10-3	Dec-20	12/01/2021	-	-	-	-	-	-	0.01	0.33	0.08	0.33	0.01	<0.05	<0.01	<0.01	<0.01	<0.01	0.02	0.05	0.07	<0.01	<0.01	<0.05	0.07	<0.01	0.1	<0.01	<0.01	<0.01	<0.01	0.12	0.13	<1	<1	<1	<2	<1	<3	<10	1.3	<20	100	15	<25
GW11-12	Dec-20	12/01/2021	2.2	8.3	97.3	39.7	4.62	32.1	<0.01	0.22	0.06	0.22	0.01	<0.05	<0.01	<0.01	<0.01	<0.01	0.01	0.06	0.04	<0.01	<0.01	<0.05	0.06	<0.01	0.04	<0.01	<0.01	<0.01	<0.01	0.12	0.12	<1	<1	<1	<2	<1	<3	<10	0.7	<20	50	180	32
GW1-12	Dec-20	12/01/2021	2.08	11.1	9301	19.2	4.11	30.5	<0.01	<0.1	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1	<2	<1	<3	<10	0.08	<20	140	3400	35
GW11-3	Dec-20	12/01/2021	1.72	7.26	95.7	86.4	3.86	31.9	0.03	0.92	0.26	0.88	0.04	0.05	<0.01	<0.01	<0.01	<0.01	0.06	0.13	0.13	<0.01	<0.01	<0.05	0.23	0.02	0.21	0.02	<0.01	<0.01	<0.01	0.36	0.39	<1	<1	<1	<2	<1	<3	<10	1.8	<20	380	14	<25
GW12-12	Dec-20	12/01/2021	1.72	6.68	70.6	120	4.38	30.9	<0.01	<0.1	0.02	0.08	<0.01	0.06	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.02	<1	<1	<1	<2	<1	<3	<10	0.44	<20	20	30	<25
GW12-3	Dec-20	12/01/2021	1.27	6.26	1090	165.5	0.56	30.5	0.01	0.33	0.08	0.33	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	0.02	0.1	<0.01	<0.01	<0.01	<0.05	0.07	<0.01	0.13	<0.01	<0.01	<0.01	<0.01	0.09	0.1	<1	<1	<1	<2	<1	<3	<10	0.24	150	1100	170	69
GW12-30	Dec-20	12/01/2021	2.65	5.57	51.8	131.7	3.83	31.1	<0.01	<0.1	<0.01	0.07	<0.01	0.07	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1	<2	<1	<3	<10	0.4	<20	30	5.6	<25
GW1-3	Dec-20	12/01/2021	1.87	4.6	1666	164.3	3.39	30.2	<0.01	<0.1	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1	<2	<1	<3	<10	<0.05	<20	70	410	<25
GW13-12	Dec-20	12/01/2021	7.1	5.14	473.1	-8.5	1.24	32.2	0.06	0.83	0.17	0.83	0.24	0.12	<0.01	<0.01	<0.01	<0.01	0.03	0.08	0.11	<0.01	<0.01	<0.05	0.11	<0.01	0.08	<0.01	<0.01	<0.01	<0.01	0.19	0.25	<1	<1	<1	<2	<1	<3	<10	<0.05	43	3200	92	<25
GW15-12	Dec-20	12/01/2021	1.77	5.29	3200	178.5	3.87	29.7	<0.01	<0.1	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1	<2	<1	<3	<10	0.22	24	<10	840	<25
GW15-3	Dec-20	12/01/2021	1.52	6.02	606	144.6	2.62	29.7	0.02	0.18	0.02	0.18	0.04	0.07	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.05	<0.01	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<1	<1	<1	<2	<1	<3	<10	0.25	<20	250	180	<25
GW16-12	Dec-20	12/01/2021	2.17	6.88	355.4	60.1	1.64	31.3	0.04	0.36	0.06	0.35	0.03	0.05	<0.01	<0.01	<0.01	<0.01	0.03	0.07	0.05	<0.01	<0.01	<0.05	0.02	0.01	0.06	<0.01	<0.01	<0.01	<0.01	0.09	0.13	<1	<1	<1	<2	<1	<3	<10	<0.05	39	20	73	130
GW16-3	Dec-20	12/01/2021	1.74	7.07	581	122.8	2.58	31.5	0.08	0.63	0.15	0.62	0.1	0.07	<0.01	<0.01	<0.01	<0.01	0.04	0.1	0.07	<0.01	<0.01	<0.05	0.07	0.01	0.09	<0.01	<0.01	<0.01	<0.01	0.17	0.25	<1	<1	<1	<2	<1	<3	<10	6.7	<20	30	120	25
GW16-30	Dec-20	12/01/2021	2.64	6.78	181.5	48.1	2.54	31.2	<0.01	<0.1	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1	<2	<1	<3	<10	0.2	<20	240	31	<25
GW2-12	Dec-20	12/01/2021	1.67	8.36	22447	152.2	3.44	32.2	<0.01	<0.1	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1	<2	<1	<3	<10	0.35	62	10	7100	93
GW2-3	Dec-20	12/01/2021	1.01	9.01	2692	107.9	4.43	31.9	<0.01	<0.1	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1	<2	<1	<3	<10	1.2	<20	<10	690	<25
GW3-12	Dec-20	12/01/2021	2.97	7.38	507	137.4	3.38	32.2	<0.01	<0.1	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1	<2	<1	<3	<10	0.35	<20	20	140	<25
GW3-3	Dec-20	12/01/2021	1.78	7.87	144.5	101.6	2.94	32.1	<0.01	<0.1	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1	<2	<1	<3	<10	2.9	<20	130	43	<25
GW4-12	Dec-20	12/01/2021	2.08	11.05	7140	43.5	2.62	29.4	<0.01	<0.1	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1	<2	<1	<3	370	0.31	550	130	2200	28
GW4-3	Dec-20	12/01/2021	0.8	6.67	860	146.8	2.84	29.6	<0.01	<0.1	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1	<2	<1	<3	<10	<0.05	<20	200	240	<25
GW4-30	Dec-20	12/01/2021	-0.28	8.68	1576	111	3.37	28.1	<0.01	<0.1	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1	<2	<1	<3	<10	<0.05	36	2400	1000	<25
GW5-12	Dec-20	12/01/2021	-0.14	7.77	3848	125.6	2.37	29.8	<0.01	<0.1	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1	<2	<1	<3	<10	0.2	120	140	920	<25
GW5-3	Dec-20	12/01/2021	0.92	7.93	3332	128.1	3.78	29.7	0.03	0.25	0.05	0.21	0.04	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	0.08	0.02	<0.01	<0.01	<0.05	0.02	0.02	0.02	0.02	<0.01	<0.01	<0.01	0.1	0.13	<1	<1	<1	<2	<1	<3	<10	0.61	76	30	1300	35
GW7-12	Dec-20	12/01/2021	-0.09	6.83	9322	147.7	0.08	28.7	0.02	<0.1	0.05	0.07	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.05	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.05	0.07	<1	<1	<1	<2	<1	<3	<10	0.1	160	240	3400	<25
GW7-3	Dec-20	12/01/2021	0.84	6.54	14398	164.1	4.14	28.4	0.11	1.23	0.33	1.16	0.25	0.14	<0.01	<0.01	<0.01	0.01	0.04	0.19	0.11	<0.01	0.02	<0.05	0.22	0.02	0.1	0.02	<0.01	<0.01	<0.01	0.41	0.52	<1	<1	<1	<2	<1	<3	<10	24	99	120	4500	91
GW8-12	Dec-20	12/01/2021	0.51	6.05	57125	169.4	3.35	29	<0.01	<0.1	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1	<2	<1	<3	<10	0.24	310	2500	47,000	450
GW8-3	Dec-20	12/01/2021	0.84	6.64	4614	117.4	0.34	29.7	0.29	2.11	1.15	1.97	0.08	0.14	<0.01	<0.01	<0.01	0.03	0.06	0.33	0.11	<0.01	0.04	<0.05	0.86	0.04	0.1	0.03	<0.01	<0.01	<0.01	1.19	1.48	<1	<1	<1	<2	<1	<3	<10	38	92	5600	3600	47
GW9-12	Dec-20	12/01/2021	3.49	7.84	127.3	42.7	2.91	32.3	<0.01	<0.1	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1	<2	<1	<3	<10	0.18	<20	10	6.9	<25
LMP02	Dec-20	12/01/2021	-	6.69	1872	-34.8	1.47	29.5	0.25	2	0.86	1.81	0.1	0.18	<0.01	<0.01	<0.01	0.02	0.07	0.3	0.17	<0.01	0.02	<0.05	0.61	0.03	0.13	0.02	<0.01	<0.01	<0.01	0.91	1.16	<1	<1	<1	<2	<1	<3	<10	0.06	720	98,000	180	110
LP02	Dec-20	12/01/2021	-	8.34	14675	77.5	1.38	31.7	3.1	32.06	8.6	28.69	9.4	1.7	<0.01	0.92	0.04	0.1	0.55	0.75	3.2	<0.01	0.5	<0.05	5.5	0.08	2.1	0.06	<0.01	0.02	0.07	6.25	9.35	<10	<10	<10	<20	<10	<30	600	<5	4600	810,000	1600	2700

Data Comments

* Quantification of linear and branched isomers has been conducted as a single total response using the relative response factor for the corresponding linear/branched standard.

Cardno

			Field						PFAS																								BTEX						Inorganics					
			SWL	Ph	Electrical conductivity	Redox Potential	Dissolved Oxygen	Temp (Field)	Perfluorooctanoate (PFOA)	Sum of PFASs (n=30)*	Sum of US EPA PFAS (PFOS + PFOA)*	Sum of WA DWER PFAS (n=10)*	Perfluorobutanesulfonic acid (PFBS)	Perfluorobutanoic acid (PFBA)	Perfluorodecanesulfonic acid (PFDS)	Perfluorodecanoic acid (PFDA)	Perfluorododecanoic acid (PFDoDA)	Perfluoroheptanesulfonic acid (PFHpS)	Perfluoroheptanoic acid (PFHpA)	Perfluorohexanesulfonic acid (PFHxS)	Perfluorohexanoic acid (PFHxA)	Perfluorononanesulfonic acid (PFNS)	Perfluorononanoic acid (PFNA)	Perfluorooctane sulfonamide (FOSA)	Perfluorooctanesulfonic acid (PFOS)	Perfluoropentanesulfonic acid (PFPeS)	Perfluoropentanoic acid (PFPeA)	Perfluoropropanesulfonic acid (PFPrS)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnDA)	Sum (PFHxS + PFOS)*	Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	Benzene	Ethylbenzene	Toluene	Xylene (m & p)	Xylene (o)	Xylene Total	Carbonate Alkalinity (as CaCO3)	Nitrite + Nitrate as N	Alkalinity (total) as CaCO3	Ammonia as N	Chloride	COD
			mbtoc	pH	uS/cm	mV	mg/L	oC	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	MG/L	mg/L	mg/L	µg/L	mg/L	mg/L
EQL									0.01	0.1	0.01	0.05	0.01	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	1	1	1	2	1	3	10	0.05	20	10	1	25
ANZG (2018) Marine water 90% toxicant DGVs				6-8																													900									1200		
PFAS National EMP (2020) Interim marine water 90%									623																2																			
PFAS National EMP (2020) Interim marine water 95%									220																0.13																			
Leachate Impact Indicator																																												
Field ID	Monitoring Round	Sample Date																																											
STG1&2	Dec-20	12/01/2021	-	7.6	210.3	10.9	4.31	34.1	<0.01	<0.1	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1	<2	<1	<3	<10	-	44	90	32	28
SW12	Dec-20	12/01/2021	-	7.28	1359	56.2	2.22	29.3	0.22	1.88	0.25	1.87	0.44	0.17	<0.01	0.01	<0.01	<0.01	0.11	0.03	0.37	<0.01	<0.01	<0.05	0.03	<0.01	0.5	<0.01	<0.01	<0.01	<0.01	0.06	0.28	<1	<1	<1	<2	<1	<3	<10	-	130	1400	250	120
SW2	Dec-20	12/01/2021	-	6.7	8817	64.6	5.02	36.5	0.14	2.35	0.18	2.32	0.64	0.21	<0.01	<0.01	<0.01	<0.01	0.08	0.09	0.4	<0.01	<0.01	<0.05	0.04	0.02	0.72	0.01	<0.01	<0.01	<0.01	0.13	0.27	<1	<1	<1	<2	<1	<3	<10	-	30	2200	42
TC SUMP	Dec-20	12/01/2021	-	7.69	15224	80.6	1.34	32	1.7	19.59	2.15	19.1	10	1.9	<0.01	0.06	<0.01	0.01	0.65	0.43	2	<0.01	0.09	<0.05	0.45	0.05	1.4	0.06	<0.01	<0.01	<0.01	0.88	2.58	<10	<10	<10	28	24	52	<10	<5	5600	940,000	1300	3600
WHEELWASH	Dec-20	12/01/2021	-	7.19	665	15.1	0.26	29.5	<0.01	0.23	0.04	0.23	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.05	0.04	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	0.04	0.04	<1	<1	<1	<2	<1	<3	<10	-	330	9800	13	<25
WW5	Dec-20	12/01/2021	1.03	5.78	8836	108.1	0.71	28.9	0.04	0.94	0.04	0.94	0.26	0.12	<0.01	<0.01	<0.01	<0.01	0.04	0.03	0.21	<0.01	<0.01	<0.05	<0.01	<0.01	0.24	<0.01	<0.01	<0.01	<0.01	0.03	0.07	<1	<1	<1	<2	<1	<3	<10	1	31	1600	2600	28
WW6	Dec-20	12/01/2021	1.75	5.31	69960	165.1	0.84	30.5	<0.01	<0.1	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1	<2	<1	<3	<10	<0.05	43	1700	32,000	65
WW7	Dec-20	12/01/2021	1.06	6.38	3979	99	0.73	30.7	0.17	2.51	0.19	2.5	0.21	0.41	<0.01	<0.01	<0.01	<0.01	0.19	0.07	0.48	<0.01	<0.01	<0.05	0.02	0.01	0.95	<0.01	<0.01	<0.01	<0.01	0.09	0.26	<1	<1	<1	<2	<1	<3	<10	4.7	34	1200	1100	59
WW9	Dec-20	12/01/2021	12.1	6.1	2356	140.5	1.43	28.5	<0.01	<0.1	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1	<2	<1	<3	<10	0.08	<20	<10	990	<25
DW2	Jan-21	10/02/2021	2.77	7.07	9742	1468	1.31	38.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1400
DW3	Jan-21	10/02/2021	-	7.65	26175	88.3	1.83	36.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4900
GW10-12	Jan-21	10/02/2021	1.6	5.23	69.4	133.6	4.31	28.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	<20	450	29	<25
GW10-3	Jan-21	10/02/2021	1.29	6.31	49.4	103.2	1.77	28.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	<20	20	66	<25
GW11-12	Jan-21	10/02/2021	1.15	6.92	55.7	1176	4.06	28.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	<20	40	34	<25
GW1-12	Jan-21	10/02/2021	0.91	9.08	7031	17.2	2.01	29.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	190	-	1600	1500	880	<25
GW11-3	Jan-21	10/02/2021	0.92	5.78	69.6	138.7	2.43	28.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	<20	70	26	<25
GW12-12	Jan-21	10/02/2021	1.25	6.27	176	66.6	3.17	30.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	<20	20	25	<25
GW12-3	Jan-21	10/02/2021	0.64	6.13	1406	120.7	2.29	29.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	200	1500	290	91
GW12-30	Jan-21	10/02/2021	1.36	5.84	96.1	88.7	2.47	30.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	<20	20	23	<25
GW1-3	Jan-21	10/02/2021	0.85	5.39	1531	169.4	4.25	29.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	<20	30	410	<25
GW13-12	Jan-21	10/02/2021	6.72	5.78	46.7	-15.6	0.65	32.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	39	3200	89	<25
GW15-12	Jan-21	10/02/2021	0.81	5.71	3021	138.5	4.91	28.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	<20	30	870	130
GW15-3	Jan-21	10/02/2021	0.69	6.12	305.1	101.3	1.06	28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	25	60	86	<25
GW16-12	Jan-21	10/02/2021	1.76	6.83	269.9	98.2	2.7	29.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	72	20	69	<25
GW16-3	Jan-21	10/02/2021	1.41	7.4	624	68.4	0.52	29.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	<20	150	150	<25
GW16-30	Jan-21	10/02/2021	6.43	6.5	205.8	101.7	3.74	31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	<20	30	58	<25
GW2-12	Jan-21	10/02/2021	1.19	7.81	21095	1256	4.47	30.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	61	30	6900	86
GW2-3	Jan-21	10/02/2021	0.94	8.25	3400	93.3	5.45	30.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	<20	20	1000	<25
GW3-12	Jan-21	10/02/2021	1.62	7.74	486.1	122.9	3.23	30.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	<20	50	530	<25
GW3-3	Jan-21	10/02/2021	1.54	7.98	135.6	52.7	1.79	30.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	<20	20	17	<25
GW5-12	Jan-21	10/02/2021	o/f	7.79	5808	124.1	2.1	29.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	120	20	1700	<25
GW5-3	Jan-21	10/02/2021	1.06	7.98	3410	117.2	4.78	29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	91	40	850	<25
GW8-12	Jan-21	10/02/2021	0.05	6.38	80200	110.8	0.28	28.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	320	3600	32,000	200
GW8-3	Jan-21	10/02/2021	0.74	7.07	4807	56.6	3.09	28.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	46	18,000	14,000	66
GW9-12	Jan-21	10/02/2021	2.91	8.28	41.2	61.3	2.81	30.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	<20	50	19	30
GWSUMP	Jan-21	10/02/2021	-	7.59	1264	108	4.68	32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	280	2800	380	260
LMP02	Jan-21	10/02/2021	-	6.83	3849	-142.9	0.37	30.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	210
LP01	Jan-21	10/02/2021	-	7.98	14256	-190.2	0.83	29.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	110
LP02	Jan-21	10/02/2021	-	7.93	916	-41.6	276	29.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2300
STG1&2	Jan-21	10/02/2021	-	7.97	181.2	-15.1	5.22	30.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	30	70	31	<25
SW12	Jan-21	10/02/2021	-	6.21	1033	120.2	5.52	31.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	200	8800	190	79
TCSUMP	Jan-21	10/02/2021	2.29	7.69	17317	107.3	0.54	31.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	300
WHEELWASH	Jan-21	10/02/2021	-	7.42	736	-8.2	2.1	28.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	340	8000	45	28
WW13	Jan-21	10/02/2021	6.5	5.38	11875	186.3	5.2	31.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	<20	50	7100	160
WW5	Jan-21	10/02/2021	0.89	6.27	8579	132.4	2.21	28.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	<20	50	3000	<25
WW6	Jan-21	10/02/2021	1.47	5.12	34692	132.6	1.18	29.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	29	1400	27,000	180
WW7	Jan-21	10/02/2021	0.96	5.53	3055	826	0.46	29.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	<20	3900	960	40
WW9	Jan-21	10/02/2021	0.59	6.01	975	156.6	0.98	27.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	<20	50	1300	<25
DW2	Feb-21	10/03/2021	6.26	7.12	9467	1386	1.1	38.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2000
DW3	Feb-21	10/03/2021	-	7.65	24978	91.4	1.68	37.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4700

Data Comments

* Quantification of linear and branched isomers has been conducted as a single total response using the relative response factor for the corresponding linear/branched standard.

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			Field						PFAS																								BTEX						Inorganics					
			SWL	Ph	Electrical conductivity	Redox Potential	Dissolved Oxygen	Temp (Field)	Perfluorooctanoate (PFOA)	Sum of PFASs (n=30)*	Sum of US EPA PFAS (PFOS + PFOA)*	Sum of WA DWER PFAS (n=10)*	Perfluorobutanesulfonic acid (PFBS)	Perfluorobutanoic acid (PFBA)	Perfluorodecanesulfonic acid (PFDS)	Perfluorodecanoic acid (PFDA)	Perfluorododecanoic acid (PFDoDA)	Perfluoroheptanesulfonic acid (PFHpS)	Perfluoroheptanoic acid (PFHpA)	Perfluorohexanesulfonic acid (PFHxS)	Perfluorohexanoic acid (PFHxA)	Perfluorononanesulfonic acid (PFNS)	Perfluorononanoic acid (PFNA)	Perfluorooctane sulfonamide (FOSA)	Perfluorooctanesulfonic acid (PFOS)	Perfluoropentanesulfonic acid (PFPeS)	Perfluoropentanoic acid (PFPeA)	Perfluoropropanesulfonic acid (PFPrS)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnDA)	Sum (PFHxS + PFOS)*	Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	Benzene	Ethylbenzene	Toluene	Xylene (m & p)	Xylene (o)	Xylene Total	Carbonate Alkalinity (as CaCO3)	Nitrite + Nitrate as N	Alkalinity (total) as CaCO3	Ammonia as N	Chloride	COD
			mbtoc	pH	uS/cm	mV	mg/L	oC	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	MG/L	mg/L	mg/L	µg/L	mg/L	mg/L
EQL									0.01	0.1	0.01	0.05	0.01	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	1	1	1	2	1	3	10	0.05	20	10	1	25
ANZG (2018) Marine water 90% toxicant DGVs				6-8																													900									1200		
PFAS National EMP (2020) Interim marine water 90%									623																2																			
PFAS National EMP (2020) Interim marine water 95%									220																0.13																			
Leachate Impact Indicator																																												
Field ID	Monitoring Round	Sample Date																																										
GW5-3	Mar-21	14/04/2021	1.47	6.89	3297	-28.7	2.17	28.1	<0.01	<0.1	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.01	<1	<1	<1	<2	<1	<3	<10	0.93	81	<10	890	260
GW9-12	Mar-21	14/04/2021	3.94	6.24	65.1	-47.9	3.88	30.1	<0.01	<0.1	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1	<2	<1	<3	<10	0.49	<20	30	8.2	<25
L95A	Mar-21	-	6.92	2995	21.4	2.23	29.5	0.74	23.32	0.91	23.15	11	1.2	<0.01	0.05	<0.01	<0.01	0.22	0.09	5.6	<0.01	0.04	<0.05	0.17	<0.01	3.6	0.08	<0.01	<0.01	<0.01	0.26	1	<100	<100	<100	<200	<100	<300	<10	<2.5	5600	1,600,000	2600	3900
LMP02	Mar-21	14/04/2021	-	7.83	438.4	97.3	4.88	29.9	0.45	3.6	1.34	3.44	0.27	0.42	<0.01	<0.01	<0.01	0.03	0.13	0.61	0.37	<0.01	0.04	<0.05	0.89	0.05	0.29	0.04	<0.01	<0.01	<0.01	1.5	1.95	1	5	<1	<2	<1	<3	<10	<0.05	1200	220,000	440	210
LP01	Mar-21	14/04/2021	-	8.05	13556	-26.9	0.93	29.3	0.16	1.74	0.43	1.51	0.56	0.07	<0.01	0.05	<0.01	<0.01	0.03	0.05	0.18	<0.01	0.02	<0.05	0.27	<0.01	0.11	<0.01	<0.01	<0.01	<0.01	0.32	0.48	<1	<1	<1	<2	<1	<3	<10	11	240	32,000	150	110
LP02	Mar-21	14/04/2021	-	7.49	23335	-16.8	1.1	30.5	1.8	21.36	3.7	20.72	9.4	1.3	<0.01	0.28	<0.01	0.04	0.46	0.58	3	<0.01	0.18	<0.05	1.9	0.04	1.4	0.06	<0.01	<0.01	0.02	2.48	4.28	<100	<100	<100	<200	<100	<300	460	<2.5	2800	650,000	1900	2400
STG1&2	Mar-21	14/04/2021	-	6.79	163.4	-44.8	2.49	24.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	<1	<2	<1	<3	<10	-	22	110	29	-
SW12	Mar-21	14/04/2021	-	7.58	1324	-34.5	3.98	26.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	<1	<2	<1	<3	<10	-	58	120	300	-
TC SUMP	Mar-21	14/04/2021	2.7	7.64	17668	-21.5	1.1	28	2.2	22.92	2.79	22.43	12	1.9	<0.01	0.06	<0.01	0.02	0.64	0.52	2.7	<0.01	0.08	<0.05	0.59	0.03	1.3	0.08	<0.01	<0.01	<0.01	1.11	3.31	<100	<100	<100	<200	<100	<300	<10	<2.5	450	1,200,000	2100	2900
WHEELWASH	Mar-21	14/04/2021	-	7.08	534	-20.5	2.63	29.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	<1	<2	<1	<3	<10	-	90	620	13	-
WW13	Mar-21	14/04/2021	6.34	5.19	18724	13	3.49	31.6	<0.01	<0.1	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1	<2	<1	<3	<10	0.48	<20	<10	4200	77
WW5	Mar-21	14/04/2021	1.26	5.32	8607	-22.2	1.33	28.3	0.04	0.7	0.04	0.7	0.2	0.09	<0.01	<0.01	<0.01	<0.01	0.03	0.02	0.15	<0.01	<0.01	<0.05	<0.01	<0.01	0.17	<0.01	<0.01	<0.01	<0.01	0.02	0.06	<1	<1	<1	<2	<1	<3	<10	3.9	<20	20	2400	64
WW6	Mar-21	14/04/2021	1.62	7.92	20045	-48.2	0.89	28.8	<0.01	<0.1	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1	<2	<1	<3	<10	<0.05	27	2700	26,000	300
WW7	Mar-21	14/04/2021	1.12	5.99	3418	-135.5	0.85	29.4	0.21	3.12	0.23	3.1	0.22	0.71	<0.01	<0.01	<0.01	<0.01	0.19	0.09	0.66	<0.01	<0.01	<0.05	0.02	0.02	1	<0.01	<0.01	<0.01	<0.01	0.11	0.32	<1	<1	<1	<2	<1	<3	<10	<0.05	48	7500	760	120
DW2	Apr-21	12/05/2021	-	7.8	20680	29.1	5.76	29.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3400
DW3	Apr-21	12/05/2021	-	7.74	31594	-2.2	1.17	37.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5800
GW SUMP	Apr-21	12/05/2021	-	9.1	1139	60.4	13.24	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	270	120	160	330
GW10-12	Apr-21	12/05/2021	7.13	6.35	138.1	45.2	3.87	28.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	<20	20	11	<25
GW11-12	Apr-21	12/05/2021	12.5	6.1	84.3	92.6	2.76	30.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	<20	30	9.2	<25
GW1-12	Apr-21	12/05/2021	1.67	11.92	9163	-36.8	4.6	29.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	880	-	1700	590	3000	91
GW12-12	Apr-21	12/05/2021	3.65	6.22	82.2	-14.9	3.21	30.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	<20	30	12	<25
GW12-3	Apr-21	12/05/2021	2.08	6.31	1268	-16	1.84	29.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	180	1400	220	98
GW12-30	Apr-21	12/05/2021	3.87	5.75	100.5	60.3	2.04	30.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	<20	40	5.1	<25
GW1-3	Apr-21	12/05/2021	1.88	5.26	1546	157.2	8.7	29.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	<20	20	390	<25
GW13-12	Apr-21	12/05/2021	8.66	6.5	396.2	-35	3.91	29.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	41	2500	78	<25
GW14-12	Apr-21	12/05/2021	1.71	7.17	16849	39.6	6.2	29.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	<20	80	5800	96
GW14-3	Apr-21	12/05/2021	1.44	6.93	4474	8.5	4.23	28.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	<20	70	1200	25
GW15-12	Apr-21	12/05/2021	2.23	6.46	3181	-3.7	3.97	29.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	<20	30	850	<25
GW15-3	Apr-21	12/05/2021	1.74	7.11	383.9	-81.8	1.96	29.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	28	200	86	<25
GW16-12	Apr-21	12/05/2021	2.2	6.09	305.7	66.4	1.58	30.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	31	40	61	<25
GW16-3	Apr-21	12/05/2021	2.89	6.31	579	60.8	1.96	30.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	<20	520	110	<25
GW16-30	Apr-21	12/05/2021	6.93	5.72	289.3	104.3	1.32	31.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	<20	20	47	<25
GW2-12	Apr-21	12/05/2021	2.01	8.07	21594	97.4	3.46	31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	61	130	7700	160
GW2-3	Apr-21	12/05/2021	1.98	8.76	3946	66.5	4.22	31.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	<20	60	1100	150
GW3-12	Apr-21	12/05/2021	3.01	8	574	31.8	6.32	30.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	<20	<10	200	40
GW4-12	Apr-21	12/05/2021	1.73	11.55	6101	62.5	3.77	28.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	120	-	660	130	2300	40
GW4-3	Apr-21	12/05/2021	1.87	6.28	2026	190.9	2.29	28.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	<20	30	540	<25
GW4-30	Apr-21	12/05/2021	o/f	7.94	2036	93.9	4.09	29.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	300	2500	22,000	640
GW5-12	Apr-21	12/05/2021	o/f	7.58	4642	83.9	4.01	28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	110	30	1300	<25
GW5-3	Apr-21	12/05/2021	1.52	7.97	3409	71.9	3.82	28.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	86	30	850	88
GW7-12	Apr-21	12/05/2021	o/f	6.98	8183	57.5	1.87	22.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	150	180	2600	49
GW7-3	Apr-21	12/05/2021	1.1	7.35	14954	70.2	4.62	27.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	97	30	4600	57
GW8-12	Apr-21	11/05/2021	0.7	6.64	76289	21	2.52	27.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	320	3300	33,000	2900
GW8-3	Apr-21	12/05/2021	1.12	6.62	16096	5	0.8	27.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	53	17,000	9200	91
GW9-12	Apr-21	12/05/2021	6.79	6.86	97.8	67.6	1.87	29.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	<20	20	6	35
LMP02	Apr-21	12/05/2021	-	6.88	4772	-133.7	0.99	28.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	820
LP01	Apr-21	12/05/2021	-	8.13	1443	79.9	3.97	27.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	160
LP02	Apr-21	12/05/2021	-	8.68	12574	54.7	3.16	27.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2600
LS5B	Apr-21	12/05/2021	-	7.62	20292	-211.4	5.7	26.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3600
NEDAM	Apr-21	15/04/2021	-	8.15	2190	28.2	9.15	27.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<50	<50	<50	<100	<50	<150	-	-	-	580,000	-	1500

Data Comments

* Quantification of linear and branched isomers has been conducted as a single total response using the relative response factor for the corresponding linear/branched standard.

Cardno

			Field						PFAS																											BTEX						Inorganics					
			SWL	Ph	Electrical conductivity	Redox Potential	Dissolved Oxygen	Temp (Field)	Perfluorooctanoate (PFOA)	Sum of PFASs (n=30)*	Sum of US EPA PFAS (PFOS + PFOA)*	Sum of WA DWER PFAS (n=10)*	Perfluorobutanesulfonic acid (PFBS)	Perfluorobutanoic acid (PFBA)	Perfluorodecanesulfonic acid (PFDS)	Perfluorodecanoic acid (PFDA)	Perfluorododecanoic acid (PFDoDA)	Perfluoroheptanesulfonic acid (PFHpS)	Perfluoroheptanoic acid (PFHpA)	Perfluorohexanesulfonic acid (PFHxS)	Perfluorohexanoic acid (PFHxA)	Perfluorononanesulfonic acid (PFNS)	Perfluorononanoic acid (PFNA)	Perfluorooctane sulfonamide (FOSA)	Perfluorooctanesulfonic acid (PFOS)	Perfluoropentanesulfonic acid (PFPeS)	Perfluoropentanoic acid (PFPeA)	Perfluoropropanesulfonic acid (PFPrS)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnDA)	Sum (PFHxS + PFOS)*	Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	Benzene	Ethylbenzene	Toluene	Xylene (m & p)	Xylene (o)	Xylene Total	Carbonate Alkalinity (as CaCO3)	Nitrite + Nitrate as N	Alkalinity (total) as CaCO3	Ammonia as N	Chloride	COD
			mbtoc	pH	uS/cm	mV	mg/L	oC	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	MG/L	mg/L	mg/L	µg/L	mg/L	mg/L
EQL									0.01	0.1	0.01	0.05	0.01	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	1	1	1	2	1	3	10	0.05	20	10	1	25
ANZG (2018) Marine water 90% toxicant DGVs				6-8																													900									1200		
PFAS National EMP (2020) Interim marine water 90%									623																2																				
PFAS National EMP (2020) Interim marine water 95%									220																0.13																				
Leachate Impact Indicator																																													
Field ID	**Monitoring Round**	**Sample Date**																																												
SW12	Apr-21	12/05/2021	-	**8.15**	2190	28.2	9.15	27.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	240	**22,000**	510	170
TC SUMP	Apr-21	12/05/2021	2.12	7.87	21450	39.8	1.75	34.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3200
WHEELWASH	Apr-21	12/05/2021	-	7.39	569	13.2	3.29	27.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	120	240	26	590
WW13	Apr-21	12/05/2021	7.69	**5.47**	19768	1056	3.7	30.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	<20	30	5800	240
WW5	Apr-21	12/05/2021	2.21	6.64	8583	-1.1	3.4	29.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	<20	90	2300	40
WW6	Apr-21	12/05/2021	2.18	**5.57**	3304	-76.3	0.89	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	78	**4500**	24,000	1100
WW7	Apr-21	12/05/2021	1.73	**5.47**	5432	-25.9	1.2	29.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	65	**13,000**	810	71
WW9	Apr-21	12/05/2021	1.65	**5.77**	1670	117.1	6.8	27.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	<20	70	3000	83
Statistical Summary																																													
Number of Results			268	309	309	309	309	308	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	90	90	90	90	90	90	262	64	262	244	262	302
Number of Detects			268	309	309	309	309	308	43	44	47	48	40	35	0	13	2	13	36	42	43	0	17	0	42	24	44	24	0	2	3	45	48	1	2	1	2	4	4	15	45	161	208	262	189
Minimum Concentration			-0.28	3.7	1.8	-451.5	0.04	21.8	6E-05	<0.1	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1	<2	<1	<3	<10	<0.05	<20	<10	3.4	<25
Minimum Detect			ND	3.7	1.8	ND	0.04	21.8	6E-05	0.1	0.01	0.07	0.01	0.05	ND	0.01	0.01	0.01	0.01	0.01	0.01	ND	0.02	ND	0.02	0.01	0.01	0.01	ND	0.01	0.02	0.01	0.01	1	5	26	28	24	42	18	0.05	21	10	3.4	25
Maximum Concentration			15.02	13.24	85362	1489	276	40.6	3.1	36.1	8.6	35.2	21	1.9	<0.05	0.92	<0.05	0.1	0.76	1.2	5.6	<0.05	0.5	<0.05	5.5	0.08	3.6	0.25	<0.05	<0.05	0.07	6.25	9.35	<100	<100	<100	<200	<100	<300	880	38	8700	1600000	61000	6600
Maximum Detect			15.02	13.24	85362	1489	276	40.6	3.1	36.1	8.6	35.2	21	1.9	ND	0.92	0.04	0.1	0.76	1.2	5.6	ND	0.5	ND	5.5	0.08	3.6	0.25	ND	0.02	0.07	6.25	9.35	1	24	26	52	64	88	880	38	8700	1600000	61000	6600
Average Concentration			3.5	6.9	10651	86	4	30	0.27	3.5	0.48	3.4	1.5	0.27	0.005	0.03	0.006	0.009	0.09	0.11	0.51	0.005	0.02	0.03	0.21	0.01	0.33	0.02	0.005	0.006	0.006	0.32	0.59	3.4	3.7	3.6	7.4	5	12	26	2.2	319	37180	4431	709
Median Concentration			2.08	6.79	3381	67.6	2.81	29.7	0.005	0.18	0.03	0.18	0.01	0.03	0.005	0.01	0.005	0.005	0.01	0.01	0.01	0.005	0.01	0.03	0.02	0.01	0.02	0.01	0.005	0.005	0.005	0.02	0.04	0.5	0.5	0.5	1	0.5	1.5	5	0.42	38	95	845	71
Standard Deviation			3.4	1.3	16532	217	16	2.8	0.63	7.9	1.2	7.6	3.8	0.52	0.002	0.11	0.004	0.014	0.19	0.21	1.2	0.002	0.06	0	0.67	0.01	0.66	0.05	0.002	0.003	0.008	0.83	1.4	10	11	11	22	13	33	105	5.8	1065	191753	9478	1451
Number of Guideline Exceedances(Detects Only)			0	116	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	75	0	0

Data Comments

* Quantification of linear and branched isomers has been conducted as a single total response using the relative response factor for the corresponding linear/branched standard.

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	Inorganics								Metals														PAH/Phenols												TPH										Leachate
	Ferrous Iron	Nitrate (as N)	Nitrite (as N)	Reactive Phosphorus as P	Sodium	Sulphate	TDS	TOC	Lead	Cadmium	Calcium	Chromium (hexavalent)	Chromium (Trivalent)	Copper	Ferric Iron	Iron	Magnesium	Manganese	Nickel	Potassium	Zinc	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	PAHs (Sum of total)	Phenanthrene	Pyrene	C10-C16	C16-C34	C34-C40	F2-NAPHTHALENE	C6 - C9	+C10 - C36 (Sum of total)	C10 - C14	C15 - C28	C29-C36	C10 - C40 (Sum of total)	C6-C10	Leachate Impact Indicator is determined as follows: L/N = (K+ + NH4+ + NO3-) / (Ca2+ + Na+ + Mg2+) x 100'
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	
EQL	0.05	0.02	0.02	0.01	0.5	5	10	5	0.001	0.0002	0.5	0.005	0.001	0.001	0.05	0.05	0.5	0.01	0	0.5	0.01	1	1	1	1	1	1	1	1	1	1	1	1	0.05	0.1	0.1	0.05	20	100	50	100	100	100	0.02	
ANZG (2018) Marine water 90% toxicant DGVs									0.0066	0.014		0.02	0.0486	0.003					0.2		0.023									90																
PFAS National EMP (2020) Interim marine water 90																																													
PFAS National EMP (2020) Interim marine water 95																																													
Leachate Impact Indicator																																													10

Field ID	Monitoring Round	Sample Date																																												
DW2	Jul-20	7/08/2020	-	-	-	-	-	-	-	1400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW1-12	Jul-20	7/08/2020	-	-	-	-	5900	1400	27,000	20	-	-	940	-	-	-	-	-	830	-	-	27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.352542
GW12-12	Jul-20	7/08/2020	-	-	-	-	4.8	5.9	41	<5	-	-	4.7	-	-	-	-	-	<0.5	-	-	1.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW12-30	Jul-20	7/08/2020	-	-	-	-	2.5	<5	18	6.5	-	-	0.8	-	-	-	-	-	0.6	-	-	0.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	21.02564
GW13-12	Jul-20	7/08/2020	-	-	-	-	42	<5	200	13	-	-	7.1	-	-	-	-	-	1.3	-	-	8.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22.02381
GW14-12	Jul-20	7/08/2020	-	-	-	-	2800	540	7300	8.9	-	-	240	-	-	-	-	-	280	-	-	67	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.020181
GW15-12	Jul-20	7/08/2020	-	-	-	-	160	150	1800	6.4	-	-	40	-	-	-	-	-	48	-	-	9.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.693548
GW15-12 (1)	Jul-20	7/08/2020	-	-	-	-	230	110	1600	8.1	-	-	14	-	-	-	-	-	27	-	-	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.140221
GW2-12	Jul-20	7/08/2020	-	-	-	-	4200	1200	15,000	11	-	-	380	-	-	-	-	-	480	-	-	39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.771146
GW3-12	Jul-20	7/08/2020	-	-	-	-	160	37	840	11	-	-	26	-	-	-	-	-	16	-	-	4.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.118812
GW4-12	Jul-20	7/08/2020	-	-	-	-	1700	320	4600	8.5	-	-	140	-	-	-	-	-	120	-	-	49	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.504082
GW4-30	Jul-20	7/08/2020	-	-	-	-	600	2400	39,000	<5	-	-	56	-	-	-	-	-	80	-	-	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.183424
GW7-12	Jul-20	7/08/2020	-	-	-	-	1500	350	4100	7.1	-	-	40	-	-	-	-	-	89	-	-	43	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.655617
GW7-3	Jul-20	7/08/2020	-	-	-	-	3600	1100	12,000	20	-	-	260	-	-	-	-	-	500	-	-	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.297477
GW8-12	Jul-20	7/08/2020	-	-	-	-	16,000	3300	62,000	14	-	-	1200	-	-	-	-	-	2200	-	-	400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.078866
GW8-3	Jul-20	7/08/2020	-	-	-	-	3300	1100	10,000	19	-	-	220	-	-	-	-	-	430	-	-	86	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.734177
LP01	Jul-20	7/08/2020	-	-	-	-	-	-	-	1300	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LP02	Jul-20	7/08/2020	-	-	-	-	-	-	-	1100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LS5A	Jul-20	7/08/2020	-	-	-	-	-	-	-	1800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LS5B	Jul-20	7/08/2020	-	-	-	-	-	-	-	2600	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SW12	Jul-20	7/08/2020	-	-	-	-	-	99	-	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TC SUMP	Jul-20	7/08/2020	-	-	-	-	-	-	-	1400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WHEELWASH	Jul-20	7/08/2020	-	-	-	-	-	<5	-	230	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WW6	Jul-20	7/08/2020	-	-	-	-	14,000	2600	50,000	13	-	-	1600	-	-	-	-	-	1900	-	-	240	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.378286
WW7	Jul-20	7/08/2020	-	-	-	-	460	220	1700	12	-	-	74	-	-	-	-	-	70	-	-	41	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.615894
WW9	Jul-20	7/08/2020	-	-	-	-	890	180	3600	5.2	-	-	72	-	-	-	-	-	120	-	-	21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.945471
DW2	Aug-20	4/09/2020	-	-	-	-	-	-	-	800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW12-30	Aug-20	4/09/2020	-	-	-	-	2.5	<5	25	<5	-	-	1	-	-	-	-	-	0.5	-	-	0.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW13-12	Aug-20	4/09/2020	-	-	-	-	50	7.6	190	22	-	-	3.8	-	-	-	-	-	1.1	-	-	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22.76867
GW14-12	Aug-20	4/09/2020	-	-	-	-	2700	660	9300	15	-	-	210	-	-	-	-	-	250	-	-	65	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.058228
GW2-12	Aug-20	4/09/2020	-	-	-	-	4600	1200	14,000	22	-	-	360	-	-	-	-	-	480	-	-	41	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.754044
GW4-12	Aug-20	4/09/2020	-	-	-	-	1700	320	4700	15	-	-	120	-	-	-	-	-	110	-	-	47	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.437824
GW5-12	Aug-20	4/09/2020	-	-	-	-	580	140	1700	5.1	-	-	12	-	-	-	-	-	24	-	-	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW7-12	Aug-20	4/09/2020	-	-	-	-	1600	340	4500	22	-	-	40	-	-	-	-	-	84	-	-	47	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.735499
GW8-12	Aug-20	4/09/2020	-	-	-	-	17,000	3300	57,000	35	-	-	1100	-	-	-	-	-	2100	-	-	390	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.937129
GW8-3	Aug-20	4/09/2020	-	-	-	-	3800	1200	11,000	49	-	-	230	-	-	-	-	-	470	-	-	93	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.422222
LP01	Aug-20	4/09/2020	-	-	-	-	-	-	-	620	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LP02	Aug-20	4/09/2020	-	-	-	-	-	-	-	1400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LS5A	Aug-20	4/09/2020	-	-	-	-	-	-	-	1700	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LS5B	Aug-20	4/09/2020	-	-	-	-	-	-	-	2600	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SW12	Aug-20	4/09/2020	-	-	-	-	-	130	-	250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TC SUMP	Aug-20	4/09/2020	-	-	-	-	-	-	-	640	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WHEELWASH	Aug-20	4/09/2020	-	-	-	-	-	<5	-	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WW6	Aug-20	4/09/2020	-	-	-	-	13,000	2600	48,000	23	-	-	1400	-	-	-	-	-	1700	-	-	220	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.372609
DW2	Sep-20	12/10/2020	-	-	-	-	1100	100	-	920	0.018	-	40	<0.05	<0.005	0.16	-	13	33	0.22	0.18	400	0.57	<1	<1	<1	<1	<1	<1	<1	<1	<100 - 7	7	<1	<1	4.6	8.8	0.2	4.6	<200	13,300	3300	9600	400	13,600	<0.2	-
DW3	Sep-20	12/10/2020	-	-	-	-	2300	<50	-	2100	0.035	-	31	<0.05	<0.005	0.072	-	9.1	33	0.13	0.32	790	0.77	<1	<1	<1	<1	<1	<1	<1	<1	<100 - 12	12	<1	<1	10	21	0.5	10	270	30,600	7500	22,000	1100	31,500	0.4	-
GW SUMP	Sep-20	12/10/2020	0.8	-	-	-	-	13	-	-	-	-	-	-	-	-	1.4	2.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW12-30	Sep-20	12/10/2020	<0.05	-	-	-	<5	<5	-	<5	<0.001	<0.0002	<5	<0.005	<0.005	<0.001	<0.05	<0.05	<5	0.013	<0.001	<5	<0.005	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	-
GW13-12	Sep-20	12/10/2020	4.9	-	-	-	54	16	-	23	0.001	<0.0002	7	<0.005	<0.005	0.001	3.2	6.3	5.7	0.088	0.005	10	0.076	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	0.3	<0.1	<0.05	<20	300	<50	300	<100	300	<0.02	-
GW14-12	Sep-20	12/10/2020	<0.05	-	-	-	3000	620	-	<5	<0.001	0.0009	170	0.037	0.029	0.004	<0.05	<0.05	250	2.8	0.045	69	0.098	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	-
GW2-12	Sep-20	12/10/2020	<0.05	-	-	-	5000	1200	-	<5	<0.001	0.002	390	<0.005	0.003	0.001	<0.05	<0.05	510	0.03	0.082	45	0.49	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	-

Data Comments

* Quantification of linear and branched isomers has been conducted as a single total response using the relative response factor for the corresponding linear/branched standard.

Cardno

	Inorganics								Metals													PAH/Phenols																TPH									Leachate
	Ferrous Iron	Nitrate (as N)	Nitrite (as N)	Reactive Phosphorus as P	Sodium	Sulphate	TDS	TOC	Lead	Cadmium	Calcium	Chromium (hexavalent)	Chromium (Trivalent)	Copper	Ferric Iron	Iron	Magnesium	Manganese	Nickel	Potassium	Zinc	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	PAHs (Sum of total)	Phenanthrene	Pyrene	C10-C16	C16-C34	C34-C40	F2-NAPHTHALENE	C6 - C9	+C10 - C36 (Sum of total)	C10 - C14	C15 - C28	C29-C36	C10 - C40 (Sum of total)	C6-C10	Leachate Impact Indicator is determined as follows: L/N = (K+ + NH4+ + NO3-) / (Ca2+ + Na+ + Mg2+) x 100'
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	
EQL	0.05	0.02	0.02	0.01	0.5	5	10	5	0.001	0.0002	0.5	0.005	0.001	0.001	0.05	0.05	0.5	0.01	0	0.5	0.01	1	1	1	1	1	1	1	1	1	1	1	1	0.05	0.1	0.1	0.05	20	100	50	100	100	100	0.02	
ANZG (2018) Marine water 90% toxicant DGVs									0.0066	0.014		0.02	0.0486	0.003					0.2		0.023									90																
PFAS National EMP (2020) Interim marine water 90																																													
PFAS National EMP (2020) Interim marine water 95																																													
Leachate Impact Indicator																																													10

Field ID	Monitoring Round	Sample Date																																												
GW2-3	Sep-20	12/10/2020	<0.05	-	-	-	120	20	-	<5	<0.001	<0.0002	13	<0.005	<0.005	0.001	<0.05	<0.05	13	0.02	0.002	<5	0.016	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	-
GW4-30	Sep-20	12/10/2020	0.22	-	-	-	10,000	2700	-	<5	<0.005	<0.001	680	<0.005	<0.005	<0.005	3.88	0.36	1300	4.3	<0.005	230	<0.025	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	0.1	<0.1	<0.05	<20	<100	<50	<100	<100	100	<0.02	-
GW5-12	Sep-20	12/10/2020	<0.05	-	-	-	560	130	-	<5	<0.001	<0.0002	8.1	0.006	<0.005	<0.001	<0.05	<0.05	20	<0.005	<0.001	21	0.007	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	0.1	<0.1	<0.05	<20	<100	<50	<100	<100	100	<0.02	-
GW7-12	Sep-20	12/10/2020	<0.05	-	-	-	1800	410	-	<5	<0.001	<0.0002	44	<0.005	<0.005	<0.001	0.07	<0.05	98	0.19	0.006	53	0.039	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	-
GW8-12	Sep-20	12/10/2020	0.18	-	-	-	15,000	3800	-	<5	<0.005	<0.001	950	<0.005	<0.005	<0.005	<0.05	<0.25	1800	<0.25	0.019	350	0.14	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	-
GW8-3	Sep-20	12/10/2020	<0.05	-	-	-	330	57	-	14	<0.001	<0.0002	68	<0.005	<0.005	0.008	<0.05	<0.05	46	0.094	0.003	55	0.031	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	0.08	0.5	<0.1	0.08	<20	500	<50	500	<100	580	<0.02	-
LP01	Sep-20	12/10/2020	-	-	-	-	1700	<50	-	1300	0.013	-	61	<0.05	<0.005	0.018	-	-	52	0.23	0.2	660	0.42	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	3.2	6.1	0.3	3.2	<200	9400	2200	6600	600	9600	<0.2	-
LP02	Sep-20	12/10/2020	-	-	-	-	1300	<50	-	1000	<0.01	-	67	<0.05	<0.005	0.014	-	-	53	0.19	0.15	540	0.31	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	4.3	6.8	0.2	4.3	<200	11,300	3300	7600	400	11,300	<0.2	-
SW12	Sep-20	12/10/2020	0.08	-	-	-	-	79	-	-	-	-	-	-	-	-	2.62	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TC SUMP	Sep-20	12/10/2020	-	-	-	-	1600	<5	-	1100	0.1	-	58	<0.05	<0.005	0.058	-	-	44	0.18	0.31	560	0.78	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	4.7	10	0.3	4.7	<200	14,800	3200	11,000	600	15,000	<0.2	-
WHEEL WASH	Sep-20	12/10/2020	0.11	-	-	-	-	16	-	-	-	-	-	-	-	-	52.89	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WW6	Sep-20	12/10/2020	0.68	-	-	-	12,000	3100	-	5.1	<0.005	<0.001	1500	<0.005	<0.005	<0.005	0.3	0.97	2000	53	1.2	260	0.14	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	0.05	<0.1	<0.1	0.05	<20	<100	<50	<100	<100	<100	<0.02	-
DW2	Oct-20	4/11/2020	-	-	-	-	-	-	-	1700	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DW3	Oct-20	4/11/2020	-	-	-	-	-	-	-	2500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW SUMP	Oct-20	4/11/2020	-	-	-	-	-	10	-	180	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW12-12	Oct-20	4/11/2020	-	-	-	-	12	18	90	<5	-	-	6.4	-	-	-	-	-	<5	-	-	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW12-30	Oct-20	4/11/2020	-	-	-	-	<5	<5	16	<5	-	-	<5	-	-	-	-	-	<5	-	-	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW13-12	Oct-20	4/11/2020	-	-	-	-	44	6.8	200	20	-	-	<5	-	-	-	-	-	<5	-	-	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW14-12	Oct-20	4/11/2020	-	-	-	-	2400	690	8900	<5	-	-	180	-	-	-	-	-	200	-	-	58	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW15-12	Oct-20	4/11/2020	-	-	-	-	390	130	1700	<5	-	-	51	-	-	-	-	-	52	-	-	9.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW2-12	Oct-20	4/11/2020	-	-	-	-	4800	1600	17,000	7.6	-	-	410	-	-	-	-	-	520	-	-	43	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.754101
GW4-30	Oct-20	4/11/2020	-	-	-	-	1700	3200	36,000	16	-	-	120	-	-	-	-	-	210	-	-	40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.073892
GW5-12	Oct-20	4/11/2020	-	-	-	-	530	190	1700	<5	-	-	12	-	-	-	-	-	22	-	-	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW5-3	Oct-20	4/11/2020	-	-	-	-	480	160	1600	<5	-	-	16	-	-	-	-	-	24	-	-	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW7-12	Oct-20	4/11/2020	-	-	-	-	1500	450	4800	6.1	-	-	38	-	-	-	-	-	79	-	-	45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.793445
GW8-12	Oct-20	4/11/2020	-	-	-	-	22,000	4200	62,000	12	-	-	1300	-	-	-	-	-	2400	-	-	440	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.714397
GW8-3	Oct-20	4/11/2020	-	-	-	-	2300	350	4500	20	-	-	240	-	-	-	-	-	290	-	-	87	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.427562
LMP02	Oct-20	4/11/2020	-	-	-	-	-	-	-	110	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LP01	Oct-20	4/11/2020	-	-	-	-	-	-	-	1700	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LP02	Oct-20	4/11/2020	-	-	-	-	-	-	-	1200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LS5A	Oct-20	4/11/2020	-	-	-	-	-	-	-	2000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LS5B	Oct-20	4/11/2020	-	-	-	-	-	-	-	2000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SW12	Oct-20	4/11/2020	-	-	-	-	-	130	-	44	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TC SUMP	Oct-20	4/11/2020	-	-	-	-	-	-	-	1600	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WHEEL WASH	Oct-20	4/11/2020	-	-	-	-	-	<5	-	93	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WW6	Oct-20	4/11/2020	-	-	-	-	15,000	3500	53,000	8	-	-	1600	-	-	-	-	-	2000	-	-	250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.352151
WW7	Oct-20	4/11/2020	-	-	-	-	1700	350	6300	19	-	-	180	-	-	-	-	-	180	-	-	71	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.126214
WW9	Oct-20	4/11/2020	-	-	-	-	1400	260	6000	<5	-	-	97	-	-	-	-	-	140	-	-	33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DW2	Nov-20	3/12/2020	-	-	-	-	-	-	-	1400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DW3	Nov-20	3/12/2020	-	-	-	-	-	-	-	2000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW SUMP	Nov-20	3/12/2020	-	-	-	-	-	<5	-	38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW12-12	Nov-20	3/12/2020	-	-	-	-	3.4	<5	60	<5	-	-	<0.5	-	-	-	-	-	<0.5	-	-	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW12-30	Nov-20	3/12/2020	-	-	-	-	2.5	<5	61	<5	-	-	2	-	-	-	-	-	0.5	-	-	0.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17.6
GW13-12	Nov-20	3/12/2020	-	-	-	-	50	<5	230	<5	-	-	<5	-	-	-	-	-	<5	-	-	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW14-12	Nov-20	3/12/2020	-	-	-	-	4100	580	10,000	<5	-	-	320	-	-	-	-	-	410	-	-	92	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.905383
GW15-12	Nov-20	3/12/2020	-	-	-	-	420	100	1600	<5	-	-	43	-	-	-	-	-	55	-	-	9.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW2-12	Nov-20	3/12/2020	-	-	-	-	4900	820	12,000	<5	-	-	480	-	-	-	-	-	520	-	-	43	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.729322
GW2-3	Nov-20	3/12/2020	-	-	-	-	240	31	950	<5	-	-	54	-	-	-	-	-	40	-	-	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW3-12	Nov-20	3/12/2020	-	-	-	-	240	51	1200	<5	-	-	55	-	-	-	-	-	28	-	-	5.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW4-30	Nov-20	3/12/2020	-	-	-	-	540	2600	34,000	<5	-	-	38	-	-	-	-	-	62	-	-	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.5

Data Comments

* Quantification of linear and branched isomers has been conducted as a single total response using the relative response factor for the corresponding linear/branched standard.

Cardno

	Inorganics								Metals														PAH/Phenols												TPH										Leachate
	Ferrous Iron	Nitrate (as N)	Nitrite (as N)	Reactive Phosphorus as P	Sodium	Sulphate	TDS	TOC	Lead	Cadmium	Calcium	Chromium (hexavalent)	Chromium (Trivalent)	Copper	Ferric Iron	Iron	Magnesium	Manganese	Nickel	Potassium	Zinc	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	PAHs (Sum of total)	Phenanthrene	Pyrene	C10-C16	C16-C34	C34-C40	F2-NAPHTHALENE	C6 - C9	+C10 - C36 (Sum of total)	C10 - C14	C15 - C28	C29-C36	C10 - C40 (Sum of total)	C6-C10	Leachate Impact Indicator is determined as follows: L/N = (K+ + NH4+ + NO3-) / (Ca2+ + Na+ + Mg2+) x 100'
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	
EQL	0.05	0.02	0.02	0.01	0.5	5	10	5	0.001	0.0002	0.5	0.005	0.001	0.001	0.05	0.05	0.5	0.01	0	0.5	0.01	1	1	1	1	1	1	1	1	1	1	1	1	0.05	0.1	0.1	0.05	20	100	50	100	100	100	0.02	
ANZG (2018) Marine water 90% toxicant DGVs									0.0066	0.014		0.02	0.0486	0.003					0.2		0.023									90																
PFAS National EMP (2020) Interim marine water 90																																													
PFAS National EMP (2020) Interim marine water 95																																													
Leachate Impact Indicator																																													10

Field ID	Monitoring Round	Sample Date																																												
GW5-12	Nov-20	3/12/2020	-	-	-	-	650	130	1800	<5	-	-	14	-	-	-	-	-	28	-	-	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW7-12	Nov-20	3/12/2020	-	-	-	-	1800	400	4800	<5	-	-	39	-	-	-	-	-	87	-	-	52	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.715472
GW7-3	Nov-20	3/12/2020	-	-	-	-	1600	380	5500	9.1	-	-	130	-	-	-	-	-	190	-	-	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.233854
GW8-12	Nov-20	3/12/2020	-	-	-	-	13,000	4000	61,000	<5	-	-	1500	-	-	-	-	-	2800	-	-	500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.899422
GW8-3	Nov-20	3/12/2020	-	-	-	-	3500	550	6700	<5	-	-	260	-	-	-	-	-	450	-	-	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.591449
GW9-12	Nov-20	3/12/2020	-	-	-	-	2.5	<5	55	<5	-	-	<0.5	-	-	-	-	-	<0.5	-	-	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LMP02	Nov-20	3/12/2020	-	-	-	-	-	-	-	78	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LP01	Nov-20	3/12/2020	-	-	-	-	-	-	-	1200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LP02	Nov-20	3/12/2020	-	-	-	-	-	-	-	950	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LS 5B	Nov-20	3/12/2020	-	-	-	-	-	-	-	1400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SW12	Nov-20	3/12/2020	-	-	-	-	-	45	-	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TC SUMP	Nov-20	3/12/2020	-	-	-	-	-	-	-	970	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WHEEL WASH	Nov-20	3/12/2020	-	-	-	-	-	<5	-	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WW5	Nov-20	3/12/2020	-	-	-	-	1400	410	4500	<5	-	-	120	-	-	-	-	-	150	-	-	31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.861078
WW6	Nov-20	3/12/2020	-	-	-	-	11,000	3400	56,000	<5	-	-	1700	-	-	-	-	-	2300	-	-	280	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.874667
WW7	Nov-20	3/12/2020	-	-	-	-	2000	330	6900	12	-	-	210	-	-	-	-	-	220	-	-	91	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.037037
WW9	Nov-20	3/12/2020	-	-	-	-	410	85	1700	<5	-	-	71	-	-	-	-	-	75	-	-	7.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DW2	Dec-20	12/01/2021	5.4	<2	<2	6.3	1100	<5	-	2200	0.012	-	80	0.15	<0.005	0.28	1.7	7.1	40	0.63	0.14	410	0.34	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.1	1.4	<0.1	1.1	<200	2500	1000	1500	<100	2500	<0.2	123.7705
GW SUMP	Dec-20	12/01/2021	-	-	-	-	-	38	-	61	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<80	<100	<50	<100	<100	<100	<0.08	-
GW10-12	Dec-20	12/01/2021	<0.05	1.9	<0.02	<0.01	5.5	27	-	<5	<0.001	<0.0002	2	<0.005	<0.005	<0.001	<0.05	<0.05	0.7	<0.005	<0.001	<0.5	<0.005	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	-
GW10-3	Dec-20	12/01/2021	<0.05	1.3	<0.02	0.01	5.3	13	-	<5	0.002	<0.0002	1.9	<0.005	<0.005	0.001	<0.05	<0.05	0.6	<0.005	<0.001	<0.5	0.022	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	-
GW11-12	Dec-20	12/01/2021	<0.05	0.7	<0.02	<0.01	5.5	12	-	<5	<0.001	<0.0002	3.6	<0.005	<0.005	0.002	0.58	0.58	<0.5	0.026	0.003	0.9	0.023	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	-
GW1-12	Dec-20	12/01/2021	<0.05	0.08	<0.02	<0.01	360	260	-	5.1	0.002	<0.0002	690	0.007	<0.005	<0.001	<0.05	<0.05	0.8	<0.005	<0.001	<5	<0.005	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	-
GW11-3	Dec-20	12/01/2021	<0.05	1.8	<0.02	0.01	9.1	25	-	<5	<0.001	<0.0002	0.9	<0.005	<0.005	<0.001	<0.05	<0.05	0.9	0.005	<0.001	0.5	0.014	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	8.073394
GW12-12	Dec-20	12/01/2021	<0.05	0.44	<0.02	0.01	4.7	<5	-	<5	<0.001	<0.0002	2.2	<0.005	<0.005	<0.001	<0.05	<0.05	<0.5	0.009	<0.001	1.3	0.006	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	-
GW12-3	Dec-20	12/01/2021	<0.05	0.24	<0.02	0.02	52	80	-	25	<0.001	<0.0002	41	<0.005	<0.005	0.002	1.9	1.9	23	0.07	0.001	88	0.01	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	76.81034
GW12-30	Dec-20	12/01/2021	<0.05	0.4	<0.02	0.02	2.8	26	-	<5	<0.001	<0.0002	1.3	<0.005	<0.005	<0.001	<0.05	<0.05	0.7	0.015	<0.001	0.9	0.01	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	19.375
GW1-3	Dec-20	12/01/2021	<0.05	<0.02	<0.02	<0.01	200	51	-	<5	<0.001	<0.0002	18	<0.005	<0.005	<0.001	<0.05	<0.05	25	<0.005	<0.001	<0.5	<0.005	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	-
GW13-12	Dec-20	12/01/2021	8	<0.02	<0.02	<0.01	45	7.8	-	<5	<0.001	<0.0002	4.1	<0.005	<0.005	<0.001	0.6	8.6	1.2	0.04	0.004	11	0.016	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	28.23062
GW15-12	Dec-20	12/01/2021	<0.05	0.22	<0.02	0.02	400	890	-	<5	0.002	<0.0002	48	<0.005	<0.005	0.005	<0.05	<0.05	52	0.28	0.015	9.8	0.03	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	-
GW15-3	Dec-20	12/01/2021	<0.05	0.25	<0.02	<0.01	78	16	-	<5	<0.001	<0.0002	6	<0.005	<0.005	<0.001	<0.05	<0.05	5.3	0.028	<0.001	7.1	<0.005	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	8.230683
GW16-12	Dec-20	12/01/2021	<0.05	0.03	<0.02	0.02	35	6.7	-	<5	<0.001	<0.0002	3.9	<0.005	<0.005	<0.001	<0.05	<0.05	<0.5	0.017	<0.001	<0.5	0.005	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	-
GW16-3	Dec-20	12/01/2021	<0.05	6.7	<0.02	0.03	60	31	-	<5	0.003	<0.0002	7.7	<0.005	<0.005	0.002	<0.05	<0.05	2.9	0.028	<0.001	9.8	0.018	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	13.92351
GW16-30	Dec-20	12/01/2021	<0.05	0.19	<0.02	0.01	19	35	-	<5	<0.001	<0.0002	4.2	0.017	0.017	<0.001	<0.05	<0.05	0.9	0.013	0.002	3.5	0.011	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	15.51867
GW2-12	Dec-20	12/01/2021	<0.05	0.35	<0.02	0.06	3500	990	-	<5	<0.001	0.0021	410	<0.005	<0.005	0.001	<0.05	<0.05	400	0.01	0.055	30	0.33	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	0.696288
GW2-3	Dec-20	12/01/2021	<0.05	1.2	<0.02	<0.01	340	77	-	<5	<0.001	<0.0002	31	<0.005	<0.005	<0.001	<0.05	<0.05	29	0.015	0.002	3.8	0.009	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	-
GW3-12	Dec-20	12/01/2021	<0.05	0.35	<0.02	<0.01	74	49	-	<5	<0.001	<0.0002	9.9	<0.005	<0.005	<0.001	<0.05	<0.05	7	0.036	0.006	2.2	0.041	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	2.442244
GW3-3	Dec-20	12/01/2021	<0.05	2.9	<0.02	<0.01	13	27	-	<5	<0.001	<0.0002	1	<0.005	<0.005	<0.001	<0.05	<0.05	1.1	0.008	0.001	<0.5	0.011	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	-
GW4-12	Dec-20	12/01/2021	<0.05	0.31	<0.02	<0.01	1600	190	-	<5	<0.001	<0.0002	93	0.007	<0.005	<0.001	<0.05	<0.05	140	0.012	<0.001	45	<0.005	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	2.462084
GW4-3	Dec-20	12/01/2021	<0.05	<0.02	<0.02	<0.01	110	43	-	<5	<0.001	<0.0002	3.1	<0.005	<0.005	0.002	<0.05	<0.05	7.6	0.013	0.007	0.9	0.028	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	0.91135
GW4-30	Dec-20	12/01/2021	0.11	<0.02	<0.02	0.05	3800	130	-	<5	<0.001	<0.0002	260	<0.005	<0.005	<0.001	4.09	4.2	480	1.5	0.003	86	0.017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	1.947137
GW5-12	Dec-20	12/01/2021	<0.05	0.2	<0.02	0.04	600	140	-	<5	<0.001	<0.0002	13	0.007	<0.005	<0.001	<0.05	<0.05	26	<0.005	0.001	23	0.007	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	3.621283
GW5-3	Dec-20	12/01/2021	<0.05	0.61	<0.02	0.01	460	190	-	<5	<0.001	<0.0002	27	<0.005	<0.005	<0.001	<0.05	<0.05	33	<0.005	0.007	18	0.011	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	3.467308
GW7-12	Dec-20	12/01/2021	<0.05	0.1	<0.02	0.03	1400	430	-	<5	<0.001	<0.0002	40	<0.005	<0.005	<0.001	<0.05	<0.05	78	0.18	0.016	43	0.042	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	2.848485
GW7-3	Dec-20	12/01/2021	<0.05	24	<0.02	0.26	2000	520	-	9.9	<0.001	0.0012	150	<0.005	<0.005	0.003	<0.05	<0.05	250	0.22	0.025	84	0.057	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	3.505
GW8-12	Dec-20	12/01/2021	<0.05	0.24	<0.02	0.02	16,000	4100	-	<5	<0.001	0.0011	1100	0.008	<0.005	0.003	0.14	0.14	2100	0.12	0.021	370	0.067	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	1.940104
GW8-3	Dec-20	12/01/2021	<0.05	38	0.47	0.54	610	500	-	11	<0.001	<0.0002	70	<0.005	<0.005	0.005	<0.05	<0.05	70	0.037	0.004	40	0.051	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	6.08
GW9-12	Dec-20	12/01/2021	<0.05	0.18	<0.02	0.03	2.8	<5	-	<5	<0.001	<0.0002	<0.5	<0.005	<0.005	<0.001	<0.05	<0.05	<0.5	<0.005	<0.001	<0.5	0.01	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	0.1	<0.1	<0.05	<20	100	<50	100	<100	100	<0.02	-
LMP02	Dec-20	12/01/2021	0.12	0.06	<0.02	0.02	110	29	-	49	<0.001	<0.0002	47	<0.005	<0.005	<0.001	6.38	6.5	18	0.15	0.009	56	0.037	<1	<1	<1	<1	<1	<1	<1	<1	<10 - 2	2	<1	<1	0.29	0.9	<0.1	0.29	<20	1140	140	1000	<100	1190	<0.02	88
LP02	Dec-20	12/01/2021	2.8	<5	4	9.8	1500	2100	-	2400	<0.01	<0.002	84	0.061	0.061	<0.01	1.4	4.2	57	0.17	0.18	620	0.27	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	0.62	1.4	<0.1	0.62	<200	1910	410	1500	<100	2020	<0.2	87.14199

Data Comments

* Quantification of linear and branched isomers has been conducted as a single total response using the relative response factor for the corresponding linear/branched standard.

Cardno

	Inorganics								Metals													PAH/Phenols																TPH												Leachate
	Ferrous Iron	Nitrate (as N)	Nitrite (as N)	Reactive Phosphorus as P	Sodium	Sulphate	TDS	TOC	Lead	Cadmium	Calcium	Chromium (hexavalent)	Chromium (Trivalent)	Copper	Ferric Iron	Iron	Magnesium	Manganese	Nickel	Potassium	Zinc	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	PAHs (Sum of total)	Phenanthrene	Pyrene	C10-C16	C16-C34	C34-C40	F2-NAPHTHALENE	C6 - C9	+C10 - C36 (Sum of total)	C10 - C14	C15 - C28	C29-C36	C10 - C40 (Sum of total)	C6-C10	Leachate Impact Indicator is determined as follows: L/N = (K+ + NH4+ + NO3-) / (Ca2+ + Na+ + Mg2+) x 100'
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	
EQL	0.05	0.02	0.02	0.01	0.5	5	10	5	0.001	0.0002	0.5	0.005	0.001	0.001	0.05	0.05	0.5	0.01	0	0.5	0.01	1	1	1	1	1	1	1	1	1	1	1	1	0.05	0.1	0.1	0.05	20	100	50	100	100	100	0.02	
ANZG (2018) Marine water 90% toxicant DGVs									0.0066	0.014		0.02	0.0486	0.003					0.2		0.023									90																	
PFAS National EMP (2020) Interim marine water 90																																															
PFAS National EMP (2020) Interim marine water 95																																															
Leachate Impact Indicator																																															10
Field ID	Monitoring Round	Sample Date																																														
STG1&2	Dec-20	12/01/2021	-	-	-	-	-	5.6	-	5.4	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	-
SW12	Dec-20	12/01/2021	-	-	-	-	-	68	-	30	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	-
SW2	Dec-20	12/01/2021	-	-	-	-	-	2000	-	12	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	-
TC SUMP	Dec-20	12/01/2021	6.9	<2	<2	5.9	1400	310	-	2600	0.014	<0.002	37	0.11	0.11	0.013	2	8.9	28	0.15	0.19	460	0.24	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	0.64	1.2	<0.1	0.64	<200	1770	470	1300	<100	1840	<0.2	95.56314
WHEELWASH	Dec-20	12/01/2021	-	-	-	-	-	20	-	25	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	-
WW5	Dec-20	12/01/2021	<0.05	0.94	0.07	0.22	1500	430	-	<5	<0.001	0.0003	110	<0.005	<0.005	<0.001	<0.05	<0.05	150	0.11	0.018	33	0.045	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	1.965909
WW6	Dec-20	12/01/2021	1.1	0.03	<0.02	0.16	12,000	3300	-	<5	<0.001	<0.0002	1300	<0.005	<0.005	<0.001	<0.05	1.1	1700	50	0.84	210	0.075	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	1.411333
WW7	Dec-20	12/01/2021	<0.05	4.7	<0.02	0.24	450	300	-	13	<0.001	<0.0002	77	<0.005	<0.005	0.002	<0.05	0.1	69	0.63	0.011	57	0.091	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	9.765101
WW9	Dec-20	12/01/2021	<0.05	0.08	<0.02	0.01	500	87	-	<5	<0.001	<0.0002	69	<0.005	<0.005	0.002	<0.05	<0.05	79	0.71	0.024	11	0.064	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	-
DW2	Jan-21	10/02/2021	-	-	-	-	-	-	-	530	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DW3	Jan-21	10/02/2021	-	-	-	-	-	-	-	2100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW10-12	Jan-21	10/02/2021	-	-	-	-	9	<5	38	7.2	-	-	<5	-	-	-	-	-	<5	-	-	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW10-3	Jan-21	10/02/2021	-	-	-	-	7.7	<5	20	<5	-	-	<5	-	-	-	-	-	<5	-	-	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW11-12	Jan-21	10/02/2021	-	-	-	-	8.2	<5	42	<5	-	-	<5	-	-	-	-	-	<5	-	-	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW1-12	Jan-21	10/02/2021	-	-	-	-	390	220	2600	9.8	-	-	410	-	-	-	-	-	<5	-	-	160	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW11-3	Jan-21	10/02/2021	-	-	-	-	12	<5	28	<5	-	-	<5	-	-	-	-	-	<5	-	-	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW12-12	Jan-21	10/02/2021	-	-	-	-	16	29	100	<5	-	-	<5	-	-	-	-	-	<5	-	-	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW12-3	Jan-21	10/02/2021	-	-	-	-	70	42	690	49	-	-	59	-	-	-	-	-	33	-	-	120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	75
GW12-30	Jan-21	10/02/2021	-	-	-	-	8.8	5.2	36	5.9	-	-	<5	-	-	-	-	-	<5	-	-	8.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW1-3	Jan-21	10/02/2021	-	-	-	-	180	43	740	<5	-	-	25	-	-	-	-	-	33	-	-	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW13-12	Jan-21	10/02/2021	-	-	-	-	50	9.4	180	16	-	-	<5	-	-	-	-	-	<5	-	-	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW15-12	Jan-21	10/02/2021	-	-	-	-	420	130	1500	5.6	-	-	46	-	-	-	-	-	50	-	-	8.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.69186
GW15-3	Jan-21	10/02/2021	-	-	-	-	35	12	120	5.6	-	-	5.6	-	-	-	-	-	<5	-	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW16-12	Jan-21	10/02/2021	-	-	-	-	44	29	210	16	-	-	5.9	-	-	-	-	-	<0.5	-	-	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW16-3	Jan-21	10/02/2021	-	-	-	-	78	54	300	13	-	-	8.1	-	-	-	-	-	3.4	-	-	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11.34078
GW16-30	Jan-21	10/02/2021	-	-	-	-	27	48	140	<5	-	-	3.1	-	-	-	-	-	1.2	-	-	2.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.361022
GW2-12	Jan-21	10/02/2021	-	-	-	-	3800	1100	14,000	<5	-	-	450	-	-	-	-	-	450	-	-	36	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.766596
GW2-3	Jan-21	10/02/2021	-	-	-	-	490	95	1700	<5	-	-	110	-	-	-	-	-	43	-	-	6.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.013997
GW3-12	Jan-21	10/02/2021	-	-	-	-	14	31	370	5.9	-	-	7	-	-	-	-	-	<5	-	-	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW3-3	Jan-21	10/02/2021	-	-	-	-	66	11	81	<5	-	-	13	-	-	-	-	-	8.5	-	-	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW5-12	Jan-21	10/02/2021	-	-	-	-	970	240	2800	<5	-	-	24	-	-	-	-	-	55	-	-	33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.14776
GW5-3	Jan-21	10/02/2021	-	-	-	-	560	140	1500	<5	-	-	16	-	-	-	-	-	25	-	-	21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.500832
GW8-12	Jan-21	10/02/2021	-	-	-	-	17,000	4000	63,000	<5	-	-	1200	-	-	-	-	-	2300	-	-	420	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.066341
GW8-3	Jan-21	10/02/2021	-	-	-	-	2800	1400	13,000	<5	-	-	220	-	-	-	-	-	380	-	-	80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.882353
GW9-12	Jan-21	10/02/2021	-	-	-	-	14	6.6	20	<5	-	-	<5	-	-	-	-	-	<5	-	-	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GWSUMP	Jan-21	10/02/2021	-	-	-	-	-	5.1	-	84	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LMP02	Jan-21	10/02/2021	-	-	-	-	-	-	-	130	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LP01	Jan-21	10/02/2021	-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LP02	Jan-21	10/02/2021	-	-	-	-	-	-	-	1200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STG1&2	Jan-21	10/02/2021	-	-	-	-	-	6.3	-	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SW12	Jan-21	10/02/2021	-	-	-	-	-	49	-	31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TCSUMP	Jan-21	10/02/2021	-	-	-	-	-	-	-	83	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WHEELWASH	Jan-21	10/02/2021	-	-	-	-	-	<5	-	27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WW13	Jan-21	10/02/2021	-	-	-	-	2500	710	9800	<5	-	-	340	-	-	-	-	-	330	-	-	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.790221
WW5	Jan-21	10/02/2021	-	-	-	-	1300	440	4100	<5	-	-	110	-	-	-	-	-	130	-	-	28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.821429
WW6	Jan-21	10/02/2021	-	-	-	-	12,000	3400	56,000	13	-	-	1400	-	-	-	-	-	1800	-	-	220	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.456579
WW7	Jan-21	10/02/2021	-	-	-	-	350	340	1500	19	-	-	70	-	-	-	-	-	60	-	-	53	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11.85417
WW9	Jan-21	10/02/2021	-	-	-	-	330	140	2400	<5	-	-	28	-	-	-	-	-	44	-	-	6.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.554726
DW2	Feb-21	10/03/2021	-	-	-	-	-	-	-	800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DW3	Feb-21	10/03/2021	-	-	-	-	-	-	-	2000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Data Comments

* Quantification of linear and branched isomers has been conducted as a single total response using the relative response factor for the corresponding linear/branched standard.

Cardno

	Inorganics								Metals													PAH/Phenols												TPH									Leachate
	Ferrous Iron	Nitrate (as N)	Nitrite (as N)	Reactive Phosphorus as P	Sodium	Sulphate	TDS	TOC	Lead	Cadmium	Calcium	Chromium (hexavalent)	Chromium (Trivalent)	Copper	Ferric Iron	Iron	Magnesium	Manganese	Nickel	Potassium	Zinc	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	PAHs (Sum of total)	Phenanthrene	Pyrene	C10-C16	C16-C34	C34-C40	F2-NAPHTHALENE	C6 - C9	+C10 - C36 (Sum of total)	C10 - C14	C15 - C28	C29-C36	C10 - C40 (Sum of total)	C6-C10	Leachate Impact Indicator is determined as follows: L/N = (K+ + NH4+ + NO3-) / (Ca2+ + Na+ + Mg2+) x 100'
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	
EQL	0.05	0.02	0.02	0.01	0.5	5	10	5	0.001	0.0002	0.5	0.005	0.001	0.001	0.05	0.05	0.5	0.01	0	0.5	0.01	1	1	1	1	1	1	1	1	1	1	1	1	0.05	0.1	0.1	0.05	20	100	50	100	100	100	0.02	
ANZG (2018) Marine water 90% toxicant DGVs									0.0066	0.014		0.02	0.0486	0.003					0.2		0.023									90															
PFAS National EMP (2020) Interim marine water 90																																													
PFAS National EMP (2020) Interim marine water 95																																													
Leachate Impact Indicator																																													10

Field ID	Monitoring Round	Sample Date																																												
GW SUMP	Feb-21	10/03/2021	-	-	-	-	-	8.4	-	51	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW10-12	Feb-21	10/03/2021	-	-	-	-	5.6	<5	<10	<5	-	-	9.2	-	-	-	-	-	<0.5	-	-	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW11-12	Feb-21	10/03/2021	-	-	-	-	7.4	7	40	<5	-	-	3.9	-	-	-	-	-	<0.5	-	-	2.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW1-12	Feb-21	10/03/2021	-	-	-	-	510	750	24,000	<5	-	-	320	-	-	-	-	-	<0.5	-	-	150	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW12-12	Feb-21	10/03/2021	-	-	-	-	12	10	220	5.4	-	-	3.8	-	-	-	-	-	<0.5	-	-	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW12-30	Feb-21	10/03/2021	-	-	-	-	4.5	<5	36	<5	-	-	1.7	-	-	-	-	-	0.7	-	-	3.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW1-3	Feb-21	10/03/2021	-	-	-	-	240	34	1600	<5	-	-	23	-	-	-	-	-	29	-	-	0.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW13-12	Feb-21	10/03/2021	-	-	-	-	52	5.7	400	10	-	-	5.8	-	-	-	-	-	2.6	-	-	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	26.82119
GW15-12	Feb-21	10/03/2021	-	-	-	-	440	110	1700	130	-	-	49	-	-	-	-	-	59	-	-	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW15-3	Feb-21	10/03/2021	-	-	-	-	40	6.6	140	5	-	-	8.1	-	-	-	-	-	4.7	-	-	5.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11.30682
GW16-12	Feb-21	10/03/2021	-	-	-	-	53	6.7	410	8.7	-	-	9.8	-	-	-	-	-	<0.5	-	-	0.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW16-3	Feb-21	10/03/2021	-	-	-	-	110	29	84	9.2	-	-	12	-	-	-	-	-	4.2	-	-	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11.15689
GW16-30	Feb-21	10/03/2021	-	-	-	-	44	40	150	<5	-	-	5.1	-	-	-	-	-	1.8	-	-	5.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW2-12	Feb-21	10/03/2021	-	-	-	-	4000	1000	16,000	7.3	-	-	440	-	-	-	-	-	470	-	-	38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW2-3	Feb-21	10/03/2021	-	-	-	-	510	72	1800	5.3	-	-	96	-	-	-	-	-	53	-	-	6.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW3-12	Feb-21	10/03/2021	-	-	-	-	140	31	1100	<5	-	-	31	-	-	-	-	-	13	-	-	4.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW5-12	Feb-21	10/03/2021	-	-	-	-	890	220	3300	<5	-	-	28	-	-	-	-	-	58	-	-	33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.382172
GW5-3	Feb-21	10/03/2021	-	-	-	-	570	120	2100	<5	-	-	15	-	-	-	-	-	25	-	-	21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW8-12	Feb-21	10/03/2021	-	-	-	-	15,000	3900	81,000	15	-	-	1200	-	-	-	-	-	2300	-	-	460	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.505405
GW8-3	Feb-21	10/03/2021	-	-	-	-	3800	1600	22,000	19	-	-	250	-	-	-	-	-	490	-	-	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.555066
GW9-12	Feb-21	10/03/2021	-	-	-	-	5.2	<5	36	<5	-	-	1.3	-	-	-	-	-	<0.5	-	-	0.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LMP02	Feb-21	10/03/2021	-	-	-	-	-	-	-	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LP01	Feb-21	10/03/2021	-	-	-	-	-	-	-	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LP02	Feb-21	10/03/2021	-	-	-	-	-	-	-	950	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STG1&2	Feb-21	10/03/2021	-	-	-	-	-	26	-	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SW12	Feb-21	10/03/2021	-	-	-	-	-	51	-	28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TC SUMP	Feb-21	10/03/2021	-	-	-	-	-	-	-	1100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WHEELWASH	Feb-21	10/03/2021	-	-	-	-	-	14	-	32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WW13	Feb-21	10/03/2021	-	-	-	-	2000	620	7200	6.7	-	-	260	-	-	-	-	-	270	-	-	21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WW5	Feb-21	10/03/2021	-	-	-	-	1400	430	3100	<5	-	-	110	-	-	-	-	-	150	-	-	32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.93494
WW6	Feb-21	10/03/2021	-	-	-	-	14,000	3200	66,000	9.7	-	-	1600	-	-	-	-	-	2000	-	-	260	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.484659
WW7	Feb-21	10/03/2021	-	-	-	-	410	310	2200	19	-	-	71	-	-	-	-	-	72	-	-	65	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14.64738
WW9	Feb-21	10/03/2021	-	-	-	-	380	160	4600	<5	-	-	35	-	-	-	-	-	55	-	-	8.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DW2	Mar-21	14/04/2021	7.6	<1	<1	7.8	1200	64	-	1300	<0.01	<0.002	-	<0.005	0.27	0.17	1.2	8.8	43	0.27	0.13	-	0.31	<1	<1	<1	<1	<1	<1	<1	<1	<1000 - 4	4	<1	<1	9.4	23	0.2	9.4	<2000	31,700	7800	23,000	900	32,600	<2	-
GW SUMP	Mar-21	14/04/2021	-	-	-	-	-	27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	-
GW10-12	Mar-21	14/04/2021	<0.05	1.8	<0.02	<0.01	6.1	6.4	-	<5	<0.001	<0.0002	7.3	<0.005	<0.005	0.001	<0.05	<0.05	0.9	<0.005	0.003	<0.5	0.023	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	-
GW1-12	Mar-21	14/04/2021	-	0.1	0.02	<0.01	1800	240	-	<5	0.002	-	740	<0.005	0.006	0.003	-	0.09	8.4	0.01	0.005	52	0.016	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	2.058939
GW12-12	Mar-21	14/04/2021	<0.05	0.54	<0.02	<0.01	5.2	<5	-	<5	<0.001	<0.0002	1.8	<0.005	<0.005	<0.001	<0.05	<0.05	<0.5	0.01	<0.001	2	0.009	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	-
GW12-3	Mar-21	14/04/2021	0.68	<0.02	<0.02	<0.01	60	54	-	35	<0.001	<0.0002	40	<0.005	<0.005	<0.001	<0.05	0.68	23	0.045	<0.001	97	<0.005	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	79.45528
GW12-30	Mar-21	14/04/2021	<0.05	0.2	<0.02	0.02	2.7	8.1	-	<5	<0.001	<0.0002	0.9	<0.005	<0.005	<0.001	<0.05	<0.05	<0.5	0.013	0.001	1	0.007	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	-
GW1-3	Mar-21	14/04/2021	<0.05	0.05	<0.02	<0.01	190	38	-	<5	0.002	<0.0002	17	<0.005	0.009	0.002	<0.05	<0.05	24	0.15	0.039	<0.5	0.048	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	-
GW13-12	Mar-21	14/04/2021	7.8	<0.02	<0.02	<0.01	49	10	-	8.9	<0.001	<0.0002	3.8	<0.005	<0.005	<0.001	0.3	8.1	1.4	0.053	0.003	11	<0.005	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	25.27675
GW14-12	Mar-21	14/04/2021	<0.05	3.2	<0.02	0.02	3500	750	-	<5	<0.001	0.0011	270	0.084	0.05	0.003	<0.05	<0.05	320	2.8	0.057	110	0.14	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	2.691687
GW14-3	Mar-21	14/04/2021	0.07	2.6	<0.02	0.06	500	210	-	6.8	<0.001	<0.0002	55	<0.005	<0.005	0.002	0.13	0.2	56	1.3	0.009	24	0.017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	3.942717
GW15-12	Mar-21	14/04/2021	<0.05	0.37	<0.02	<0.01	470	110	-	<5	0.003	0.0002	41	<0.005	<0.005	0.008	<0.05	<0.05	50	0.32	0.014	10	0.039	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	-
GW15-3	Mar-21	14/04/2021	<0.05	0.04	<0.02	<0.01	36	9.9	-	<5	<0.001	<0.0002	6.9	<0.005	<0.005	<0.001	<0.05	<0.05	4	<0.005	<0.001	4.3	<0.005	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	9.296375
GW16-3	Mar-21	14/04/2021	<0.05	11	<0.02	<0.01	93	36	-	9.4	<0.001	<0.0002	10	<0.005	<0.005	<0.001	<0.05	<0.05	4.8	0.029	0.001	13	0.007	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	12.65306
GW16-30	Mar-21	14/04/2021	<0.05	0.12	<0.02	0.04	42	42	-	<5	<0.001	<0.0002	2.3	<0.005	<0.005	<0.001	<0.05	0.05	1.8	0.018	0.004	5.2	0.013	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	11.32321
GW2-12	Mar-21	14/04/2021	<0.05	0.51	<0.02	0.06	3900	960	-	<5	<0.001	0.0019	390	<0.005	<0.005	0.001	<0.05	<0.05	450	0.01	0.055	36	0.33	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	0.759916
GW2-3	Mar-21	14/04/2021	<0.05	3.6	<0.02	<0.01	520	78	-	<5	<0.001	0.0003	43	<0.005	<0.005	<0.001	<0.05	<0.05	48	0.024	0.004	5.3	0.011	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	0.870704

Data Comments

* Quantification of linear and branched isomers has been conducted as a single total response using the relative response factor for the corresponding linear/branched standard.

Cardno

	Inorganics								Metals													PAH/Phenols																	TPH									Leachate
	Ferrous Iron	Nitrate (as N)	Nitrite (as N)	Reactive Phosphorus as P	Sodium	Sulphate	TDS	TOC	Lead	Cadmium	Calcium	Chromium (hexavalent)	Chromium (Trivalent)	Copper	Ferric Iron	Iron	Magnesium	Manganese	Nickel	Potassium	Zinc	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	PAHs (Sum of total)	Phenanthrene	Pyrene	C10-C16	C16-C34	C34-C40	F2-NAPHTHALENE	C6 - C9	+C10 - C36 (Sum of total)	C10 - C14	C15 - C28	C29-C36	C10 - C40 (Sum of total)	C6-C10	Leachate Impact Indicator is determined as follows: L/N = (K+ + NH4+ + NO3-) / (Ca2+ + Na+ + Mg2+) x 100'
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	
EQL	0.05	0.02	0.02	0.01	0.5	5	10	5	0.001	0.0002	0.5	0.005	0.001	0.001	0.05	0.05	0.5	0.01	0	0.5	0.01	1	1	1	1	1	1	1	1	1	1	1	1	0.05	0.1	0.1	0.05	20	100	50	100	100	100	0.02	
ANZG (2018) Marine water 90% toxicant DGVs									0.0066	0.014		0.02	0.0486	0.003					0.2		0.023									90																
PFAS National EMP (2020) Interim marine water 90																																													
PFAS National EMP (2020) Interim marine water 95																																													
Leachate Impact Indicator																																													10

Field ID	Monitoring Round	Sample Date																																													
GW5-3	Mar-21	14/04/2021	<0.05	0.92	<0.02	<0.01	560	130	-	<5	<0.001	<0.0002	52	<0.005	<0.005	<0.001	<0.05	<0.05	41	<0.005	0.01	25	0.013	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	-
GW9-12	Mar-21	14/04/2021	<0.05	0.49	<0.02	0.02	4.6	<5	-	<5	<0.001	<0.0002	0.7	<0.005	<0.005	<0.001	<0.05	<0.05	<0.5	<0.005	<0.001	0.7	0.016	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	-
L95A	Mar-21	14/04/2021	-	<1	<1	28	1600	<50	-	1500	<0.01	-	110	<0.005	0.63	0.016	-	34	71	0.5	0.16	860	0.95	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	5.7	11	0.5	5.7	<2000	17,600	4600	12,000	1000	17,200	<2	138.1246
LMP02	Mar-21	14/04/2021	-	<0.02	<0.02	0.07	270	8.5	-	120	<0.001	-	40	<0.005	0.009	<0.001	-	15	21	0.11	0.02	120	0.009	<1	<1	<1	<1	<1	<1	<1	<1	<10 - 7	7	<1	<1	0.8	2.5	0.2	0.8	20	3250	350	2600	300	3500	0.03	102.719
LP01	Mar-21	14/04/2021	-	6	4.7	0.89	110	18	-	47	0.002	-	29	<0.005	0.025	0.008	-	0.85	13	0.21	0.015	53	0.022	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	55.92105
LP02	Mar-21	14/04/2021	-	<1	<1	8.9	1300	5.8	-	1100	<0.01	-	46	<0.005	0.37	0.011	-	5.4	32	0.2	0.14	530	0.28	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	3.3	7.1	0.3	3.3	<2000	10,700	2500	7700	500	10,700	<2	85.63135
STG1&2	Mar-21	14/04/2021	-	-	-	-	-	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	-
SW12	Mar-21	14/04/2021	-	-	-	-	-	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	-
TC SUMP	Mar-21	14/04/2021	-	<1	<1	7.8	1800	62	-	1400	<0.01	-	46	<0.005	<0.005	0.022	-	11	39	0.17	0.17	660	0.34	<1	<1	<1	<1	<1	<1	<1	<1	<1000 - 3	3	<1	<1	7.7	15	0.1	7.7	<2000	22,900	6200	16,000	700	22,800	<2	98.67374
WHEELWASH	Mar-21	14/04/2021	-	-	-	-	-	140	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	0.45	2.1	0.5	0.45	<20	2720	320	1500	900	3050	<0.02	-
WW13	Mar-21	14/04/2021	<0.05	0.48	<0.02	0.07	3100	780	-	<5	0.006	0.0018	420	<0.005	0.019	<0.001	<0.05	<0.05	410	0.65	0.15	32	0.58	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	-
WW5	Mar-21	14/04/2021	<0.05	3.9	<0.02	0.07	1300	410	-	<5	<0.001	0.0003	100	<0.005	<0.005	<0.001	<0.05	<0.05	130	0.086	0.021	33	0.069	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	2.15817
WW6	Mar-21	14/04/2021	0.63	<0.02	<0.02	0.47	15,000	3000	-	11	<0.001	<0.0002	1600	<0.005	0.01	<0.001	<0.05	0.63	2100	50	0.65	280	0.006	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	1.511765
WW7	Mar-21	14/04/2021	<0.05	<0.02	<0.02	0.07	490	310	-	14	<0.001	<0.0002	75	<0.005	<0.005	0.006	<0.05	<0.05	80	1.8	0.014	64	0.13	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	11.08527
DW2	Apr-21	12/05/2021	-	-	-	-	-	-	-	1400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DW3	Apr-21	12/05/2021	-	-	-	-	-	-	-	2600	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW SUMP	Apr-21	12/05/2021	-	-	-	-	-	38	-	55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW10-12	Apr-21	12/05/2021	-	-	-	-	7.7	<5	66	<5	-	-	3	-	-	-	-	-	0.9	-	-	1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.655172
GW11-12	Apr-21	12/05/2021	-	-	-	-	6.6	6.1	65	7.2	-	-	4.5	-	-	-	-	-	<0.5	-	-	2.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW1-12	Apr-21	12/05/2021	-	-	-	-	260	280	6900	<5	-	-	430	-	-	-	-	-	11	-	-	37	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.36234
GW12-12	Apr-21	12/05/2021	-	-	-	-	5.6	<5	48	<5	-	-	2.8	-	-	-	-	-	<0.5	-	-	2.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW12-3	Apr-21	12/05/2021	-	-	-	-	58	29	620	26	-	-	40	-	-	-	-	-	23	-	-	92	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	77.19008
GW12-30	Apr-21	12/05/2021	-	-	-	-	2.6	<5	34	<5	-	-	1.2	-	-	-	-	-	0.6	-	-	0.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19.09091
GW1-3	Apr-21	12/05/2021	-	-	-	-	190	32	730	<5	-	-	20	-	-	-	-	-	25	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.221277
GW13-12	Apr-21	12/05/2021	-	-	-	-	43	<5	190	11	-	-	4.8	-	-	-	-	-	1.3	-	-	9.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24.84725
GW14-12	Apr-21	12/05/2021	-	-	-	-	2700	640	7200	<5	-	-	230	-	-	-	-	-	240	-	-	99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.125552
GW14-3	Apr-21	12/05/2021	-	-	-	-	580	220	2100	<5	-	-	56	-	-	-	-	-	60	-	-	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.170977
GW15-12	Apr-21	12/05/2021	-	-	-	-	420	110	1500	<5	-	-	42	-	-	-	-	-	50	-	-	9.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.919922
GW15-3	Apr-21	12/05/2021	-	-	-	-	44	5.2	190	<5	-	-	9	-	-	-	-	-	5.3	-	-	4.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.54717
GW16-12	Apr-21	12/05/2021	-	-	-	-	41	<5	140	<5	-	-	5.2	-	-	-	-	-	<0.5	-	-	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW16-3	Apr-21	12/05/2021	-	-	-	-	64	25	280	5	-	-	7.4	-	-	-	-	-	3.3	-	-	9.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13.01205
GW16-30	Apr-21	12/05/2021	-	-	-	-	30	35	140	<5	-	-	1.7	-	-	-	-	-	1.3	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12.18182
GW2-12	Apr-21	12/05/2021	-	-	-	-	3000	1000	10,000	<5	-	-	310	-	-	-	-	-	350	-	-	38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.041803
GW2-3	Apr-21	12/05/2021	-	-	-	-	560	85	1900	<5	-	-	120	-	-	-	-	-	52	-	-	7.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.978142
GW3-12	Apr-21	12/05/2021	-	-	-	-	69	26	460	<5	-	-	12	-	-	-	-	-	8.5	-	-	2.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GW4-12	Apr-21	12/05/2021	-	-	-	-	490	110	5100	7.1	-	-	560	-	-	-	-	-	2.7	-	-	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.247269
GW4-3	Apr-21	12/05/2021	-	-	-	-	280	34	960	<5	-	-	9.5	-	-	-	-	-	20	-	-	4.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.399031
GW4-30	Apr-21	12/05/2021	-	-	-	-	540	3200	45,000	<5	-	-	67	-	-	-	-	-	55	-	-	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.492447
GW5-12	Apr-21	12/05/2021	-	-	-	-	700	190	4500	<5	-	-	20	-	-	-	-	-	42	-	-	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.284777
GW5-3	Apr-21	12/05/2021	-	-	-	-	490	140	1500	11	-	-	12	-	-	-	-	-	22	-	-	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.25
GW7-12	Apr-21	12/05/2021	-	-	-	-	1500	400	4200	<5	-	-	42	-	-	-	-	-	92	-	-	44	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.703794
GW7-3	Apr-21	12/05/2021	-	-	-	-	2200	600	7900	16	-	-	150	-	-	-	-	-	290	-	-	76	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.879924
GW8-12	Apr-21	11/05/2021	-	-	-	-	16,000	4100	63,000	24	-	-	1100	-	-	-	-	-	2100	-	-	410	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.152604
GW8-3	Apr-21	12/05/2021	-	-	-	-	3200	1500	11,000	9.4	-	-	210	-	-	-	-	-	420	-	-	85	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.663185
GW9-12	Apr-21	12/05/2021	-	-	-	-	18	<5	48	<5	-	-	1.5	-	-	-	-	-	2.3	-	-	0.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.220183
LMP02	Apr-21	12/05/2021	-	-	-	-	-	-	-	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LP01	Apr-21	12/05/2021	-	-	-	-	-	-	-	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LP02	Apr-21	12/05/2021	-	-	-	-	-	-	-	1200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LS5B	Apr-21	12/05/2021	-	-	-	-	-	-	-	1700	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NEDAM	Apr-21	15/04/2021	-	-	-	-	-	-	-	780	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	3.8	6.6	0.2	3.8	<1000	10,200	2700	7000	500	10,600	<1	-

Data Comments

* Quantification of linear and branched isomers has been conducted as a single total response using the relative response factor for the corresponding linear/branched standard.

Cardno

	Inorganics								Metals													PAH/Phenols												TPH										Leachate
	Ferrous Iron	Nitrate (as N)	Nitrite (as N)	Reactive Phosphorus as P	Sodium	Sulphate	TDS	TOC	Lead	Cadmium	Calcium	Chromium (hexavalent)	Chromium (Trivalent)	Copper	Ferric Iron	Iron	Magnesium	Manganese	Nickel	Potassium	Zinc	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	PAHs (Sum of total)	Phenanthrene	Pyrene	C10-C16	C16-C34	C34-C40	F2-NAPHTHALENE	C6 - C9	+C10 - C36 (Sum of total)	C10 - C14	C15 - C28	C29-C36	C10 - C40 (Sum of total)	C6-C10	Leachate Impact Indicator is determined as follows: L/N = (K+ + NH4+ + NO3-) / (Ca2+ + Na+ + Mg2+) x 100'
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	
EQL	0.05	0.02	0.02	0.01	0.5	5	10	5	0.001	0.0002	0.5	0.005	0.001	0.001	0.05	0.05	0.5	0.01	0	0.5	0.01	1	1	1	1	1	1	1	1	1	1	1	1	0.05	0.1	0.1	0.05	20	100	50	100	100	100	0.02	
ANZG (2018) Marine water 90% toxicant DGVs									**0.0066**	**0.014**		**0.02**	**0.0486**	**0.003**					**0.2**		**0.023**									**90**															
PFAS National EMP (2020) Interim marine water 90																																													
PFAS National EMP (2020) Interim marine water 95																																													
Leachate Impact Indicator																																													**10**

Field ID	Monitoring Round	Sample Date																																											
SW12	Apr-21	12/05/2021	-	-	-	-	-	45	-	47	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TC SUMP	Apr-21	12/05/2021	-	-	-	-	-	-	-	1500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WHEELWASH	Apr-21	12/05/2021	-	-	-	-	-	150	-	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WW13	Apr-21	12/05/2021	-	-	-	-	2900	730	10,000	<5	-	-	390	-	-	-	-	-	400	-	-	29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.786721
WW5	Apr-21	12/05/2021	-	-	-	-	1200	430	3700	<5	-	-	94	-	-	-	-	-	120	-	-	28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.986563
WW6	Apr-21	12/05/2021	-	-	-	-	10,000	2800	45,000	5.7	-	-	1200	-	-	-	-	-	1500	-	-	200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.610236
WW7	Apr-21	12/05/2021	-	-	-	-	410	330	1700	16	-	-	81	-	-	-	-	-	75	-	-	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11.13074
WW9	Apr-21	12/05/2021	-	-	-	-	580	230	5000	<5	-	-	48	-	-	-	-	-	79	-	-	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.848656

Statistical Summary

Number of Results	72	64	64	64	229	262	149	302	80	68	228	80	80	80	72	78	229	80	80	228	80	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	139
Number of Detects	19	48	5	42	227	224	148	171	16	12	213	11	15	37	19	29	193	67	61	201	70	0	0	0	0	0	0	0	0	6	6	0	0	18	21	12	18	2	19	16	19	12	21	2	139
Minimum Concentration	<0.05	<0.02	<0.02	<0.01	2.5	<5	<10	<5	<0.001	<0.0002	<0.5	<0.005	0.003	<0.001	<0.05	<0.05	<0.5	<0.005	<0.001	<0.5	<0.005	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.05	<0.1	<0.1	<0.05	<20	<100	<50	<100	<100	<100	<0.02	0.221277
Minimum Detect	0.07	0.03	0.02	0.01	2.5	5.1	16	5	0.001	0.0002	0.7	0.006	0.003	0.001	0.07	0.05	0.5	0.01	0	0.5	0.01	ND	ND	ND	ND	ND	ND	ND	ND	ND	2	ND	ND	0.05	0.1	0.1	0.05	20	100	140	100	300	100	0.03	0.221277
Maximum Concentration	8	38	4.7	28	22000	4200	81000	2600	0.1	0.0021	1700	0.15	0.63	0.28	52.9	34	2800	53	1.2	860	0.95	<1	<1	<1	<1	<1	<1	<1	<1	12	12	<1	<1	10	23	0.5	10	<2000	31700	7800	23000	1100	32600	<2	138.1246
Maximum Detect	8	38	4.7	28	22000	4200	81000	2600	0.1	0.0021	1700	0.15	0.63	0.28	52.9	34	2800	53	1.2	860	0.95	ND	ND	ND	ND	ND	ND	ND	ND	12	12	ND	ND	10	23	0.5	10	270	31700	7800	23000	1100	32600	0.4	138.1246
Average Concentration	0.69	2	0.22	1.2	2103	514	9809	260	0.004	0.0003	200	0.01	0.022	0.012	1.2	2.1	262	2.2	0.07	80	0.12	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	6.8	0.9	0.5	0.5	0.69	1.4	0.08	0.69	70	2114	532	1515	131	2151	0.07	13
Median Concentration	0.03	0.42	0.01	0.02	490	85	1800	7.1	5E-04	0.0001	41.5	0.003	0.003	0.001	0.03	0.03	41	0.06	0.01	21	0.02	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.03	0.1	0.05	0.03	10	50	25	50	50	50	0.01	2.735499
Standard Deviation	1.9	5.7	0.78	4.1	4037	975	17688	597	0.012	0.0005	380	0.023	0.086	0.041	6.3	5	571	9.7	0.18	151	0.2	0	0	0	0	0	0	0	0	37	1.6	0	0	1.9	4.1	0.1	1.9	211	6030	1512	4300	227	6133	0.21	27
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	6	0	0	5	6	22	0	0	0	0	6	0	41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36

Data Comments

* Quantification of linear and branched isomers has been conducted as a single total response using the relative response factor for the corresponding linear/branched standard.

								Field_ID	GW17-12	GW17-30	GW17-3	GW18-12	GW18-3	GW17-12	GW17-30	GW18-12	SW12	SW13	SW14
								Monitoring Round	Apr-21	Apr-21	Apr-21	Apr-21	Apr-21	May-21	May-21	May-21	May-21	May-21	May-21
								Sampled Date	13/05/2021	13/05/2021	13/05/2021	13/05/2021	13/05/2021	10/06/2021	10/06/2021	10/06/2021	10/06/2021	10/06/2021	10/06/2021
Chem Group	Chem Name	Units	EQL	Darwin Harbour Water Objectives (Shoal Bay upper area)	ANZG (2018) Marine water 90% toxicant DGVs	PFAS NEMP 2020 Interim Marine 90%	PFAS NEMP 2020 Interim Marine 95%															
Field	SWL	mbtoc						4.32	4.75	2.21	3.69	2.95	5.75	6.08	5.45	-	-	-
	pH	pH		6-8.5	6-8			7.48	6.49	6.94	**11.78**	7.04	**8.2**	6.68	**12.32**	7.53	**8.22**	**8.48**
	Electrical conductivity	uS/cm						9708	57908	12861	14001	5442	11078	57240	6540	2274	1529	385.9
	Redox Potential	mV						64	118.6	67.7	-44.6	64.7	138.3	134.4	62.6	90	83.1	68.5
	Dissolved Oxygen	%S		80-100				4.61mg/L	4.2mg/L	7.26mg/L	4.96mg/L	0.91mg/L	**59.6**	**43.2**	**58.6**	**27.8**	**69.7**	**60.3**
	Temp	oC						29.5	29.5	28.8	31.4	30.7	31.8	31	30.8	27.9	27.6	23
	Tokuthion	mg/L	0.002					<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
	Acetic Acid	µg/L	5000					-	-	-	-	-	<5000	<5000	6700	-	-	-
	Aminomethyl phosphonic acid	µg/L	10					<1000	<1000	<1000	<1000	<1000	<10	<10	<10	-	-	-
	Valeric Acid	µg/L	5000					-	-	-	-	-	<5000	<5000	<5000	-	-	-
Inorganic	Carbonate Alkalinity (as CaCO3)	MG/L	10					<10	<10	<10	710	<10	<10	<10	120	<10	<10	<10
PFAS	(N-EtFOSA)	mg/L	0.00005					<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	-	-	-
	Perfluorononanesulfonic acid (PFNS)(trace)	µg/L	0.01					<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-
	N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	UG/L	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-
	Perfluorooctanoate (PFOA)	mg/L	0.00001			**0.632**	**0.22**	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	-	-	-
	Sum of PFASs (n=30)*	UG/L	0.1					<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-
	Sum of US EPA PFAS (PFOS + PFOA)*	UG/L	0.01					<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-
	Sum of WA DWER PFAS (n=10)*	UG/L	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-
	Perfluorobutanesulfonic acid (PFBS)	UG/L	0.01					<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-
	Perfluorobutanoic acid (PFBA)	UG/L	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-
	Perfluorodecanesulfonic acid (PFDS)	UG/L	0.01					<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-
	Perfluorodecanoic acid (PFDA)	UG/L	0.01					<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-
	Perfluorododecanoic acid (PFDoDA)	UG/L	0.01					<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-
	Perfluoroheptanesulfonic acid (PFHpS)	UG/L	0.01					<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-
	Perfluoroheptanoic acid (PFHpA)	UG/L	0.01					<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-
	Perfluorohexanesulfonic acid (PFHxS)	UG/L	0.01					<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-
	Perfluorohexanoic acid (PFHxA)	UG/L	0.01					<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-
	Perfluorononanoic acid (PFNA)	UG/L	0.01					<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-
	Perfluorooctane sulfonamide (FOSA)	UG/L	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-
	Perfluorooctanesulfonic acid (PFOS)	UG/L	0.01			**2**	**0.13**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-
	Perfluoropentanesulfonic acid (PFPeS)	UG/L	0.01					<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-
	Perfluoropentanoic acid (PFPeA)	UG/L	0.01					<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-
	Perfluoropropanesulfonic acid (PFPrS)	UG/L	0.01					<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-
	Perfluorotetradecanoic acid (PFTeDA)	UG/L	0.01					<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-
	Perfluorotridecanoic acid (PFTrDA)	UG/L	0.01					<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-
	Perfluoroundecanoic acid (PFUnDA)	UG/L	0.01					<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-
	Sum (PFHxS + PFOS)*	UG/L	0.01					<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-
	Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	UG/L	0.01					<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-
VFA	4-Methylvaleric acid*	MG/L	5					-	-	-	-	-	<5	<5	<5	-	-	-
	Heptanoic acid*	MG/L	5					-	-	-	-	-	<5	<5	<5	-	-	-
	Isovaleric acid*	MG/L	5					-	-	-	-	-	<5	<5	<5	-	-	-
	Isobutyric acid*	MG/L	5					-	-	-	-	-	<5	<5	<5	-	-	-
	Total VFA as Acetic Acid Equivalents*	MG/L	5					-	-	-	-	-	<5	<5	6.7	-	-	-
BTEX	Benzene	µg/L	1	900	900			<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Ethylbenzene	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Toluene	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Xylene (m & p)	µg/L	2					<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
	Xylene (o)	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Xylene Total	µg/L	3					<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
	C6-C10 less BTEX (F1)	mg/L	0.02					<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Chlorinated Hydrocar	1,1,1,2-tetrachloroethane	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	-	-	-
	1,1,1-trichloroethane	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	-	-	-
	1,1,2,2-tetrachloroethane	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	-	-	-

							Field_ID	GW17-12	GW17-30	GW17-3	GW18-12	GW18-3	GW17-12	GW17-30	GW18-12	SW12	SW13	SW14
							Monitoring Round	Apr-21	Apr-21	Apr-21	Apr-21	Apr-21	May-21	May-21	May-21	May-21	May-21	May-21
							Sampled Date	13/05/2021	13/05/2021	13/05/2021	13/05/2021	13/05/2021	10/06/2021	10/06/2021	10/06/2021	10/06/2021	10/06/2021	10/06/2021
Chem Group	Chem Name	Units	EQL	Darwin Harbour Water Objectives (Shoal Bay upper area)	ANZG (2018) Marine water 90% toxicant DGVs	PFAS NEMP 2020 Interim Marine 90%	PFAS NEMP 2020 Interim Marine 95%																
	1,1,2-trichloroethane	µg/L	1		**5800**			<1	<1	<1	<1	<1	<1	<1	<1	-	-	-
	1,1-dichloroethane	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	-	-	-
	1,1-dichloroethene	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	-	-	-
	1,2,3-trichloropropane	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	-	-	-
	1,2-dichloroethane	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	-	-	-
	1,2-dichloropropane	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	-	-	-
	1,3-dichloropropane	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	-	-	-
	Bromochloromethane	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	-	-	-
	Bromodichloromethane	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	-	-	-
	Bromoform	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	-	-	-
	Carbon tetrachloride	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	-	-	-
	Chlorodibromomethane	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	-	-	-
	Chloroethane	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	-	-	-
	Chloroform	µg/L	5					<5	<5	<5	<5	<5	<5	<5	<5	-	-	-
	Chloromethane	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	-	-	-
	cis-1,2-dichloroethene	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	-	-	-
	cis-1,3-dichloropropene	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	-	-	-
	Dibromomethane	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	-	-	-
	Dichloromethane	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	-	-	-
	Trichloroethene	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	-	-	-
	Tetrachloroethene	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	-	-	-
	trans-1,2-dichloroethene	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	-	-	-
	trans-1,3-dichloropropene	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	-	-	-
	Vinyl chloride	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	-	-	-
Explosives	1,3,5-Trinitrobenzene	mg/L	0.1					<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-
	1,3-Dinitrobenzene	mg/L	0.1					<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-
	2,4,6-Trinitrotoluene (TNT)	mg/L	0.1					<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-
	2,4-& 2,6-Dinitrotoluene	mg/L	0.1					<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-
	2-Nitrotoluene	µg/L	100					<100	<100	<100	<100	<100	<100	<100	<100	-	-	-
	4-Nitrotoluene	mg/L	0.1					<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-
	m-Nitrotoluene	mg/L	0.1					<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-
	Nitrobenzene	µg/L	100					<100	<100	<100	<100	<100	<100	<100	<100	-	-	-
	RDX	mg/L	0.1					<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-
Halogenated Benzen	1,2-dichlorobenzene	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	-	-	-
	1,3-dichlorobenzene	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	-	-	-
	1,4-dichlorobenzene	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	-	-	-
	4-chlorotoluene	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	-	-	-
	Bromobenzene	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	-	-	-
	Chlorobenzene	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	-	-	-
	Hexachlorobenzene	µg/L	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Halogenated Hydroca	1,2-dibromoethane	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	-	-	-
	Bromomethane	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	-	-	-
	Dichlorodifluoromethane	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	-	-	-
	Iodomethane	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	-	-	-
	Trichlorofluoromethane	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	-	-	-
Halogenated Phenols	2,4,5-trichlorophenol	µg/L	10					<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
	2,4,6-trichlorophenol	µg/L	10					<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
	2,4-dichlorophenol	µg/L	3					<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
	2,6-dichlorophenol	µg/L	3					<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
	2-chlorophenol	µg/L	3					<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
	Pentachlorophenol	µg/L	10		**33**			<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
	tetrachlorophenols	µg/L	30					<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30
Herbicides	2,4,5-Trichlorophenoxy-propanoic acid	mg/L	5					-	-	-	-	-	<5	<5	<5	-	-	-
	Dinoseb	µg/L	100					<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100

								Field_ID	GW17-12	GW17-30	GW17-3	GW18-12	GW18-3	GW17-12	GW17-30	GW18-12	SW12	SW13	SW14
								Monitoring Round	Apr-21	Apr-21	Apr-21	Apr-21	Apr-21	May-21	May-21	May-21	May-21	May-21	May-21
								Sampled Date	13/05/2021	13/05/2021	13/05/2021	13/05/2021	13/05/2021	10/06/2021	10/06/2021	10/06/2021	10/06/2021	10/06/2021	10/06/2021
Chem Group	Chem Name	Units	EQL	Darwin Harbour Water Objectives (Shoal Bay upper area)	ANZG (2018) Marine water 90% toxicant DGVs	PFAS NEMP 2020 Interim Marine 90%	PFAS NEMP 2020 Interim Marine 95%															
	Glyphosate	mg/L	0.01					<1	<1	<1	<1	<1	<0.01	<0.01	<0.01	-	-	-				
Inorganics	Alkalinity (Bicarbonate as CaCO3)	mg/L	20					69	110	31	<20	140	54	120	<20	180	86	40				
	Nitrite + Nitrate as N	mg/L	0.05					0.31	0.41	0.58	0.06	0.11	0.38	0.44	<0.05	0.25	<0.05	<0.05				
	Alkalinity (Hydroxide) as CaCO3	µg/L	20000					<20,000	<20,000	<20,000	360,000	<20,000	<20,000	<20,000	800,000	<20,000	<20,000	<20,000				
	Alkalinity (total) as CaCO3	mg/L	20					69	110	31	1100	140	54	120	920	180	86	40				
	Ammonia as N	µg/L	10	**20**	**1200**			**50**	**200**	**60**	**140**	10	<10	**160**	**240**	**790**	**60**	**30**				
	Chloride	mg/L	1					2900	21,000	5900	4700	1500	2800	18,000	2700	600	610	98				
	COD	mg/L	25					30	250	1000	150	540	76	430	200	120	30	<25				
	Kjeldahl Nitrogen Total	mg/L	0.2					1	<0.2	<0.2	1.5	2.2	0.5	<0.2	1.4	5.1	0.8	1.4				
	Nitrate (as N)	mg/L	0.02					0.3	0.41	0.57	0.06	0.1	0.25	0.44	0.03	0.17	<0.02	<0.02				
	Nitrite (as N)	mg/L	0.02					<0.02	<0.02	<0.02	<0.02	<0.02	0.13	<0.02	<0.02	0.08	<0.02	<0.02				
	Nitrogen (Total)	µg/L	200	**300**				**1310**	**410**	**580**	**1560**	**2310**	**880**	**440**	**1400**	**5350**	**800**	**1400**				
	Reactive Phosphorus as P	mg/L	0.01	**10**				0.01	<0.01	0.01	0.04	<0.01	<0.01	0.01	0.02	0.01	0.01	0.01				
	Sodium	mg/L	0.5					1400	9600	2800	1500	790	1500	9600	1600	320	270	47				
	Sodium (Filtered)	mg/L	0.5					-	-	-	-	-	-	-	-	-	-	-				
	Sulphate	mg/L	5					300	1900	490	1000	200	300	1800	1200	38	60	6.6				
	TDS	mg/L	10					5100	39,000	13,000	6700	2500	5400	28,000	5100	1100	1100	210				
	TOC	mg/L	5					12	<5	13	13	16	<5	<5	10	47	11	10				
	TSS	mg/L	1	**10**				7.5	**160**	**180**	**240**	**560**	2.8	8.2	**26**	**37**	6.9	6.9				
MAH	1,2,4-trimethylbenzene	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	-	-	-				
	1,3,5-trimethylbenzene	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	-	-	-				
	Total MAH	mg/L	0.003					<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	-	-	-				
	Isopropylbenzene	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	-	-	-				
	Styrene	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	-	-	-				
Lead	Lead (Filtered)	mg/L	0.001	**0.0066**	**0.0066**			0.002	**0.18**	**0.11**	0.002	**0.02**	0.002	**0.13**	<0.001	<0.001	<0.001	<0.001				
Metals	Arsenic (Filtered)	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-				
	Barium (Filtered)	mg/L	0.02					0.14	0.13	0.23	0.23	0.18	0.14	0.13	0.18	-	-	-				
	Beryllium (Filtered)	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-				
	Boron (Filtered)	mg/L	0.05					<0.05	0.28	0.06	<0.05	<0.05	0.05	0.29	<0.05	0.29	0.11	<0.05				
	Cadmium (Filtered)	mg/L	0.0002	**0.014**	**0.014**			0.0005	0.0026	0.0026	<0.0002	0.0002	0.0004	0.0019	<0.0002	-	-	-				
	Calcium	mg/L	0.5					170	1700	500	1100	83	180	1800	880	84	47	13				
	Calcium (Filtered)	mg/L	0.5					-	-	-	-	-	-	-	-	-	-	-				
	Chromium (hexavalent)	mg/L	0.005	**0.02**	**0.02**			<0.005	<0.005	<0.005	**0.5**	<0.005	<0.005	<0.005	**0.67**	-	-	-				
	Chromium (III+VI) (Filtered)	mg/L	0.001					-	-	-	-	-	-	-	-	0.004	<0.001	<0.001				
	Cobalt (Filtered)	mg/L	0.001	**0.014**	**0.014**			0.008	**0.017**	**0.039**	0.002	0.007	0.007	**0.016**	0.002	-	-	-				
	Copper (Filtered)	mg/L	0.001	**0.003**	**0.003**			<0.001	0.001	**0.004**	**0.008**	0.002	<0.001	0.002	**0.005**	<0.001	<0.001	<0.001				
	Iron (Filtered)	mg/L	0.05					<0.05	<0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-				
	Magnesium	mg/L	0.5					140	1300	450	<5	68	120	1300	8.1	28	33	5.9				
	Magnesium (Filtered)	mg/L	0.5					-	-	-	-	-	-	-	-	-	-	-				
	Manganese (Filtered)	mg/L	0.005					0.26	4.3	1.5	<0.005	0.66	0.25	3	<0.005	-	-	-				
	Mercury (Filtered)	mg/L	0.0001	**0.0007**	**0.0007**			<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	-	-				
	Nickel (Filtered)	mg/L	0.001	**0.2**	**0.2**			0.041	0.039	0.1	0.008	0.006	0.039	0.036	0.005	0.01	0.002	<0.001				
	Phosphorus	mg/L	0.01					0.01	<0.01	0.16	<0.01	0.1	0.03	0.03	0.03	0.26	0.03	0.04				
	Potassium	mg/L	0.5					38	86	20	120	<5	42	88	82	54	23	4.1				
	Potassium (Filtered)	mg/L	0.5					-	-	-	-	-	-	-	-	-	-	-				
	Selenium (Filtered)	mg/L	0.001					<0.001	<0.001	0.001	0.008	0.001	<0.001	<0.001	0.005	-	-	-				
	Vanadium (Filtered)	mg/L	0.005	**0.16**	**0.16**			<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	-	-				
	Zinc (Filtered)	mg/L	0.005	**0.023**	**0.023**			**0.15**	**0.25**	**0.54**	<0.005	**0.045**	**0.18**	**0.19**	<0.005	<0.005	<0.005	<0.005				
Organochlorine Pesti	4,4-DDE	µg/L	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2				
	a-BHC	µg/L	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2				
	Aldrin	µg/L	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2				
	Aldrin + Dieldrin	µg/L	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2				
	b-BHC	µg/L	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2				
	chlordane	µg/L	2					<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2				

								Field_ID	GW17-12	GW17-30	GW17-3	GW18-12	GW18-3	GW17-12	GW17-30	GW18-12	SW12	SW13	SW14
								Monitoring Round	Apr-21	Apr-21	Apr-21	Apr-21	Apr-21	May-21	May-21	May-21	May-21	May-21	May-21
								Sampled Date	13/05/2021	13/05/2021	13/05/2021	13/05/2021	13/05/2021	10/06/2021	10/06/2021	10/06/2021	10/06/2021	10/06/2021	10/06/2021
Chem Group	Chem Name	Units	EQL	Darwin Harbour Water Objectives (Shoal Bay upper area)	ANZG (2018) Marine water 90% toxicant DGVs	PFAS NEMP 2020 Interim Marine 90%	PFAS NEMP 2020 Interim Marine 95%															
	d-BHC	µg/L	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2				
	DDD	µg/L	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2				
	DDT	µg/L	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2				
	DDT+DDE+DDD	µg/L	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2				
	Dieldrin	µg/L	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2				
	Endosulfan I	µg/L	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2				
	Endosulfan II	µg/L	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2				
	Endosulfan sulphate	µg/L	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2				
	Endrin	µg/L	0.2		**0.01**			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2				
	Endrin aldehyde	µg/L	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2				
	Endrin ketone	µg/L	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2				
	g-BHC (Lindane)	µg/L	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2				
	Heptachlor	µg/L	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2				
	Heptachlor epoxide	µg/L	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2				
	Methoxychlor	µg/L	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2				
	Toxaphene	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001				
Organophosphorous	Azinophos methyl	µg/L	2					<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2				
	Bolstar (Sulprofos)	µg/L	2					<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2				
	Chlorfenvinphos	µg/L	2					<2	<2	<2	<2	<2	<20	<20	<20	<20	<20	<20				
	Chlorpyrifos	µg/L	2		**0.04**			<20	<20	<20	<20	<20	<2	<2	<2	<2	<2	<2				
	Chlorpyrifos-methyl	mg/L	0.002					<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002				
	Coumaphos	µg/L	20					<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20				
	Demeton-O	µg/L	2					<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2				
	Demeton-S	µg/L	2					<20	<20	<20	<20	<20	<2	<2	<2	<2	<2	<2				
	Diazinon	µg/L	2					<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2				
	Dichlorvos	µg/L	2					<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2				
	Dimethoate	µg/L	2					<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2				
	Disulfoton	µg/L	2					<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2				
	Ethion	µg/L	2					<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2				
	Ethoprop	µg/L	2					<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2				
	Fenitrothion	µg/L	2					<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2				
	Fensulfothion	µg/L	2					<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2				
	Fenthion	µg/L	2					<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2				
	Malathion	µg/L	2					<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2				
	Merphos	mg/L	0.002					<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002				
	Methyl parathion	µg/L	2					<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2				
	Mevinphos (Phosdrin)	µg/L	2					<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2				
	Monocrotophos	µg/L	2					<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2				
	Naled (Dibrom)	µg/L	2					<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2				
	Omethoate	µg/L	2					<2	<2	<2	<2	<2	<20	<20	<20	<20	<20	<20				
	Phorate	µg/L	2					<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2				
	Pyrazophos	µg/L	2					<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2				
	Ronnel	µg/L	2					<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2				
	Terbufos	µg/L	2					<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2				
	Trichloronate	µg/L	2					<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2				
	Tetrachlorvinphos	mg/L	0.002					<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002				
Other	Butyric Acid	mg/L	5					-	-	-	-	-	<5	<5	<5	-	-	-				
	Hexanoic Acid	mg/L	5					-	-	-	-	-	<5	<5	<5	-	-	-				
	6:2 Fluorotelomer Sulfonate (6:2 FtS)	mg/L	0.00005					<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	-	-	-				
PAH	Benzo(b+j)fluoranthene	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001				
PAH/Phenols	2,4-dimethylphenol	µg/L	3					<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3				
	2,4-dinitrophenol	mg/L	0.03					<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03				
	2-methylphenol	µg/L	3					<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3				
	2-nitrophenol	µg/L	10					<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10				

							Field_ID	GW17-12	GW17-30	GW17-3	GW18-12	GW18-3	GW17-12	GW17-30	GW18-12	SW12	SW13	SW14
							Monitoring Round	Apr-21	Apr-21	Apr-21	Apr-21	Apr-21	May-21	May-21	May-21	May-21	May-21	May-21
							Sampled Date	13/05/2021	13/05/2021	13/05/2021	13/05/2021	13/05/2021	10/06/2021	10/06/2021	10/06/2021	10/06/2021	10/06/2021	10/06/2021
Chem Group	Chem Name	Units	EQL	Darwin Harbour Water Objectives (Shoal Bay upper area)	ANZG (2018) Marine water 90% toxicant DGVs	PFAS NEMP 2020 Interim Marine 90%	PFAS NEMP 2020 Interim Marine 95%															
	3-&4-methylphenol	µg/L	6					<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6
	4,6-Dinitro-2-methylphenol	µg/L	30					<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30
	4-chloro-3-methylphenol	µg/L	10					<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
	4-nitrophenol	µg/L	30					<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30
	Acenaphthene	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Acenaphthylene	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Anthracene	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Benz(a)anthracene	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Benzo(a) pyrene	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Benzo(g,h,i)perylene	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Benzo(k)fluoranthene	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Chrysene	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Cresol Total	mg/L	0.002					-	-	-	-	-	<0.006	-	<0.006	-	-	-
	Dibenz(a,h)anthracene	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Fluoranthene	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Fluorene	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Indeno(1,2,3-c,d)pyrene	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Naphthalene	µg/L	1	**90**	**90**			<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	PAHs (Sum of total)	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Phenanthrene	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Phenol	µg/L	3		**520**			<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
	Pyrene	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Pesticides	Parathion	µg/L	2					<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
	Pirimiphos-methyl	mg/L	0.02					<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Phenolics	4,6-Dinitro-o-cyclohexyl phenol	µg/L	100					<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
	Phenols (Total Halogenated)	mg/L	0.01					<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Phenols (Total Non Halogenated)	mg/L	0.1					<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Polychlorinated Biphe	Arochlor 1016	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Arochlor 1221	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Arochlor 1232	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Arochlor 1242	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Arochlor 1248	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Arochlor 1254	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Arochlor 1260	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	PCBs (Sum of total)	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Solvents	Methyl Ethyl Ketone	µg/L	1					<1	<1	<1	3	<1	<1	<1	2	-	-	-
	4-Methyl-2-pentanone	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	-	-	-
	Acetone	mg/L	0.001					0.002	<0.001	0.001	0.017	0.003	<0.001	<0.001	0.013	-	-	-
	Allyl chloride	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-
	Carbon disulfide	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	-	-	-
SVOCs	EPN	µg/L	2					<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
TPH	C10-C16	mg/L	0.05					<0.05	<0.05	0.9	<0.05	0.39	<0.05	<0.05	0.1	0.1	<0.05	<0.05
	C16-C34	mg/L	0.1					<0.1	<0.1	1.3	<0.1	0.8	<0.1	<0.1	0.2	0.3	<0.1	0.6
	C34-C40	mg/L	0.1					<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	F2-NAPHTHALENE	mg/L	0.05					<0.05	<0.05	0.9	<0.05	0.39	<0.05	<0.05	0.1	0.1	<0.05	<0.05
	C6 - C9	µg/L	20					<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
	+C10 - C36 (Sum of total)	µg/L	100					<100	<100	2290	<100	1170	<100	<100	270	370	<100	500
	C10 - C14	µg/L	50					<50	<50	490	<50	170	<50	<50	70	70	<50	<50
	C15 - C28	µg/L	100					<100	<100	1800	<100	1000	<100	<100	200	300	<100	500
	C29-C36	µg/L	100					<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
	C10 - C40 (Sum of total)	µg/L	100					<100	<100	2200	<100	1190	<100	<100	300	400	<100	600
	C6-C10	mg/L	0.02					<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02

							Field_ID	GW17-12	GW17-30	GW18-12	SW12	SW13	SW14										
							Monitoring Round	Jun-21	Jun-21	Jun-21	Jun-21	Jun-21	Jun-21										
							Sampled Date	9/07/2021	9/07/2021	9/07/2021	9/07/2021	9/07/2021	9/07/2021										
				Darwin Harbour Water Objectives (Shoal Bay upper area)	ANZG (2018) Marine water 90% toxicant DGVs	PFAS NEMP 2020 Interim Marine 90%	PFAS NEMP 2020 Interim Marine 95%							Statistical Summary									
Chem Group	Chem Name	Units	EQL											Number of	Number	Minimum	Minimum	Maximum	Maximum				
Field	SWL	mbtoc						7.53	7.73	5.19	-	-	-	17	17	2.21	2.21	7.73	7.73				
	pH	pH		6-8.5	6-8			7.26	7.14	12.5	10.92	11.62	11.76	17	17	6.49	6.49	12.5	12.5				
	Electrical conductivity	uS/cm						11520	51493	12577	2982	2549	500	17	17	385.9	385.9	57908	57908				
	Redox Potential	mV						61.8	115.7	78	127.8	125.3	116.7	17	17	-44.6	ND	138.3	138.3				
	Dissolved Oxygen	%S		80-100				61.7	43.7	52	76.2	97	73.2	17	17	0.91	0.91	97	97				
	Temp	oC						29	28.4	30.1	29.7	31.7	28.4	17	17	23	23	31.8	31.8				
	Tokuthion	mg/L	0.002					-	-	-	<0.002	<0.002	<0.002	14	0	<0.002	ND	<0.002	ND				
	Acetic Acid	µg/L	5000					<5000	<5000	6800	-	-	-	6	2	<5000	6700	6800	6800				
	Aminomethyl phosphonic acid	µg/L	10					<1000	<1000	<1000	-	-	-	11	0	<10	ND	<1000	ND				
	Valeric Acid	µg/L	5000					<5000	<5000	<5000	-	-	-	6	0	<5000	ND	<5000	ND				
Inorganic	Carbonate Alkalinity (as CaCO3)	MG/L	10					<10	<10	12	17	17	<10	17	5	<10	12	710	710				
PFAS	(N-EtFOSA)	mg/L	0.00005					<0.00005	<0.00005	<0.00005	-	-	-	11	0	<0.00005	ND	<0.00005	ND				
	Perfluorononanesulfonic acid (PFNS)(trace)	µg/L	0.01					<0.01	<0.01	<0.01	-	-	-	11	0	<0.01	ND	<0.01	ND				
	N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	UG/L	0.05					<0.05	<0.05	<0.05	-	-	-	11	0	<0.05	ND	<0.05	ND				
	Perfluorooctanoate (PFOA)	mg/L	0.00001			0.632	0.22	<0.00001	<0.00001	<0.00001	-	-	-	11	0	<0.00001	ND	<0.00001	ND				
	Sum of PFASs (n=30)*	UG/L	0.1					<0.1	<0.1	<0.1	-	-	-	11	0	<0.1	ND	<0.1	ND				
	Sum of US EPA PFAS (PFOS + PFOA)*	UG/L	0.01					<0.01	<0.01	<0.01	-	-	-	11	0	<0.01	ND	<0.01	ND				
	Sum of WA DWER PFAS (n=10)*	UG/L	0.05					<0.05	<0.05	<0.05	-	-	-	11	0	<0.05	ND	<0.05	ND				
	Perfluorobutanesulfonic acid (PFBS)	UG/L	0.01					<0.01	<0.01	<0.01	-	-	-	11	0	<0.01	ND	<0.01	ND				
	Perfluorobutanoic acid (PFBA)	UG/L	0.05					<0.05	<0.05	<0.05	-	-	-	11	0	<0.05	ND	<0.05	ND				
	Perfluorodecanesulfonic acid (PFDS)	UG/L	0.01					<0.01	<0.01	<0.01	-	-	-	11	0	<0.01	ND	<0.01	ND				
	Perfluorodecanoic acid (PFDA)	UG/L	0.01					<0.01	<0.01	<0.01	-	-	-	11	0	<0.01	ND	<0.01	ND				
	Perfluorododecanoic acid (PFDoDA)	UG/L	0.01					<0.01	<0.01	<0.01	-	-	-	11	0	<0.01	ND	<0.01	ND				
	Perfluoroheptanesulfonic acid (PFHpS)	UG/L	0.01					<0.01	<0.01	<0.01	-	-	-	11	0	<0.01	ND	<0.01	ND				
	Perfluoroheptanoic acid (PFHpA)	UG/L	0.01					<0.01	<0.01	<0.01	-	-	-	11	0	<0.01	ND	<0.01	ND				
	Perfluorohexanesulfonic acid (PFHxS)	UG/L	0.01					<0.01	<0.01	<0.01	-	-	-	11	0	<0.01	ND	<0.01	ND				
	Perfluorohexanoic acid (PFHxA)	UG/L	0.01					<0.01	<0.01	<0.01	-	-	-	11	0	<0.01	ND	<0.01	ND				
	Perfluorononanoic acid (PFNA)	UG/L	0.01					<0.01	<0.01	<0.01	-	-	-	11	0	<0.01	ND	<0.01	ND				
	Perfluorooctane sulfonamide (FOSA)	UG/L	0.05					<0.05	<0.05	<0.05	-	-	-	11	0	<0.05	ND	<0.05	ND				
	Perfluorooctanesulfonic acid (PFOS)	UG/L	0.01			2	0.13	<0.01	<0.01	<0.01	-	-	-	11	0	<0.01	ND	<0.01	ND				
	Perfluoropentanesulfonic acid (PFPeS)	UG/L	0.01					<0.01	<0.01	<0.01	-	-	-	11	0	<0.01	ND	<0.01	ND				
	Perfluoropentanoic acid (PFPeA)	UG/L	0.01					<0.01	<0.01	<0.01	-	-	-	11	0	<0.01	ND	<0.01	ND				
	Perfluoropropanesulfonic acid (PFPrS)	UG/L	0.01					<0.01	<0.01	<0.01	-	-	-	11	0	<0.01	ND	<0.01	ND				
	Perfluorotetradecanoic acid (PFTeDA)	UG/L	0.01					<0.01	<0.01	<0.01	-	-	-	11	0	<0.01	ND	<0.01	ND				
	Perfluorotridecanoic acid (PFTrDA)	UG/L	0.01					<0.01	<0.01	<0.01	-	-	-	11	0	<0.01	ND	<0.01	ND				
	Perfluoroundecanoic acid (PFUnDA)	UG/L	0.01					<0.01	<0.01	<0.01	-	-	-	11	0	<0.01	ND	<0.01	ND				
	Sum (PFHxS + PFOS)*	UG/L	0.01					<0.01	<0.01	<0.01	-	-	-	11	0	<0.01	ND	<0.01	ND				
	Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	UG/L	0.01					<0.01	<0.01	<0.01	-	-	-	11	0	<0.01	ND	<0.01	ND				
VFA	4-Methylvaleric acid*	MG/L	5					<5	<5	<5	-	-	-	6	0	<5	ND	<5	ND				
	Heptanoic acid*	MG/L	5					<5	<5	<5	-	-	-	6	0	<5	ND	<5	ND				
	Isovaleric acid*	MG/L	5					<5	<5	<5	-	-	-	6	0	<5	ND	<5	ND				
	Isobutyric acid*	MG/L	5					<5	<5	<5	-	-	-	6	0	<5	ND	<5	ND				
	Total VFA as Acetic Acid Equivalents*	MG/L	5					<5	<5	6.8	-	-	-	6	2	<5	6.7	6.8	6.8				
BTEX	Benzene	µg/L	1	900	900			<1	<1	<1	<1	<1	<1	17	0	<1	ND	<1	ND				
	Ethylbenzene	µg/L	1					<1	<1	<1	<1	<1	<1	17	0	<1	ND	<1	ND				
	Toluene	µg/L	1					<1	<1	<1	<1	<1	<1	17	0	<1	ND	<1	ND				
	Xylene (m & p)	µg/L	2					<2	<2	<2	<2	<2	<2	17	0	<2	ND	<2	ND				
	Xylene (o)	µg/L	1					<1	<1	<1	<1	<1	<1	17	0	<1	ND	<1	ND				
	Xylene Total	µg/L	3					<3	<3	<3	<3	<3	<3	17	0	<3	ND	<3	ND				
	C6-C10 less BTEX (F1)	mg/L	0.02					<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	17	0	<0.02	ND	<0.02	ND				
Chlorinated Hydrocar	1,1,1,2-tetrachloroethane	µg/L	1					<1	<1	<1	-	-	-	11	0	<1	ND	<1	ND				
	1,1,1-trichloroethane	µg/L	1					<1	<1	<1	-	-	-	11	0	<1	ND	<1	ND				
	1,1,2,2-tetrachloroethane	µg/L	1					<1	<1	<1	-	-	-	11	0	<1	ND	<1	ND				

							Field_ID	GW17-12	GW17-30	GW18-12	SW12	SW13	SW14							
							Monitoring Round	Jun-21	Jun-21	Jun-21	Jun-21	Jun-21	Jun-21							
							Sampled Date	9/07/2021	9/07/2021	9/07/2021	9/07/2021	9/07/2021	9/07/2021							
				Darwin Harbour Water Objectives (Shoal Bay upper area)	ANZG (2018) Marine water 90% toxicant DGVs	PFAS NEMP 2020 Interim Marine 90%	PFAS NEMP 2020 Interim Marine 95%							Statistical Summary						
Chem Group	Chem Name	Units	EQL											Number of	Number	Minimum	Minimum	Maximum	Maximum
	1,1,2-trichloroethane	µg/L	1		**5800**			<1	<1	<1	-	-	-	11	0	<1	ND	<1	ND
	1,1-dichloroethane	µg/L	1					<1	<1	<1	-	-	-	11	0	<1	ND	<1	ND
	1,1-dichloroethene	µg/L	1					<1	<1	<1	-	-	-	11	0	<1	ND	<1	ND
	1,2,3-trichloropropane	µg/L	1					<1	<1	<1	-	-	-	11	0	<1	ND	<1	ND
	1,2-dichloroethane	µg/L	1					<1	<1	<1	-	-	-	11	0	<1	ND	<1	ND
	1,2-dichloropropane	µg/L	1					<1	<1	<1	-	-	-	11	0	<1	ND	<1	ND
	1,3-dichloropropane	µg/L	1					<1	<1	<1	-	-	-	11	0	<1	ND	<1	ND
	Bromochloromethane	µg/L	1					<1	<1	<1	-	-	-	11	0	<1	ND	<1	ND
	Bromodichloromethane	µg/L	1					<1	<1	<1	-	-	-	11	0	<1	ND	<1	ND
	Bromoform	µg/L	1					<1	<1	<1	-	-	-	11	0	<1	ND	<1	ND
	Carbon tetrachloride	µg/L	1					<1	<1	<1	-	-	-	11	0	<1	ND	<1	ND
	Chlorodibromomethane	µg/L	1					<1	<1	<1	-	-	-	11	0	<1	ND	<1	ND
	Chloroethane	µg/L	1					<1	<1	<1	-	-	-	11	0	<1	ND	<1	ND
	Chloroform	µg/L	5					<5	<5	<5	-	-	-	11	0	<5	ND	<5	ND
	Chloromethane	µg/L	1					<1	<1	<1	-	-	-	11	0	<1	ND	<1	ND
	cis-1,2-dichloroethene	µg/L	1					<1	<1	<1	-	-	-	11	0	<1	ND	<1	ND
	cis-1,3-dichloropropene	µg/L	1					<1	<1	<1	-	-	-	11	0	<1	ND	<1	ND
	Dibromomethane	µg/L	1					<1	<1	<1	-	-	-	11	0	<1	ND	<1	ND
	Dichloromethane	µg/L	1					<1	<1	<1	-	-	-	11	0	<1	ND	<1	ND
	Trichloroethene	µg/L	1					<1	<1	<1	-	-	-	11	0	<1	ND	<1	ND
	Tetrachloroethene	µg/L	1					<1	<1	<1	-	-	-	11	0	<1	ND	<1	ND
	trans-1,2-dichloroethene	µg/L	1					<1	<1	<1	-	-	-	11	0	<1	ND	<1	ND
	trans-1,3-dichloropropene	µg/L	1					<1	<1	<1	-	-	-	11	0	<1	ND	<1	ND
	Vinyl chloride	µg/L	1					<1	<1	<1	-	-	-	11	0	<1	ND	<1	ND
Explosives	1,3,5-Trinitrobenzene	mg/L	0.1					<0.1	<0.1	<0.1	-	-	-	11	0	<0.1	ND	<0.1	ND
	1,3-Dinitrobenzene	mg/L	0.1					<0.1	<0.1	<0.1	-	-	-	11	0	<0.1	ND	<0.1	ND
	2,4,6-Trinitrotoluene (TNT)	mg/L	0.1					<0.1	<0.1	<0.1	-	-	-	11	0	<0.1	ND	<0.1	ND
	2,4-& 2,6-Dinitrotoluene	mg/L	0.1					<0.1	<0.1	<0.1	-	-	-	11	0	<0.1	ND	<0.1	ND
	2-Nitrotoluene	µg/L	100					<100	<100	<100	-	-	-	11	0	<100	ND	<100	ND
	4-Nitrotoluene	mg/L	0.1					<0.1	<0.1	<0.1	-	-	-	11	0	<0.1	ND	<0.1	ND
	m-Nitrotoluene	mg/L	0.1					<0.1	<0.1	<0.1	-	-	-	11	0	<0.1	ND	<0.1	ND
	Nitrobenzene	µg/L	100					<100	<100	<100	-	-	-	11	0	<100	ND	<100	ND
	RDX	mg/L	0.1					<0.1	<0.1	<0.1	-	-	-	11	0	<0.1	ND	<0.1	ND
Halogenated Benzen	1,2-dichlorobenzene	µg/L	1					<1	<1	<1	-	-	-	11	0	<1	ND	<1	ND
	1,3-dichlorobenzene	µg/L	1					<1	<1	<1	-	-	-	11	0	<1	ND	<1	ND
	1,4-dichlorobenzene	µg/L	1					<1	<1	<1	-	-	-	11	0	<1	ND	<1	ND
	4-chlorotoluene	µg/L	1					<1	<1	<1	-	-	-	11	0	<1	ND	<1	ND
	Bromobenzene	µg/L	1					<1	<1	<1	-	-	-	11	0	<1	ND	<1	ND
	Chlorobenzene	µg/L	1					<1	<1	<1	-	-	-	11	0	<1	ND	<1	ND
	Hexachlorobenzene	µg/L	0.2					-	-	-	<0.2	<0.2	<0.2	14	0	<0.2	ND	<0.2	ND
Halogenated Hydroca	1,2-dibromoethane	µg/L	1					<1	<1	<1	-	-	-	11	0	<1	ND	<1	ND
	Bromomethane	µg/L	1					<1	<1	<1	-	-	-	11	0	<1	ND	<1	ND
	Dichlorodifluoromethane	µg/L	1					<1	<1	<1	-	-	-	11	0	<1	ND	<1	ND
	Iodomethane	µg/L	1					<1	<1	<1	-	-	-	11	0	<1	ND	<1	ND
	Trichlorofluoromethane	µg/L	1					<1	<1	<1	-	-	-	11	0	<1	ND	<1	ND
Halogenated Phenols	2,4,5-trichlorophenol	µg/L	10					<10	<10	<10	<10	<10	<10	17	0	<10	ND	<10	ND
	2,4,6-trichlorophenol	µg/L	10					<10	<10	<10	<10	<10	<10	17	0	<10	ND	<10	ND
	2,4-dichlorophenol	µg/L	3					<3	<3	<3	<3	<3	<3	17	0	<3	ND	<3	ND
	2,6-dichlorophenol	µg/L	3					<3	<3	<3	<3	<3	<3	17	0	<3	ND	<3	ND
	2-chlorophenol	µg/L	3					<3	<3	<3	<3	<3	<3	17	0	<3	ND	<3	ND
	Pentachlorophenol	µg/L	10		**33**			<10	<10	<10	<10	<10	<10	17	0	<10	ND	<10	ND
	tetrachlorophenols	µg/L	30					<30	<30	<30	<30	<30	<30	17	0	<30	ND	<30	ND
Herbicides	2,4,5-Trichlorophenoxy-propanoic acid	mg/L	5					<5	<5	<5	-	-	-	6	0	<5	ND	<5	ND
	Dinoseb	µg/L	100					<100	<100	<100	<100	<100	<100	17	0	<100	ND	<100	ND

														Statistical Summary					
	Field_ID			Darwin Harbour Water Objectives (Shoal Bay upper area)	ANZG (2018) Marine water 90% toxicant DGVs	PFAS NEMP 2020 Interim Marine 90%	PFAS NEMP 2020 Interim Marine 95%	GW17-12	GW17-30	GW18-12	SW12	SW13	SW14						
	Monitoring Round							Jun-21	Jun-21	Jun-21	Jun-21	Jun-21	Jun-21						
	Sampled Date							9/07/2021	9/07/2021	9/07/2021	9/07/2021	9/07/2021	9/07/2021						
Chem Group	**Chem Name**	**Units**	**EQL**											Number of	Number	Minimum	Minimum	Maximum	Maximum
	Glyphosate	mg/L	0.01					<1	<1	<1	-	-	-	11	0	<0.01	ND	<1	ND
Inorganics	Alkalinity (Bicarbonate as CaCO3)	mg/L	20					45	100	82	220	48	29	17	15	<20	29	220	220
	Nitrite + Nitrate as N	mg/L	0.05					0.51	0.67	<0.05	<0.05	<0.05	<0.05	17	10	<0.05	0.06	0.67	0.67
	Alkalinity (Hydroxide) as CaCO3	µg/L	20000					<20,000	<20,000	<20,000	<20,000	<20,000	<20,000	17	2	<20000	360000	800000	800000
	Alkalinity (total) as CaCO3	mg/L	20					45	100	93	230	65	29	17	17	29	29	1100	1100
	Ammonia as N	µg/L	10	**20**	**1200**			<10	**130**	**140**	**20**	**40**	<10	17	14	<10	10	790	790
	Chloride	mg/L	1					3200	20,000	5000	820	710	130	17	17	98	98	21000	21000
	COD	mg/L	25					290	8300	110	190	45	42	17	16	<25	30	8300	8300
	Kjeldahl Nitrogen Total	mg/L	0.2					<0.2	<0.2	<0.2	8.6	1.9	0.8	17	11	<0.2	0.5	8.6	8.6
	Nitrate (as N)	mg/L	0.02					0.51	0.43	<0.02	<0.02	<0.02	<0.02	17	11	<0.02	0.03	0.57	0.57
	Nitrite (as N)	mg/L	0.02					<0.02	0.24	<0.02	<0.02	<0.02	<0.02	17	3	<0.02	0.08	0.24	0.24
	Nitrogen (Total)	µg/L	200	**300**				**510**	**670**	<200	**8600**	**1900**	**800**	17	16	<200	410	8600	8600
	Reactive Phosphorus as P	mg/L	0.01	**10**				<0.01	0.02	0.05	<0.01	<0.01	<0.01	17	10	<0.01	0.01	0.05	0.05
	Sodium	mg/L	0.5					1600	10,000	2100	-	-	-	14	14	47	47	10000	10000
	Sodium (Filtered)	mg/L	0.5					-	-	-	320	330	61	3	3	61	61	330	330
	Sulphate	mg/L	5					330	1800	850	15	68	7.1	17	17	6.6	6.6	1900	1900
	TDS	mg/L	10					5600	37,000	7100	1600	1300	250	17	17	210	210	39000	39000
	TOC	mg/L	5					<5	<5	<5	18	19	12	17	11	<5	10	47	47
	TSS	mg/L	1	**10**				**210**	20	**120**	**30**	**36**	**10**	17	17	2.8	2.8	560	560
MAH	1,2,4-trimethylbenzene	µg/L	1					<1	<1	<1	-	-	-	11	0	<1	ND	<1	ND
	1,3,5-trimethylbenzene	µg/L	1					<1	<1	<1	-	-	-	11	0	<1	ND	<1	ND
	Total MAH	mg/L	0.003					<0.003	<0.003	<0.003	-	-	-	11	0	<0.003	ND	<0.003	ND
	Isopropylbenzene	µg/L	1					<1	<1	<1	-	-	-	11	0	<1	ND	<1	ND
	Styrene	µg/L	1					<1	<1	<1	-	-	-	11	0	<1	ND	<1	ND
Lead	Lead (Filtered)	mg/L	0.001	**0.0066**	**0.0066**			0.001	**0.11**	<0.001	<0.001	<0.001	<0.001	17	9	<0.001	0.001	0.18	0.18
Metals	Arsenic (Filtered)	mg/L	0.001					<0.001	0.003	<0.001	-	-	-	11	1	<0.001	0.003	0.003	0.003
	Barium (Filtered)	mg/L	0.02					0.13	0.21	0.17	-	-	-	11	11	0.13	0.13	0.23	0.23
	Beryllium (Filtered)	mg/L	0.001					<0.001	<0.001	<0.001	-	-	-	11	0	<0.001	ND	<0.001	ND
	Boron (Filtered)	mg/L	0.05					0.06	0.31	<0.05	0.09	0.09	<0.05	17	10	<0.05	0.05	0.31	0.31
	Cadmium (Filtered)	mg/L	0.0002	**0.014**	**0.014**			0.0005	0.0019	<0.0002	-	-	-	11	8	<0.0002	0.0002	0.0026	0.0026
	Calcium	mg/L	0.5					220	1900	970	-	-	-	14	14	13	13	1900	1900
	Calcium (Filtered)	mg/L	0.5					-	-	-	39	45	10	3	3	10	10	45	45
	Chromium (hexavalent)	mg/L	0.005	**0.02**	**0.02**			<0.005	<0.005	**0.23**	-	-	-	11	3	<0.005	0.23	0.67	0.67
	Chromium (III+VI) (Filtered)	mg/L	0.001					-	-	-	<0.001	<0.001	<0.001	6	1	<0.001	0.004	0.004	0.004
	Cobalt (Filtered)	mg/L	0.001	**0.014**	**0.014**			0.009	**0.015**	0.002	-	-	-	11	11	0.002	0.002	0.039	0.039
	Copper (Filtered)	mg/L	0.001	**0.003**	**0.003**			<0.001	0.002	**0.004**	0.001	<0.001	<0.001	17	9	<0.001	0.001	0.008	0.008
	Iron (Filtered)	mg/L	0.05					<0.05	<0.05	<0.05	-	-	-	11	1	<0.05	0.05	0.05	0.05
	Magnesium	mg/L	0.5					150	1500	<5	-	-	-	14	12	<5	5.9	1500	1500
	Magnesium (Filtered)	mg/L	0.5					-	-	-	34	37	6.6	3	3	6.6	6.6	37	37
	Manganese (Filtered)	mg/L	0.005					0.26	3.1	<0.005	-	-	-	11	8	<0.005	0.25	4.3	4.3
	Mercury (Filtered)	mg/L	0.0001	**0.0007**	**0.0007**			<0.0001	<0.0001	<0.0001	-	-	-	11	0	<0.0001	ND	<0.0001	ND
	Nickel (Filtered)	mg/L	0.001	**0.2**	**0.2**			0.044	0.039	0.005	0.002	0.002	<0.001	17	15	<0.001	0.002	0.1	0.1
	Phosphorus	mg/L	0.01					0.05	0.05	0.95	0.11	0.03	0.01	17	15	<0.01	0.01	0.95	0.95
	Potassium	mg/L	0.5					40	100	100	-	-	-	14	13	4.1	4.1	120	120
	Potassium (Filtered)	mg/L	0.5					-	-	-	23	23	4.4	3	3	4.4	4.4	23	23
	Selenium (Filtered)	mg/L	0.001					0.001	0.001	0.008	-	-	-	11	7	<0.001	0.001	0.008	0.008
	Vanadium (Filtered)	mg/L	0.005	**0.16**	**0.16**			<0.005	<0.005	<0.005	-	-	-	11	0	<0.005	ND	<0.005	ND
	Zinc (Filtered)	mg/L	0.005	**0.023**	**0.023**			**0.2**	**0.19**	<0.005	<0.005	<0.005	<0.005	17	8	<0.005	0.045	0.54	0.54
Organochlorine Pesti	4,4-DDE	µg/L	0.2					-	-	-	<0.2	<0.2	<0.2	14	0	<0.2	ND	<0.2	ND
	a-BHC	µg/L	0.2					-	-	-	<0.2	<0.2	<0.2	14	0	<0.2	ND	<0.2	ND
	Aldrin	µg/L	0.2					-	-	-	<0.2	<0.2	<0.2	14	0	<0.2	ND	<0.2	ND
	Aldrin + Dieldrin	µg/L	0.2					-	-	-	<0.2	<0.2	<0.2	14	0	<0.2	ND	<0.2	ND
	b-BHC	µg/L	0.2					-	-	-	<0.2	<0.2	<0.2	14	0	<0.2	ND	<0.2	ND
	chlordane	µg/L	2					-	-	-	<2	<2	<2	14	0	<2	ND	<2	ND

							Field_ID	GW17-12	GW17-30	GW18-12	SW12	SW13	SW14						
							Monitoring Round	Jun-21	Jun-21	Jun-21	Jun-21	Jun-21	Jun-21						
							Sampled Date	9/07/2021	9/07/2021	9/07/2021	9/07/2021	9/07/2021	9/07/2021						
				Darwin Harbour Water Objectives (Shoal Bay upper area)	ANZG (2018) Marine water 90% toxicant DGVs	PFAS NEMP 2020 Interim Marine 90%	PFAS NEMP 2020 Interim Marine 95%							Statistical Summary					
Chem Group	Chem Name	Units	EQL											Number of	Number	Minimum	Minimum	Maximum	Maximum
	d-BHC	µg/L	0.2					-	-	-	<0.2	<0.2	<0.2	14	0	<0.2	ND	<0.2	ND
	DDD	µg/L	0.2					-	-	-	<0.2	<0.2	<0.2	14	0	<0.2	ND	<0.2	ND
	DDT	µg/L	0.2					-	-	-	<0.2	<0.2	<0.2	14	0	<0.2	ND	<0.2	ND
	DDT+DDE+DDD	µg/L	0.2					-	-	-	<0.2	<0.2	<0.2	14	0	<0.2	ND	<0.2	ND
	Dieldrin	µg/L	0.2					-	-	-	<0.2	<0.2	<0.2	14	0	<0.2	ND	<0.2	ND
	Endosulfan I	µg/L	0.2					-	-	-	<0.2	<0.2	<0.2	14	0	<0.2	ND	<0.2	ND
	Endosulfan II	µg/L	0.2					-	-	-	<0.2	<0.2	<0.2	14	0	<0.2	ND	<0.2	ND
	Endosulfan sulphate	µg/L	0.2					-	-	-	<0.2	<0.2	<0.2	14	0	<0.2	ND	<0.2	ND
	Endrin	µg/L	0.2		**0.01**			-	-	-	<0.2	<0.2	<0.2	14	0	<0.2	ND	<0.2	ND
	Endrin aldehyde	µg/L	0.2					-	-	-	<0.2	<0.2	<0.2	14	0	<0.2	ND	<0.2	ND
	Endrin ketone	µg/L	0.2					-	-	-	<0.2	<0.2	<0.2	14	0	<0.2	ND	<0.2	ND
	g-BHC (Lindane)	µg/L	0.2					-	-	-	<0.2	<0.2	<0.2	14	0	<0.2	ND	<0.2	ND
	Heptachlor	µg/L	0.2					-	-	-	<0.2	<0.2	<0.2	14	0	<0.2	ND	<0.2	ND
	Heptachlor epoxide	µg/L	0.2					-	-	-	<0.2	<0.2	<0.2	14	0	<0.2	ND	<0.2	ND
	Methoxychlor	µg/L	0.2					-	-	-	<0.2	<0.2	<0.2	14	0	<0.2	ND	<0.2	ND
	Toxaphene	mg/L	0.001					-	-	-	<0.001	<0.001	<0.001	14	0	<0.001	ND	<0.001	ND
Organophosphorous	Azinophos methyl	µg/L	2					-	-	-	<2	<2	<2	14	0	<2	ND	<2	ND
	Bolstar (Sulprofos)	µg/L	2					-	-	-	<2	<2	<2	14	0	<2	ND	<2	ND
	Chlorfenvinphos	µg/L	2					-	-	-	<20	<20	<20	14	0	<2	ND	<20	ND
	Chlorpyrifos	µg/L	2		**0.04**			-	-	-	<2	<2	<2	14	0	<2	ND	<20	ND
	Chlorpyrifos-methyl	mg/L	0.002					-	-	-	<0.002	<0.002	<0.002	14	0	<0.002	ND	<0.002	ND
	Coumaphos	µg/L	20					-	-	-	<20	<20	<20	14	0	<20	ND	<20	ND
	Demeton-O	µg/L	2					-	-	-	<2	<2	<2	14	0	<2	ND	<2	ND
	Demeton-S	µg/L	2					-	-	-	<2	<2	<2	14	0	<2	ND	<20	ND
	Diazinon	µg/L	2					-	-	-	<2	<2	<2	14	0	<2	ND	<2	ND
	Dichlorvos	µg/L	2					-	-	-	<2	<2	<2	14	0	<2	ND	<2	ND
	Dimethoate	µg/L	2					-	-	-	<2	<2	<2	14	0	<2	ND	<2	ND
	Disulfoton	µg/L	2					-	-	-	<2	<2	<2	14	0	<2	ND	<2	ND
	Ethion	µg/L	2					-	-	-	<2	<2	<2	14	0	<2	ND	<2	ND
	Ethoprop	µg/L	2					-	-	-	<2	<2	<2	14	0	<2	ND	<2	ND
	Fenitrothion	µg/L	2					-	-	-	<2	<2	<2	14	0	<2	ND	<2	ND
	Fensulfothion	µg/L	2					-	-	-	<2	<2	<2	14	0	<2	ND	<2	ND
	Fenthion	µg/L	2					-	-	-	<2	<2	<2	14	0	<2	ND	<2	ND
	Malathion	µg/L	2					-	-	-	<2	<2	<2	14	0	<2	ND	<2	ND
	Merphos	mg/L	0.002					-	-	-	<0.002	<0.002	<0.002	14	0	<0.002	ND	<0.002	ND
	Methyl parathion	µg/L	2					-	-	-	<2	<2	<2	14	0	<2	ND	<2	ND
	Mevinphos (Phosdrin)	µg/L	2					-	-	-	<2	<2	<2	14	0	<2	ND	<2	ND
	Monocrotophos	µg/L	2					-	-	-	<2	<2	<2	14	0	<2	ND	<2	ND
	Naled (Dibrom)	µg/L	2					-	-	-	<2	<2	<2	14	0	<2	ND	<2	ND
	Omethoate	µg/L	2					-	-	-	<20	<20	<20	14	0	<2	ND	<20	ND
	Phorate	µg/L	2					-	-	-	<2	<2	<2	14	0	<2	ND	<2	ND
	Pyrazophos	µg/L	2					-	-	-	<2	<2	<2	14	0	<2	ND	<2	ND
	Ronnel	µg/L	2					-	-	-	<2	<2	<2	14	0	<2	ND	<2	ND
	Terbufos	µg/L	2					-	-	-	<2	<2	<2	14	0	<2	ND	<2	ND
	Trichloronate	µg/L	2					-	-	-	<2	<2	<2	14	0	<2	ND	<2	ND
	Tetrachlorvinphos	mg/L	0.002					-	-	-	<0.002	<0.002	<0.002	14	0	<0.002	ND	<0.002	ND
Other	Butyric Acid	mg/L	5					<5	<5	<5	-	-	-	6	0	<5	ND	<5	ND
	Hexanoic Acid	mg/L	5					<5	<5	<5	-	-	-	6	0	<5	ND	<5	ND
	6:2 Fluorotelomer Sulfonate (6:2 FtS)	mg/L	0.00005					<0.00005	<0.00005	<0.00005	-	-	-	11	0	<0.00005	ND	<0.00005	ND
PAH	Benzo(b+j)fluoranthene	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	17	0	<0.001	ND	<0.001	ND
PAH/Phenols	2,4-dimethylphenol	µg/L	3					<3	<3	<3	<3	<3	<3	17	0	<3	ND	<3	ND
	2,4-dinitrophenol	mg/L	0.03					<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	17	0	<0.03	ND	<0.03	ND
	2-methylphenol	µg/L	3					<3	<3	<3	<3	<3	<3	17	0	<3	ND	<3	ND
	2-nitrophenol	µg/L	10					<10	<10	<10	<10	<10	<10	17	0	<10	ND	<10	ND

							Field_ID	GW17-12	GW17-30	GW18-12	SW12	SW13	SW14								
							Monitoring Round	Jun-21	Jun-21	Jun-21	Jun-21	Jun-21	Jun-21								
							Sampled Date	9/07/2021	9/07/2021	9/07/2021	9/07/2021	9/07/2021	9/07/2021								
				Darwin Harbour Water Objectives (Shoal Bay upper area)	ANZG (2018) Marine water 90% toxicant DGVs	PFAS NEMP 2020 Interim Marine 90%	PFAS NEMP 2020 Interim Marine 95%							Statistical Summary							
Chem Group	Chem Name	Units	EQL											Number of	Number	Minimum	Minimum	Maximum	Maximum		
	3-&4-methylphenol	µg/L	6					<6	<6	<6	<6	<6	<6	17	0	<6	ND	<6	ND		
	4,6-Dinitro-2-methylphenol	µg/L	30					<30	<30	<30	<30	<30	<30	17	0	<30	ND	<30	ND		
	4-chloro-3-methylphenol	µg/L	10					<10	<10	<10	<10	<10	<10	17	0	<10	ND	<10	ND		
	4-nitrophenol	µg/L	30					<30	<30	<30	<30	<30	<30	17	0	<30	ND	<30	ND		
	Acenaphthene	µg/L	1					<1	<1	<1	<1	<1	<1	17	0	<1	ND	<1	ND		
	Acenaphthylene	µg/L	1					<1	<1	<1	<1	<1	<1	17	0	<1	ND	<1	ND		
	Anthracene	µg/L	1					<1	<1	<1	<1	<1	<1	17	0	<1	ND	<1	ND		
	Benz(a)anthracene	µg/L	1					<1	<1	<1	<1	<1	<1	17	0	<1	ND	<1	ND		
	Benzo(a) pyrene	µg/L	1					<1	<1	<1	<1	<1	<1	17	0	<1	ND	<1	ND		
	Benzo(g,h,i)perylene	µg/L	1					<1	<1	<1	<1	<1	<1	17	0	<1	ND	<1	ND		
	Benzo(k)fluoranthene	µg/L	1					<1	<1	<1	<1	<1	<1	17	0	<1	ND	<1	ND		
	Chrysene	µg/L	1					<1	<1	<1	<1	<1	<1	17	0	<1	ND	<1	ND		
	Cresol Total	mg/L	0.002					<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	8	0	<0.006	ND	<0.006	ND		
	Dibenz(a,h)anthracene	µg/L	1					<1	<1	<1	<1	<1	<1	17	0	<1	ND	<1	ND		
	Fluoranthene	µg/L	1					<1	<1	<1	<1	<1	<1	17	0	<1	ND	<1	ND		
	Fluorene	µg/L	1					<1	<1	<1	<1	<1	<1	17	0	<1	ND	<1	ND		
	Indeno(1,2,3-c,d)pyrene	µg/L	1					<1	<1	<1	<1	<1	<1	17	0	<1	ND	<1	ND		
	Naphthalene	µg/L	1	**90**	**90**			<1	<1	<1	<1	<1	<1	17	0	<1	ND	<1	ND		
	PAHs (Sum of total)	µg/L	1					<1	<1	<1	<1	<1	<1	17	0	<1	ND	<1	ND		
	Phenanthrene	µg/L	1					<1	<1	<1	<1	<1	<1	17	0	<1	ND	<1	ND		
	Phenol	µg/L	3		**520**			<3	<3	<3	<3	<3	<3	17	0	<3	ND	<3	ND		
	Pyrene	µg/L	1					<1	<1	<1	<1	<1	<1	17	0	<1	ND	<1	ND		
Pesticides	Parathion	µg/L	2					-	-	-	<2	<2	<2	14	0	<2	ND	<2	ND		
	Pirimiphos-methyl	mg/L	0.02					-	-	-	<0.02	<0.02	<0.02	14	0	<0.02	ND	<0.02	ND		
Phenolics	4,6-Dinitro-o-cyclohexyl phenol	µg/L	100					<100	<100	<100	<100	<100	<100	17	0	<100	ND	<100	ND		
	Phenols (Total Halogenated)	mg/L	0.01					<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	17	0	<0.01	ND	<0.01	ND		
	Phenols (Total Non Halogenated)	mg/L	0.1					<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	17	0	<0.1	ND	<0.1	ND		
Polychlorinated Biphe	Arochlor 1016	µg/L	1					-	-	-	<1	<1	<1	14	0	<1	ND	<1	ND		
	Arochlor 1221	µg/L	1					-	-	-	<1	<1	<1	14	0	<1	ND	<1	ND		
	Arochlor 1232	µg/L	1					-	-	-	<1	<1	<1	14	0	<1	ND	<1	ND		
	Arochlor 1242	µg/L	1					-	-	-	<1	<1	<1	14	0	<1	ND	<1	ND		
	Arochlor 1248	µg/L	1					-	-	-	<1	<1	<1	14	0	<1	ND	<1	ND		
	Arochlor 1254	µg/L	1					-	-	-	<1	<1	<1	14	0	<1	ND	<1	ND		
	Arochlor 1260	µg/L	1					-	-	-	<1	<1	<1	14	0	<1	ND	<1	ND		
	PCBs (Sum of total)	µg/L	1					-	-	-	<1	<1	<1	14	0	<1	ND	<1	ND		
Solvents	Methyl Ethyl Ketone	µg/L	1					<1	<1	2	-	-	-	11	3	<1	2	3	3		
	4-Methyl-2-pentanone	µg/L	1					<1	<1	<1	-	-	-	11	0	<1	ND	<1	ND		
	Acetone	mg/L	0.001					<0.001	<0.001	0.015	-	-	-	11	6	<0.001	0.001	0.017	0.017		
	Allyl chloride	mg/L	0.001					<0.001	<0.001	<0.001	-	-	-	11	0	<0.001	ND	<0.001	ND		
	Carbon disulfide	µg/L	1					<1	<1	<1	-	-	-	11	0	<1	ND	<1	ND		
SVOCs	EPN	µg/L	2					-	-	-	<2	<2	<2	14	0	<2	ND	<2	ND		
TPH	C10-C16	mg/L	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	17	4	<0.05	0.1	0.9	0.9		
	C16-C34	mg/L	0.1					<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	17	5	<0.1	0.2	1.3	1.3		
	C34-C40	mg/L	0.1					<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	17	0	<0.1	ND	<0.1	ND		
	F2-NAPHTHALENE	mg/L	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	17	4	<0.05	0.1	0.9	0.9		
	C6 - C9	µg/L	20					<20	<20	<20	<20	<20	<20	17	0	<20	ND	<20	ND		
	+C10 - C36 (Sum of total)	µg/L	100					<100	<100	<100	<100	<100	<100	17	5	<100	270	2290	2290		
	C10 - C14	µg/L	50					<50	<50	<50	<50	<50	<50	17	4	<50	70	490	490		
	C15 - C28	µg/L	100					<100	<100	<100	<100	<100	<100	17	5	<100	200	1800	1800		
	C29-C36	µg/L	100					<100	<100	<100	<100	<100	<100	17	0	<100	ND	<100	ND		
	C10 - C40 (Sum of total)	µg/L	100					<100	<100	<100	<100	<100	<100	17	5	<100	300	2200	2200		
	C6-C10	mg/L	0.02					<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	17	0	<0.02	ND	<0.02	ND		

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Chem Group	Chem Name	Units	EQL	Darwin Harbour Water Objectives (Shoal Bay upper area)	ANZG (2018) Marine water 90% toxicant DGVs	PFAS NEMP 2020 Interim Marine 90%	PFAS NEMP 2020 Interim Marine 95%	Average	Median	Standard	Number of
Field	SWL	mbtoc						5.1	5.19	1.7	0
	pH	pH		**6-8.5**	**6-8**			9	8.2	2.3	9
	Electrical conductivity	uS/cm						15329	9708	19767	0
	Redox Potential	mV						87	83.1	44	0
	Dissolved Oxygen	%S		**80-100**				44	52	30	0
	Temp	oC						29	29.5	2.1	0
	Tokuthion	mg/L	0.002					0.001	0.001	0	0
	Acetic Acid	µg/L	5000					3917	2500	2195	0
	Aminomethyl phosphonic acid	µg/L	10					365	500	231	0
	Valeric Acid	µg/L	5000					2500	2500	0	0
Inorganic	Carbonate Alkalinity (as CaCO3)	MG/L	10					55	5	171	0
PFAS	(N-EtFOSA)	mg/L	0.00005					0.000025	0.000025	0	0
	Perfluorononanesulfonic acid (PFNS)(trace)	µg/L	0.01					0.005	0.005	0	0
	N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	UG/L	0.05					0.025	0.025	0	0
	Perfluorooctanoate (PFOA)	mg/L	0.00001			**0.632**	**0.22**	0.000005	0.000005	0	0
	Sum of PFASs (n=30)*	UG/L	0.1					0.05	0.05	0	0
	Sum of US EPA PFAS (PFOS + PFOA)*	UG/L	0.01					0.005	0.005	0	0
	Sum of WA DWER PFAS (n=10)*	UG/L	0.05					0.025	0.025	0	0
	Perfluorobutanesulfonic acid (PFBS)	UG/L	0.01					0.005	0.005	0	0
	Perfluorobutanoic acid (PFBA)	UG/L	0.05					0.025	0.025	0	0
	Perfluorodecanesulfonic acid (PFDS)	UG/L	0.01					0.005	0.005	0	0
	Perfluorodecanoic acid (PFDA)	UG/L	0.01					0.005	0.005	0	0
	Perfluorododecanoic acid (PFDoDA)	UG/L	0.01					0.005	0.005	0	0
	Perfluoroheptanesulfonic acid (PFHpS)	UG/L	0.01					0.005	0.005	0	0
	Perfluoroheptanoic acid (PFHpA)	UG/L	0.01					0.005	0.005	0	0
	Perfluorohexanesulfonic acid (PFHxS)	UG/L	0.01					0.005	0.005	0	0
	Perfluorohexanoic acid (PFHxA)	UG/L	0.01					0.005	0.005	0	0
	Perfluorononanoic acid (PFNA)	UG/L	0.01					0.005	0.005	0	0
	Perfluorooctane sulfonamide (FOSA)	UG/L	0.05					0.025	0.025	0	0
	Perfluorooctanesulfonic acid (PFOS)	UG/L	0.01			**2**	**0.13**	0.005	0.005	0	0
	Perfluoropentanesulfonic acid (PFPeS)	UG/L	0.01					0.005	0.005	0	0
	Perfluoropentanoic acid (PFPeA)	UG/L	0.01					0.005	0.005	0	0
	Perfluoropropanesulfonic acid (PFPrS)	UG/L	0.01					0.005	0.005	0	0
	Perfluorotetradecanoic acid (PFTeDA)	UG/L	0.01					0.005	0.005	0	0
	Perfluorotridecanoic acid (PFTrDA)	UG/L	0.01					0.005	0.005	0	0
	Perfluoroundecanoic acid (PFUnDA)	UG/L	0.01					0.005	0.005	0	0
	Sum (PFHxS + PFOS)*	UG/L	0.01					0.005	0.005	0	0
	Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	UG/L	0.01					0.005	0.005	0	0
VFA	4-Methylvaleric acid*	MG/L	5					2.5	2.5	0	0
	Heptanoic acid*	MG/L	5					2.5	2.5	0	0
	Isovaleric acid*	MG/L	5					2.5	2.5	0	0
	Isobutyric acid*	MG/L	5					2.5	2.5	0	0
	Total VFA as Acetic Acid Equivalents*	MG/L	5					3.9	2.5	2.2	0
BTEX	Benzene	µg/L	1	**900**	**900**			0.5	0.5	0	0
	Ethylbenzene	µg/L	1					0.5	0.5	0	0
	Toluene	µg/L	1					0.5	0.5	0	0
	Xylene (m & p)	µg/L	2					1	1	0	0
	Xylene (o)	µg/L	1					0.5	0.5	0	0
	Xylene Total	µg/L	3					1.5	1.5	0	0
	C6-C10 less BTEX (F1)	mg/L	0.02					0.01	0.01	0	0
Chlorinated Hydrocar	1,1,1,2-tetrachloroethane	µg/L	1					0.5	0.5	0	0
	1,1,1-trichloroethane	µg/L	1					0.5	0.5	0	0
	1,1,2,2-tetrachloroethane	µg/L	1					0.5	0.5	0	0

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	1,1,2-trichloroethane	µg/L	1		**5800**			0.5	0.5	0	0
	1,1-dichloroethane	µg/L	1					0.5	0.5	0	0
	1,1-dichloroethene	µg/L	1					0.5	0.5	0	0
	1,2,3-trichloropropane	µg/L	1					0.5	0.5	0	0
	1,2-dichloroethane	µg/L	1					0.5	0.5	0	0
	1,2-dichloropropane	µg/L	1					0.5	0.5	0	0
	1,3-dichloropropane	µg/L	1					0.5	0.5	0	0
	Bromochloromethane	µg/L	1					0.5	0.5	0	0
	Bromodichloromethane	µg/L	1					0.5	0.5	0	0
	Bromoform	µg/L	1					0.5	0.5	0	0
	Carbon tetrachloride	µg/L	1					0.5	0.5	0	0
	Chlorodibromomethane	µg/L	1					0.5	0.5	0	0
	Chloroethane	µg/L	1					0.5	0.5	0	0
	Chloroform	µg/L	5					2.5	2.5	0	0
	Chloromethane	µg/L	1					0.5	0.5	0	0
	cis-1,2-dichloroethene	µg/L	1					0.5	0.5	0	0
	cis-1,3-dichloropropene	µg/L	1					0.5	0.5	0	0
	Dibromomethane	µg/L	1					0.5	0.5	0	0
	Dichloromethane	µg/L	1					0.5	0.5	0	0
	Trichloroethene	µg/L	1					0.5	0.5	0	0
	Tetrachloroethene	µg/L	1					0.5	0.5	0	0
	trans-1,2-dichloroethene	µg/L	1					0.5	0.5	0	0
	trans-1,3-dichloropropene	µg/L	1					0.5	0.5	0	0
	Vinyl chloride	µg/L	1					0.5	0.5	0	0
Explosives	1,3,5-Trinitrobenzene	mg/L	0.1					0.05	0.05	0	0
	1,3-Dinitrobenzene	mg/L	0.1					0.05	0.05	0	0
	2,4,6-Trinitrotoluene (TNT)	mg/L	0.1					0.05	0.05	0	0
	2,4-& 2,6-Dinitrotoluene	mg/L	0.1					0.05	0.05	0	0
	2-Nitrotoluene	µg/L	100					50	50	0	0
	4-Nitrotoluene	mg/L	0.1					0.05	0.05	0	0
	m-Nitrotoluene	mg/L	0.1					0.05	0.05	0	0
	Nitrobenzene	µg/L	100					50	50	0	0
	RDX	mg/L	0.1					0.05	0.05	0	0
Halogenated Benzen	1,2-dichlorobenzene	µg/L	1					0.5	0.5	0	0
	1,3-dichlorobenzene	µg/L	1					0.5	0.5	0	0
	1,4-dichlorobenzene	µg/L	1					0.5	0.5	0	0
	4-chlorotoluene	µg/L	1					0.5	0.5	0	0
	Bromobenzene	µg/L	1					0.5	0.5	0	0
	Chlorobenzene	µg/L	1					0.5	0.5	0	0
	Hexachlorobenzene	µg/L	0.2					0.1	0.1	0	0
Halogenated Hydroc	1,2-dibromoethane	µg/L	1					0.5	0.5	0	0
	Bromomethane	µg/L	1					0.5	0.5	0	0
	Dichlorodifluoromethane	µg/L	1					0.5	0.5	0	0
	Iodomethane	µg/L	1					0.5	0.5	0	0
	Trichlorofluoromethane	µg/L	1					0.5	0.5	0	0
Halogenated Phenols	2,4,5-trichlorophenol	µg/L	10					5	5	0	0
	2,4,6-trichlorophenol	µg/L	10					5	5	0	0
	2,4-dichlorophenol	µg/L	3					1.5	1.5	0	0
	2,6-dichlorophenol	µg/L	3					1.5	1.5	0	0
	2-chlorophenol	µg/L	3					1.5	1.5	0	0
	Pentachlorophenol	µg/L	10		**33**			5	5	0	0
	tetrachlorophenols	µg/L	30					15	15	0	0
Herbicides	2,4,5-Trichlorophenoxy-propanoic acid	mg/L	5					2.5	2.5	0	0
	Dinoseb	µg/L	100					50	50	0	0

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	Glyphosate	mg/L	0.01					0.37	0.5	0.23	0
Inorganics	Alkalinity (Bicarbonate as CaCO3)	mg/L	20					81	69	59	0
	Nitrite + Nitrate as N	mg/L	0.05					0.23	0.11	0.23	0
	Alkalinity (Hydroxide) as CaCO3	µg/L	20000					77059	10000	204657	0
	Alkalinity (total) as CaCO3	mg/L	20					201	93	311	0
	Ammonia as N	µg/L	10	**20**	**1200**			123	60	187	13
	Chloride	mg/L	1					5333	2800	7077	0
	COD	mg/L	25					695	150	1975	0
	Kjeldahl Nitrogen Total	mg/L	0.2					1.5	0.8	2.2	0
	Nitrate (as N)	mg/L	0.02					0.2	0.1	0.21	0
	Nitrite (as N)	mg/L	0.02					0.035	0.01	0.062	0
	Nitrogen (Total)	µg/L	200	**300**				1707	880	2144	16
	Reactive Phosphorus as P	mg/L	0.01	**10**				0.013	0.01	0.013	0
	Sodium	mg/L	0.5					3081	1550	3680	0
	Sodium (Filtered)	mg/L	0.5					237	320	153	0
	Sulphate	mg/L	5					610	300	685	0
	TDS	mg/L	10					9415	5100	12641	0
	TOC	mg/L	5					12	11	11	0
	TSS	mg/L	1	**10**				98	30	144	12
MAH	1,2,4-trimethylbenzene	µg/L	1					0.5	0.5	0	0
	1,3,5-trimethylbenzene	µg/L	1					0.5	0.5	0	0
	Total MAH	mg/L	0.003					0.0015	0.0015	0	0
	Isopropylbenzene	µg/L	1					0.5	0.5	0	0
	Styrene	µg/L	1					0.5	0.5	0	0
Lead	Lead (Filtered)	mg/L	0.001	**0.0066**	**0.0066**			0.033	0.001	0.059	5
Metals	Arsenic (Filtered)	mg/L	0.001					0.00073	0.0005	0.00075	0
	Barium (Filtered)	mg/L	0.02					0.17	0.17	0.039	0
	Beryllium (Filtered)	mg/L	0.001					0.0005	0.0005	0	0
	Boron (Filtered)	mg/L	0.05					0.11	0.06	0.11	0
	Cadmium (Filtered)	mg/L	0.0002	**0.014**	**0.014**			0.00099	0.0005	0.001	0
	Calcium	mg/L	0.5					689	360	701	0
	Calcium (Filtered)	mg/L	0.5					31	39	19	0
	Chromium (hexavalent)	mg/L	0.005	**0.02**	**0.02**			0.13	0.0025	0.24	3
	Chromium (III+VI) (Filtered)	mg/L	0.001					0.0011	0.0005	0.0014	0
	Cobalt (Filtered)	mg/L	0.001	**0.014**	**0.014**			0.011	0.008	0.011	4
	Copper (Filtered)	mg/L	0.001	**0.003**	**0.003**			0.0019	0.001	0.0021	4
	Iron (Filtered)	mg/L	0.05					0.027	0.025	0.0075	0
	Magnesium	mg/L	0.5					365	94	557	0
	Magnesium (Filtered)	mg/L	0.5					26	34	17	0
	Manganese (Filtered)	mg/L	0.005					1.2	0.26	1.5	0
	Mercury (Filtered)	mg/L	0.0001	**0.0007**	**0.0007**			0.00005	0.00005	0	0
	Nickel (Filtered)	mg/L	0.001	**0.2**	**0.2**			0.022	0.008	0.027	0
	Phosphorus	mg/L	0.01					0.11	0.03	0.23	0
	Potassium	mg/L	0.5					57	48	39	0
	Potassium (Filtered)	mg/L	0.5					17	23	11	0
	Selenium (Filtered)	mg/L	0.001					0.0025	0.001	0.003	0
	Vanadium (Filtered)	mg/L	0.005	**0.16**	**0.16**			0.0025	0.0025	0	0
	Zinc (Filtered)	mg/L	0.005	**0.023**	**0.023**			0.1	0.0025	0.15	8
Organochlorine Pesti	4,4-DDE	µg/L	0.2					0.1	0.1	0	0
	a-BHC	µg/L	0.2					0.1	0.1	0	0
	Aldrin	µg/L	0.2					0.1	0.1	0	0
	Aldrin + Dieldrin	µg/L	0.2					0.1	0.1	0	0
	b-BHC	µg/L	0.2					0.1	0.1	0	0
	chlordane	µg/L	2					1	1	0	0

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	d-BHC	µg/L	0.2					0.1	0.1	0	0
	DDD	µg/L	0.2					0.1	0.1	0	0
	DDT	µg/L	0.2					0.1	0.1	0	0
	DDT+DDE+DDD	µg/L	0.2					0.1	0.1	0	0
	Dieldrin	µg/L	0.2					0.1	0.1	0	0
	Endosulfan I	µg/L	0.2					0.1	0.1	0	0
	Endosulfan II	µg/L	0.2					0.1	0.1	0	0
	Endosulfan sulphate	µg/L	0.2					0.1	0.1	0	0
	Endrin	µg/L	0.2		**0.01**			0.1	0.1	0	0
	Endrin aldehyde	µg/L	0.2					0.1	0.1	0	0
	Endrin ketone	µg/L	0.2					0.1	0.1	0	0
	g-BHC (Lindane)	µg/L	0.2					0.1	0.1	0	0
	Heptachlor	µg/L	0.2					0.1	0.1	0	0
	Heptachlor epoxide	µg/L	0.2					0.1	0.1	0	0
	Methoxychlor	µg/L	0.2					0.1	0.1	0	0
	Toxaphene	mg/L	0.001					0.0005	0.0005	0	0
Organophosphorous	Azinophos methyl	µg/L	2					1	1	0	0
	Bolstar (Sulprofos)	µg/L	2					1	1	0	0
	Chlorfenvinphos	µg/L	2					6.8	10	4.5	0
	Chlorpyrifos	µg/L	2		**0.04**			4.2	1	4.5	0
	Chlorpyrifos-methyl	mg/L	0.002					0.001	0.001	0	0
	Coumaphos	µg/L	20					10	10	0	0
	Demeton-O	µg/L	2					1	1	0	0
	Demeton-S	µg/L	2					4.2	1	4.5	0
	Diazinon	µg/L	2					1	1	0	0
	Dichlorvos	µg/L	2					1	1	0	0
	Dimethoate	µg/L	2					1	1	0	0
	Disulfoton	µg/L	2					1	1	0	0
	Ethion	µg/L	2					1	1	0	0
	Ethoprop	µg/L	2					1	1	0	0
	Fenitrothion	µg/L	2					1	1	0	0
	Fensulfothion	µg/L	2					1	1	0	0
	Fenthion	µg/L	2					1	1	0	0
	Malathion	µg/L	2					1	1	0	0
	Merphos	mg/L	0.002					0.001	0.001	0	0
	Methyl parathion	µg/L	2					1	1	0	0
	Mevinphos (Phosdrin)	µg/L	2					1	1	0	0
	Monocrotophos	µg/L	2					1	1	0	0
	Naled (Dibrom)	µg/L	2					1	1	0	0
	Omethoate	µg/L	2					6.8	10	4.5	0
	Phorate	µg/L	2					1	1	0	0
	Pyrazophos	µg/L	2					1	1	0	0
	Ronnel	µg/L	2					1	1	0	0
	Terbufos	µg/L	2					1	1	0	0
	Trichloronate	µg/L	2					1	1	0	0
	Tetrachlorvinphos	mg/L	0.002					0.001	0.001	0	0
Other	Butyric Acid	mg/L	5					2.5	2.5	0	0
	Hexanoic Acid	mg/L	5					2.5	2.5	0	0
	6:2 Fluorotelomer Sulfonate (6:2 FtS)	mg/L	0.00005					0.000025	0.000025	0	0
PAH	Benzo(b+j)fluoranthene	mg/L	0.001					0.0005	0.0005	0	0
PAH/Phenols	2,4-dimethylphenol	µg/L	3					1.5	1.5	0	0
	2,4-dinitrophenol	mg/L	0.03					0.015	0.015	0	0
	2-methylphenol	µg/L	3					1.5	1.5	0	0
	2-nitrophenol	µg/L	10					5	5	0	0

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	3-&4-methylphenol	µg/L	6					3	3	0	0
	4,6-Dinitro-2-methylphenol	µg/L	30					15	15	0	0
	4-chloro-3-methylphenol	µg/L	10					5	5	0	0
	4-nitrophenol	µg/L	30					15	15	0	0
	Acenaphthene	µg/L	1					0.5	0.5	0	0
	Acenaphthylene	µg/L	1					0.5	0.5	0	0
	Anthracene	µg/L	1					0.5	0.5	0	0
	Benz(a)anthracene	µg/L	1					0.5	0.5	0	0
	Benzo(a) pyrene	µg/L	1					0.5	0.5	0	0
	Benzo(g,h,i)perylene	µg/L	1					0.5	0.5	0	0
	Benzo(k)fluoranthene	µg/L	1					0.5	0.5	0	0
	Chrysene	µg/L	1					0.5	0.5	0	0
	Cresol Total	mg/L	0.002					0.003	0.003	0	0
	Dibenz(a,h)anthracene	µg/L	1					0.5	0.5	0	0
	Fluoranthene	µg/L	1					0.5	0.5	0	0
	Fluorene	µg/L	1					0.5	0.5	0	0
	Indeno(1,2,3-c,d)pyrene	µg/L	1					0.5	0.5	0	0
	Naphthalene	µg/L	1	**90**	**90**			0.5	0.5	0	0
	PAHs (Sum of total)	µg/L	1					0.5	0.5	0	0
	Phenanthrene	µg/L	1					0.5	0.5	0	0
	Phenol	µg/L	3		**520**			1.5	1.5	0	0
	Pyrene	µg/L	1					0.5	0.5	0	0
Pesticides	Parathion	µg/L	2					1	1	0	0
	Pirimiphos-methyl	mg/L	0.02					0.01	0.01	0	0
Phenolics	4,6-Dinitro-o-cyclohexyl phenol	µg/L	100					50	50	0	0
	Phenols (Total Halogenated)	mg/L	0.01					0.005	0.005	0	0
	Phenols (Total Non Halogenated)	mg/L	0.1					0.05	0.05	0	0
Polychlorinated Biphe	Arochlor 1016	µg/L	1					0.5	0.5	0	0
	Arochlor 1221	µg/L	1					0.5	0.5	0	0
	Arochlor 1232	µg/L	1					0.5	0.5	0	0
	Arochlor 1242	µg/L	1					0.5	0.5	0	0
	Arochlor 1248	µg/L	1					0.5	0.5	0	0
	Arochlor 1254	µg/L	1					0.5	0.5	0	0
	Arochlor 1260	µg/L	1					0.5	0.5	0	0
	PCBs (Sum of total)	µg/L	1					0.5	0.5	0	0
Solvents	Methyl Ethyl Ketone	µg/L	1					1	0.5	0.89	0
	4-Methyl-2-pentanone	µg/L	1					0.5	0.5	0	0
	Acetone	mg/L	0.001					0.0049	0.001	0.0066	0
	Allyl chloride	mg/L	0.001					0.0005	0.0005	0	0
	Carbon disulfide	µg/L	1					0.5	0.5	0	0
SVOCs	EPN	µg/L	2					1	1	0	0
TPH	C10-C16	mg/L	0.05					0.11	0.025	0.22	0
	C16-C34	mg/L	0.1					0.22	0.05	0.35	0
	C34-C40	mg/L	0.1					0.05	0.05	0	0
	F2-NAPHTHALENE	mg/L	0.05					0.11	0.025	0.22	0
	C6 - C9	µg/L	20					10	10	0	0
	+C10 - C36 (Sum of total)	µg/L	100					306	50	587	0
	C10 - C14	µg/L	50					66	25	115	0
	C15 - C28	µg/L	100					259	50	468	0
	C29-C36	µg/L	100					50	50	0	0
	C10 - C40 (Sum of total)	µg/L	100					311	50	573	0
	C6-C10	mg/L	0.02					0.01	0.01	0	0

		Inorganics	Metals							Perfluorocarbons												
		Total Solids	Arsenic	Cadmium	Chromium (III+VI)	Lead	Mercury	Nickel	Zinc	2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	Perfluorononanesulfonic acid (PFNS)	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecanesulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoropropanesulfonic acid (PFPrS)	Perfluoroheptanoic acid (PFHpA)
		G/m2/mth	Total ug	Total ug	Total ug	Total ug	Total ug	Total ug	Total ug	Total ug	Total ug	Total ug	Total ug	Total ug	Total ug	Total ug	Total ug	Total ug	Total ug	Total ug	Total ug	Total ug
EQL			1	0.5	1	0.1	0.001	0.01	1	20	20	20	20	20	20	20	20	20	20	20	20	20
Site ID	**Sample Date**																					
DS01	**10/06/2021**	38	<1	<0.5	<1	<0.01	<0.001	<0.01	<1	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
DS02	**10/06/2021**	110	<1	<0.5	<1	<0.01	<0.001	<0.01	<1	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
DS03	**10/06/2021**	330	<1	<0.5	<1	<0.01	<0.001	<0.01	<1	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
DS04	**10/06/2021**	150	<1	<0.5	<1	<0.01	<0.001	<0.01	<1	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Maximum Concentration		**330**	**<1**	**<0.5**	**<1**	**<0.01**	**<0.001**	**<0.01**	**<1**	**<20**	**<20**	**<20**	**<20**	**<20**	**<20**	**<20**	**<20**	**<20**	**<20**	**<20**	**<20**	**<20**
Average Concentration *		**157**	**0.5**	**0.25**	**0.5**	**0.005**	**0.0005**	**0.005**	**0.5**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**
Standard Deviation *		**124**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Detects		**100**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects		**0**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

		Inorganics	Perfluorocarbons																
		Total Solids	Perfluorooctanoate (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorooctane sulfonamide (FOSA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer Sulfonate (6:2 FtS)	8:2 Fluorotelomer sulfonate (8:2 FtS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Sum of PFAS	Sum of PFAS (WA DER List)	Sum of PFHxS and PFOS	Sum of US EPA PFAS (PFOS + PFOA)*	Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*
		G/m2/mth	Total ug	Total ug	Total ug	Total ug	Total ug	Total ug	Total ug	Total ug	Total ug	Total ug	Total ug	Total ug	Total ug	Total ug	Total ug	Total ug	Total ug
EQL			20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Site ID	**Sample Date**																		
DS01	**10/06/2021**	38	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
DS02	**10/06/2021**	110	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
DS03	**10/06/2021**	330	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
DS04	**10/06/2021**	150	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Maximum Concentration		**330**	**<20**	**<20**	**<20**	**<20**	**<20**	**<20**	**<20**	**<20**	**<20**	**<20**	**<20**	**<20**	**<20**	**<20**	**<20**	**<20**	**<20**
Average Concentration *		**157**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**
Standard Deviation *		**124**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Detects		**100**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects		**0**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

SBWMF Sediment/depositional
(Leachability)

City of Darwin

				PFAS							Inorganics	Metals										
				6:2 Fluorotelomer Sulfonate (6:2 FtS)	Perfluorooctanoate acid (PFOA)	Sum of US EPA PFAS (PFOS + PFOA)*	Perfluorohexanesulfonic acid (PFHxS)	Perfluorooctanesulfonic acid (PFOS)	Sum (PFHxS + PFOS)*	Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	pH (Initial)	Lead	Aluminium	Boron	Chromium (hexavalent)	Chromium (III+VI)	Cobalt	Copper	Lithium	Mercury	Nickel	Zinc
				mg/L	mg/L	UG/L	UG/L	UG/L	UG/L	UG/L	pH_Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL				0.00005	0.00001	0.01	0.01	0.01	0.01	0.01	0.1	0.01	0.05	0.05	0.01	0.01	0.01	0.01	0.005	0.001	0.01	0.01
ANZG (2018) Marine water 90% toxicant DGVs											**6-8**	**0.0066**			**0.02**			**0.003**			**0.2**	**0.023**
PFAS National EMP (2020) Interim marine water 90%					**623**			**2**														
PFAS National EMP (2020) Interim marine water 95%					**220**			**0.13**														
Field ID	**Sample Depth Range**	**Sampled Date**	**Matrix Description**																			
DS01	300-400mmbgl	27/03/2021	Soil	<0.00005	<0.00001	<0.01	<0.01	<0.01	<0.01	<0.01	6	<0.01	0.89	<0.05	<0.01	<0.01	<0.01	<0.01	<0.005	<0.001	<0.01	**0.12**
DS02	300-400mmbgl	27/03/2021	Soil	<0.00005	<0.00001	<0.01	<0.01	<0.01	<0.01	<0.01	**5.8**	<0.01	0.46	<0.05	<0.01	<0.01	<0.01	<0.01	<0.005	<0.001	<0.01	**0.14**
DS04	300-400mmbgl	27/03/2021	Soil	<0.00005	<0.00001	<0.01	<0.01	<0.01	<0.01	<0.01	**5.8**	<0.01	1.9	<0.05	<0.01	<0.01	<0.01	<0.01	<0.005	<0.001	0.01	**0.35**
SS01	0-100mmbgl	27/03/2021	Soil	<0.00005	<0.00001	<0.01	<0.01	<0.01	<0.01	<0.01	6.3	<0.01	1.1	<0.05	<0.01	<0.01	<0.01	<0.01	<0.005	<0.001	<0.01	**0.11**
SS02	0-100mmbgl	27/03/2021	Soil	<0.00005	<0.00001	<0.01	<0.01	<0.01	<0.01	<0.01	6.1	<0.01	0.29	<0.05	<0.01	<0.01	<0.01	<0.01	<0.005	<0.001	<0.01	**0.17**
SS04	0-100mmbgl	27/03/2021	Soil	<0.00005	<0.00001	<0.01	<0.01	<0.01	<0.01	<0.01	**5.9**	<0.01	1.1	<0.05	<0.01	<0.01	<0.01	<0.01	<0.005	<0.001	<0.01	**0.21**
Statistical Summary																						
Number of Results				6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Number of Detects				0	0	0	0	0	0	0	6	0	6	0	0	0	0	0	0	0	1	6
Minimum Concentration				<0.00005	<0.00001	<0.01	<0.01	<0.01	<0.01	<0.01	5.8	<0.01	0.29	<0.05	<0.01	<0.01	<0.01	<0.01	<0.005	<0.001	<0.01	0.11
Minimum Detect				ND	ND	ND	ND	ND	ND	ND	5.8	ND	0.29	ND	ND	ND	ND	ND	ND	ND	0.01	0.11
Maximum Concentration				<0.00005	<0.00001	<0.01	<0.01	<0.01	<0.01	<0.01	6.3	<0.01	1.9	<0.05	<0.01	<0.01	<0.01	<0.01	<0.005	<0.001	0.01	0.35
Maximum Detect				ND	ND	ND	ND	ND	ND	ND	6.3	ND	1.9	ND	ND	ND	ND	ND	ND	ND	0.01	0.35
Average Concentration				0.000025	0.000005	0.005	0.005	0.005	0.005	0.005	6	0.005	0.96	0.025	0.005	0.005	0.005	0.005	0.0025	0.0005	0.0058	0.18
Median Concentration				0.000025	0.000005	0.005	0.005	0.005	0.005	0.005	5.95	0.005	0.995	0.025	0.005	0.005	0.005	0.005	0.0025	0.0005	0.005	0.155
Standard Deviation				0	0	0	0	0	0	0	0.19	0	0.57	0	0	0	0	0	0	0	0.002	0.089
Number of Guideline Exceedances(Detects Only)				0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	6

APPENDIX

D

LABORATRY ANLYSIS REPORTS

eurofins | Environment Testing

Certificate of Analysis

Cardno NT
93 Mitchell Street, Level 6
Darwin
NT 0800

NATA Accredited
Accreditation Number 1261
Site Number 1254

Accredited for compliance with ISO/IEC 17025 – Testing
NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection, proficiency testing scheme providers and reference materials producers reports and certificates.

Attention: **Julian Brown**

Report **809522-W**
Project name CW1121900
Project ID SBWMF WATER MONITORING
Received Date Jul 08, 2021

Client Sample ID			**SW12**	**SW13**	**SW14**	**DUP**
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins Sample No.			**M21-JI16850**	**M21-JI16851**	**M21-JI16852**	**M21-JI16853**
Date Sampled			**Jul 09, 2021**	**Jul 09, 2021**	**Jul 09, 2021**	**Jul 09, 2021**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
Naphthalene[N02]	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
BTEX						
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Xylenes - Total*	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
4-Bromofluorobenzene (surr.)	1	%	98	91	94	89
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001

Client Sample ID			SW12	SW13	SW14	DUP
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M21-JI16850	M21-JI16851	M21-JI16852	M21-JI16853
Date Sampled			Jul 09, 2021	Jul 09, 2021	Jul 09, 2021	Jul 09, 2021
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Fluorobiphenyl (surr.)	1	%	125	96	101	82
p-Terphenyl-d14 (surr.)	1	%	62	129	136	111
Organochlorine Pesticides						
Chlordanes - Total	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
4.4'-DDD	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
4.4'-DDE	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
4.4'-DDT	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
a-HCH	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Aldrin	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
b-HCH	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
d-HCH	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Dieldrin	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endosulfan I	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endosulfan II	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endosulfan sulphate	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endrin	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endrin aldehyde	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endrin ketone	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
g-HCH (Lindane)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Heptachlor	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Heptachlor epoxide	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Hexachlorobenzene	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Methoxychlor	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Toxaphene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aldrin and Dieldrin (Total)*	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
DDT + DDE + DDD (Total)*	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Vic EPA IWRG 621 OCP (Total)*	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Vic EPA IWRG 621 Other OCP (Total)*	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dibutylchlorendate (surr.)	1	%	111	93	132	83
Tetrachloro-m-xylene (surr.)	1	%	148	122	134	98
Organophosphorus Pesticides						
Azinphos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Bolstar	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Chlorfenvinphos	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Chlorpyrifos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Chlorpyrifos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Coumaphos	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Demeton-S	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Demeton-O	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Diazinon	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dichlorvos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dimethoate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Disulfoton	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
EPN	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002

Client Sample ID			SW12	SW13	SW14	DUP
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M21-JI16850	M21-JI16851	M21-JI16852	M21-JI16853
Date Sampled			Jul 09, 2021	Jul 09, 2021	Jul 09, 2021	Jul 09, 2021
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Ethoprop	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fenitrothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fensulfothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fenthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Malathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Merphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Methyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Mevinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Monocrotophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Naled	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Omethoate	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Phorate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Pirimiphos-methyl	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Pyrazophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ronnel	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Terbufos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Tetrachlorvinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Tokuthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Trichloronate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Triphenylphosphate (surr.)	1	%	125	101	117	85
Polychlorinated Biphenyls						
Aroclor-1016	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1221	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1232	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1242	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1248	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1254	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1260	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Total PCB*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibutylchlorendate (surr.)	1	%	111	93	132	83
Tetrachloro-m-xylene (surr.)	1	%	148	122	134	98
Phenols (Halogenated)						
2-Chlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4.5-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.4.6-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.6-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
4-Chloro-3-methylphenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Pentachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Tetrachlorophenols - Total	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
Total Halogenated Phenol*	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
2-Methyl-4.6-dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
2-Nitrophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.4-Dimethylphenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4-Dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
2-Methylphenol (o-Cresol)	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003

Client Sample ID			SW12	SW13	SW14	DUP
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M21-JI16850	M21-JI16851	M21-JI16852	M21-JI16853
Date Sampled			Jul 09, 2021	Jul 09, 2021	Jul 09, 2021	Jul 09, 2021
Test/Reference	LOR	Unit				
Phenols (non-Halogenated)						
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	< 0.006	< 0.006	< 0.006	< 0.006
Total cresols*	0.002	mg/L	< 0.006	< 0.006	< 0.006	< 0.006
4-Nitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
Dinoseb	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
Phenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Phenol-d6 (surr.)	1	%	60	35	33	37
Total Non-Halogenated Phenol*	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
Ammonia (as N)	0.01	mg/L	0.02	0.04	< 0.01	0.02
Chemical Oxygen Demand (COD)	25	mg/L	190	45	42	210
Chloride	1	mg/L	820	710	130	800
Nitrate & Nitrite (as N)	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
Nitrate (as N)	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Nitrite (as N)	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Phosphate total (as P)	0.01	mg/L	0.11	0.03	0.01	0.07
Phosphorus reactive (as P)	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Sulphate (as SO4)	5	mg/L	15	68	7.1	16
Total Dissolved Solids Dried at 180°C ± 2°C	10	mg/L	1600	1300	250	1500
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	8.6	1.9	0.8	23
Total Nitrogen (as N)*	0.2	mg/L	8.6	1.9	0.8	23
Total Organic Carbon	5	mg/L	18	19	12	120
Total Suspended Solids Dried at 103–105°C	1	mg/L	30	36	10	32
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	220	48	29	210
Carbonate Alkalinity (as CaCO3)	10	mg/L	17	17	< 10	15
Hydroxide Alkalinity (as CaCO3)	20	mg/L	< 20	< 20	< 20	< 20
Total Alkalinity (as CaCO3)	20	mg/L	230	65	29	230
Heavy Metals						
Boron (filtered)	0.05	mg/L	0.09	0.09	< 0.05	0.08
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	0.001	< 0.001	< 0.001	0.001
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Nickel (filtered)	0.001	mg/L	0.002	0.002	< 0.001	0.002
Zinc (filtered)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Alkali Metals						
Calcium (filtered)	0.5	mg/L	39	45	10	41
Magnesium (filtered)	0.5	mg/L	34	37	6.6	35
Potassium (filtered)	0.5	mg/L	23	23	4.4	23
Sodium (filtered)	0.5	mg/L	320	330	61	330

Client Sample ID			SPLIT	GW18-12	GW17-12	GW17-30
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M21-JI16854	M21-JI18771	M21-JI18772	M21-JI18773
Date Sampled			Jul 09, 2021	Jul 09, 2021	Jul 09, 2021	Jul 09, 2021
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
Naphthalene[N02]	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
BTEX						
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Xylenes - Total*	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
4-Bromofluorobenzene (surr.)	1	%	90	106	107	105
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Fluorobiphenyl (surr.)	1	%	92	110	104	91
p-Terphenyl-d14 (surr.)	1	%	130	97	146	130
Organochlorine Pesticides						
Chlordanes - Total	0.002	mg/L	< 0.002	-	-	-
4.4'-DDD	0.0002	mg/L	< 0.0002	-	-	-
4.4'-DDE	0.0002	mg/L	< 0.0002	-	-	-
4.4'-DDT	0.0002	mg/L	< 0.0002	-	-	-
a-HCH	0.0002	mg/L	< 0.0002	-	-	-
Aldrin	0.0002	mg/L	< 0.0002	-	-	-
b-HCH	0.0002	mg/L	< 0.0002	-	-	-

Client Sample ID			SPLIT	GW18-12	GW17-12	GW17-30
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M21-JI16854	M21-JI18771	M21-JI18772	M21-JI18773
Date Sampled			Jul 09, 2021	Jul 09, 2021	Jul 09, 2021	Jul 09, 2021
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
d-HCH	0.0002	mg/L	< 0.0002	-	-	-
Dieldrin	0.0002	mg/L	< 0.0002	-	-	-
Endosulfan I	0.0002	mg/L	< 0.0002	-	-	-
Endosulfan II	0.0002	mg/L	< 0.0002	-	-	-
Endosulfan sulphate	0.0002	mg/L	< 0.0002	-	-	-
Endrin	0.0002	mg/L	< 0.0002	-	-	-
Endrin aldehyde	0.0002	mg/L	< 0.0002	-	-	-
Endrin ketone	0.0002	mg/L	< 0.0002	-	-	-
g-HCH (Lindane)	0.0002	mg/L	< 0.0002	-	-	-
Heptachlor	0.0002	mg/L	< 0.0002	-	-	-
Heptachlor epoxide	0.0002	mg/L	< 0.0002	-	-	-
Hexachlorobenzene	0.0002	mg/L	< 0.0002	-	-	-
Methoxychlor	0.0002	mg/L	< 0.0002	-	-	-
Toxaphene	0.001	mg/L	< 0.001	-	-	-
Aldrin and Dieldrin (Total)*	0.0002	mg/L	< 0.0002	-	-	-
DDT + DDE + DDD (Total)*	0.0002	mg/L	< 0.0002	-	-	-
Vic EPA IWRG 621 OCP (Total)*	0.002	mg/L	< 0.002	-	-	-
Vic EPA IWRG 621 Other OCP (Total)*	0.002	mg/L	< 0.002	-	-	-
Dibutylchlorendate (surr.)	1	%	100	-	-	-
Tetrachloro-m-xylene (surr.)	1	%	112	-	-	-
Organophosphorus Pesticides						
Azinphos-methyl	0.002	mg/L	< 0.002	-	-	-
Bolstar	0.002	mg/L	< 0.002	-	-	-
Chlorfenvinphos	0.02	mg/L	< 0.02	-	-	-
Chlorpyrifos	0.002	mg/L	< 0.002	-	-	-
Chlorpyrifos-methyl	0.002	mg/L	< 0.002	-	-	-
Coumaphos	0.02	mg/L	< 0.02	-	-	-
Demeton-S	0.002	mg/L	< 0.002	-	-	-
Demeton-O	0.002	mg/L	< 0.002	-	-	-
Diazinon	0.002	mg/L	< 0.002	-	-	-
Dichlorvos	0.002	mg/L	< 0.002	-	-	-
Dimethoate	0.002	mg/L	< 0.002	-	-	-
Disulfoton	0.002	mg/L	< 0.002	-	-	-
EPN	0.002	mg/L	< 0.002	-	-	-
Ethion	0.002	mg/L	< 0.002	-	-	-
Ethoprop	0.002	mg/L	< 0.002	-	-	-
Ethyl parathion	0.002	mg/L	< 0.002	-	-	-
Fenitrothion	0.002	mg/L	< 0.002	-	-	-
Fensulfothion	0.002	mg/L	< 0.002	-	-	-
Fenthion	0.002	mg/L	< 0.002	-	-	-
Malathion	0.002	mg/L	< 0.002	-	-	-
Merphos	0.002	mg/L	< 0.002	-	-	-
Methyl parathion	0.002	mg/L	< 0.002	-	-	-
Mevinphos	0.002	mg/L	< 0.002	-	-	-
Monocrotophos	0.002	mg/L	< 0.002	-	-	-
Naled	0.002	mg/L	< 0.002	-	-	-
Omethoate	0.02	mg/L	< 0.02	-	-	-
Phorate	0.002	mg/L	< 0.002	-	-	-
Pirimiphos-methyl	0.02	mg/L	< 0.02	-	-	-

Client Sample ID			SPLIT	GW18-12	GW17-12	GW17-30
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M21-JI16854	M21-JI18771	M21-JI18772	M21-JI18773
Date Sampled			Jul 09, 2021	Jul 09, 2021	Jul 09, 2021	Jul 09, 2021
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Pyrazophos	0.002	mg/L	< 0.002	-	-	-
Ronnel	0.002	mg/L	< 0.002	-	-	-
Terbufos	0.002	mg/L	< 0.002	-	-	-
Tetrachlorvinphos	0.002	mg/L	< 0.002	-	-	-
Tokuthion	0.002	mg/L	< 0.002	-	-	-
Trichloronate	0.002	mg/L	< 0.002	-	-	-
Triphenylphosphate (surr.)	1	%	112	-	-	-
Polychlorinated Biphenyls						
Aroclor-1016	0.001	mg/L	< 0.001	-	-	-
Aroclor-1221	0.001	mg/L	< 0.001	-	-	-
Aroclor-1232	0.001	mg/L	< 0.001	-	-	-
Aroclor-1242	0.001	mg/L	< 0.001	-	-	-
Aroclor-1248	0.001	mg/L	< 0.001	-	-	-
Aroclor-1254	0.001	mg/L	< 0.001	-	-	-
Aroclor-1260	0.001	mg/L	< 0.001	-	-	-
Total PCB*	0.001	mg/L	< 0.001	-	-	-
Dibutylchlorendate (surr.)	1	%	100	-	-	-
Tetrachloro-m-xylene (surr.)	1	%	112	-	-	-
Phenols (Halogenated)						
2-Chlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4.5-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.4.6-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.6-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
4-Chloro-3-methylphenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Pentachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Tetrachlorophenols - Total	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
Total Halogenated Phenol*	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
2-Methyl-4.6-dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
2-Nitrophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.4-Dimethylphenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4-Dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
2-Methylphenol (o-Cresol)	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	< 0.006	< 0.006	< 0.006	< 0.006
Total cresols*	0.002	mg/L	< 0.006	< 0.006	< 0.006	< 0.006
4-Nitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
Dinoseb	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
Phenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Phenol-d6 (surr.)	1	%	33	75	23	21
Total Non-Halogenated Phenol*	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
Ammonia (as N)	0.01	mg/L	0.02	0.14	< 0.01	0.13
Chemical Oxygen Demand (COD)	25	mg/L	190	110	290	8300
Chloride	1	mg/L	780	5000	3200	20000
Nitrate & Nitrite (as N)	0.05	mg/L	< 0.05	< 0.05	0.51	0.67
Nitrate (as N)	0.02	mg/L	< 0.02	< 0.02	0.51	0.43
Nitrite (as N)	0.02	mg/L	< 0.02	< 0.02	< 0.02	0.24

Client Sample ID			SPLIT	GW18-12	GW17-12	GW17-30
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M21-JI16854	M21-JI18771	M21-JI18772	M21-JI18773
Date Sampled			Jul 09, 2021	Jul 09, 2021	Jul 09, 2021	Jul 09, 2021
Test/Reference	LOR	Unit				
Phosphate total (as P)	0.01	mg/L	0.07	0.95	0.05	0.05
Phosphorus reactive (as P)	0.01	mg/L	< 0.01	0.05	< 0.01	0.02
Sulphate (as SO4)	5	mg/L	26	850	330	1800
Total Dissolved Solids Dried at 180°C ± 2°C	10	mg/L	1500	7100	5600	37000
Total Kjeldahl Nitrogen (as N)	0.2	mg/L	33	< 0.2	< 0.2	< 0.2
Total Nitrogen (as N)*	0.2	mg/L	33	< 0.2	0.51	0.67
Total Organic Carbon	5	mg/L	78	< 5	< 5	< 5
Total Suspended Solids Dried at 103–105°C	1	mg/L	25	120	210	20
Chromium (hexavalent)	0.005	mg/L	-	0.23	< 0.005	< 0.005
AOX (Adsorbable Organic Halogen)			-	see attached	see attached	see attached
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	200	82	45	100
Carbonate Alkalinity (as CaCO3)	10	mg/L	17	12	< 10	< 10
Hydroxide Alkalinity (as CaCO3)	20	mg/L	< 20	< 20	< 20	< 20
Total Alkalinity (as CaCO3)	20	mg/L	220	93	45	100
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	-	< 0.001	< 0.001	0.003
Barium (filtered)	0.02	mg/L	-	0.17	0.13	0.21
Beryllium (filtered)	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Boron (filtered)	0.05	mg/L	0.08	< 0.05	0.06	0.31
Cadmium (filtered)	0.0002	mg/L	-	< 0.0002	0.0005	0.0019
Chromium (filtered)	0.001	mg/L	< 0.001	-	-	-
Cobalt (filtered)	0.001	mg/L	-	0.002	0.009	0.015
Copper (filtered)	0.001	mg/L	0.001	0.004	< 0.001	0.002
Iron (filtered)	0.05	mg/L	-	< 0.05	< 0.05	< 0.05
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	0.001	0.11
Manganese (filtered)	0.005	mg/L	-	< 0.005	0.26	3.1
Mercury (filtered)	0.0001	mg/L	-	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.002	0.005	0.044	0.039
Selenium (filtered)	0.001	mg/L	-	0.008	0.001	0.001
Vanadium (filtered)	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
Zinc (filtered)	0.005	mg/L	< 0.005	< 0.005	0.20	0.19
Alkali Metals						
Calcium	0.5	mg/L	-	970	220	1900
Calcium (filtered)	0.5	mg/L	45	-	-	-
Magnesium	0.5	mg/L	-	< 5	150	1500
Magnesium (filtered)	0.5	mg/L	38	-	-	-
Potassium	0.5	mg/L	-	100	40	100
Potassium (filtered)	0.5	mg/L	24	-	-	-
Sodium	0.5	mg/L	-	2100	1600	10000
Sodium (filtered)	0.5	mg/L	330	-	-	-
Volatile Organics						
1.1-Dichloroethane	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
1.1-Dichloroethene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
1.1.1-Trichloroethane	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
1.1.1.2-Tetrachloroethane	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
1.1.2-Trichloroethane	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
1.1.2.2-Tetrachloroethane	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
1.2-Dibromoethane	0.001	mg/L	-	< 0.001	< 0.001	< 0.001

Client Sample ID			SPLIT	GW18-12	GW17-12	GW17-30
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M21-JI16854	M21-JI18771	M21-JI18772	M21-JI18773
Date Sampled			Jul 09, 2021	Jul 09, 2021	Jul 09, 2021	Jul 09, 2021
Test/Reference	LOR	Unit				
Volatile Organics						
1.2-Dichlorobenzene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
1.2-Dichloroethane	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
1.2-Dichloropropane	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
1.2.3-Trichloropropane	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
1.2.4-Trimethylbenzene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
1.3-Dichlorobenzene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
1.3-Dichloropropane	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
1.3.5-Trimethylbenzene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
1.4-Dichlorobenzene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
2-Butanone (MEK)	0.001	mg/L	-	0.002	< 0.001	< 0.001
2-Propanone (Acetone)	0.001	mg/L	-	0.015	< 0.001	< 0.001
4-Chlorotoluene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
4-Methyl-2-pentanone (MIBK)	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Allyl chloride	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Benzene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Bromobenzene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Bromochloromethane	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Bromodichloromethane	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Bromoform	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Bromomethane	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Carbon disulfide	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Carbon Tetrachloride	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Chlorobenzene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Chloroethane	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Chloroform	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
Chloromethane	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
cis-1.2-Dichloroethene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
cis-1.3-Dichloropropene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Dibromochloromethane	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Dibromomethane	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Dichlorodifluoromethane	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Iodomethane	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Isopropyl benzene (Cumene)	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	-	< 0.002	< 0.002	< 0.002
Methylene Chloride	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
o-Xylene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Styrene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Tetrachloroethene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
trans-1.2-Dichloroethene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
trans-1.3-Dichloropropene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Trichloroethene	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Trichlorofluoromethane	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Vinyl chloride	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Xylenes - Total*	0.003	mg/L	-	< 0.003	< 0.003	< 0.003
Total MAH*	0.003	mg/L	-	< 0.003	< 0.003	< 0.003
Vic EPA IWRG 621 CHC (Total)*	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
Vic EPA IWRG 621 Other CHC (Total)*	0.005	mg/L	-	< 0.005	< 0.005	< 0.005

Client Sample ID			SPLIT	GW18-12	GW17-12	GW17-30
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M21-JI16854	M21-JI18771	M21-JI18772	M21-JI18773
Date Sampled			Jul 09, 2021	Jul 09, 2021	Jul 09, 2021	Jul 09, 2021
Test/Reference	LOR	Unit				
Volatile Organics						
4-Bromofluorobenzene (surr.)	1	%	-	106	107	105
Toluene-d8 (surr.)	1	%	-	106	104	104
Explosives						
1.3-Dinitrobenzene (1.3-DNB)	0.1	mg/L	-	< 0.1	< 0.1	< 0.1
1.3.5-Trinitrobenzene (1.3.5-TNB)	0.1	mg/L	-	< 0.1	< 0.1	< 0.1
2-Nitrotoluene (2-NT)	0.1	mg/L	-	< 0.1	< 0.1	< 0.1
2.4- & 2.6-Dinitrotoluene	0.1	mg/L	-	< 0.1	< 0.1	< 0.1
3-Nitrotoluene (3-NT)	0.1	mg/L	-	< 0.1	< 0.1	< 0.1
4-Nitrotoluene (4-NT)	0.1	mg/L	-	< 0.1	< 0.1	< 0.1
Hexahydro-1.3.5-trinitro-1.3.5-triazine (RDX)	0.1	mg/L	-	< 0.1	< 0.1	< 0.1
Nitrobenzene (NB)	0.1	mg/L	-	< 0.1	< 0.1	< 0.1
TNT	0.1	mg/L	-	< 0.1	< 0.1	< 0.1
Glyphosate & AMPA						
AMPA	0.01	mg/L	-	< 1	< 1	< 1
Glyphosate	0.01	mg/L	-	< 1	< 1	< 1
Volatile Fatty Acids (VFA) by GC-MS						
Acetic Acid	5	mg/L	-	6.8	< 5	< 5
Propionic acid	5	mg/L	-	< 5	< 5	< 5
Isobutyric acid	5	mg/L	-	< 5	< 5	< 5
Butyric acid	5	mg/L	-	< 5	< 5	< 5
Isovaleric acid	5	mg/L	-	< 5	< 5	< 5
Valeric acid	5	mg/L	-	< 5	< 5	< 5
4-Methylvaleric acid	5	mg/L	-	< 5	< 5	< 5
Hexanoic acid	5	mg/L	-	< 5	< 5	< 5
Heptanoic acid	5	mg/L	-	< 5	< 5	< 5
Total VFA as Acetic Acid Equivalents*	5	mg/L	-	6.8	< 5	< 5
Pathogens						
E.coli (MPN)	1	MPN/100mL	-	SEE ATTACHED	SEE ATTACHED	SEE ATTACHED
Thermotolerant Coliforms (MPN)	1	MPN/100mL	-	SEE ATTACHED	SEE ATTACHED	SEE ATTACHED
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA)[N11]	0.05	ug/L	-	< 0.05	< 0.05	< 0.05
Perfluoropentanoic acid (PFPeA)[N11]	0.01	ug/L	-	< 0.01	< 0.01	< 0.01
Perfluorohexanoic acid (PFHxA)[N11]	0.01	ug/L	-	< 0.01	< 0.01	< 0.01
Perfluoroheptanoic acid (PFHpA)[N11]	0.01	ug/L	-	< 0.01	< 0.01	< 0.01
Perfluorooctanoic acid (PFOA)[N11]	0.01	ug/L	-	< 0.01	< 0.01	< 0.01
Perfluorononanoic acid (PFNA)[N11]	0.01	ug/L	-	< 0.01	< 0.01	< 0.01
Perfluorodecanoic acid (PFDA)[N11]	0.01	ug/L	-	< 0.01	< 0.01	< 0.01
Perfluoroundecanoic acid (PFUnDA)[N11]	0.01	ug/L	-	< 0.01	< 0.01	< 0.01
Perfluorododecanoic acid (PFDoDA)[N11]	0.01	ug/L	-	< 0.01	< 0.01	< 0.01
Perfluorotridecanoic acid (PFTrDA)[N15]	0.01	ug/L	-	< 0.01	< 0.01	< 0.01
Perfluorotetradecanoic acid (PFTeDA)[N11]	0.01	ug/L	-	< 0.01	< 0.01	< 0.01
13C4-PFBA (surr.)	1	%	-	126	101	100
13C5-PFPeA (surr.)	1	%	-	62	66	67
13C5-PFHxA (surr.)	1	%	-	77	79	82
13C4-PFHpA (surr.)	1	%	-	79	85	91
13C8-PFOA (surr.)	1	%	-	75	78	78
13C5-PFNA (surr.)	1	%	-	78	78	89
13C6-PFDA (surr.)	1	%	-	72	79	80

Client Sample ID			SPLIT	GW18-12	GW17-12	GW17-30
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M21-JI16854	M21-JI18771	M21-JI18772	M21-JI18773
Date Sampled			Jul 09, 2021	Jul 09, 2021	Jul 09, 2021	Jul 09, 2021
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
13C2-PFUnDA (surr.)	1	%	-	80	82	104
13C2-PFDoDA (surr.)	1	%	-	83	91	63
13C2-PFTeDA (surr.)	1	%	-	143	141	140
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA)[N11]	0.05	ug/L	-	< 0.05	< 0.05	< 0.05
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	0.05	ug/L	-	< 0.05	< 0.05	< 0.05
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	0.05	ug/L	-	< 0.05	< 0.05	< 0.05
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)[N11]	0.05	ug/L	-	< 0.05	< 0.05	< 0.05
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)[N11]	0.05	ug/L	-	< 0.05	< 0.05	< 0.05
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	0.05	ug/L	-	< 0.05	< 0.05	< 0.05
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	0.05	ug/L	-	< 0.05	< 0.05	< 0.05
13C8-FOSA (surr.)	1	%	-	96	112	38
D3-N-MeFOSA (surr.)	1	%	-	136	99	37
D5-N-EtFOSA (surr.)	1	%	-	120	95	13
D7-N-MeFOSE (surr.)	1	%	-	82	86	56
D9-N-EtFOSE (surr.)	1	%	-	75	78	16
D5-N-EtFOSAA (surr.)	1	%	-	88	110	97
D3-N-MeFOSAA (surr.)	1	%	-	110	92	59
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorobutanesulfonic acid (PFBS)[N11]	0.01	ug/L	-	< 0.01	< 0.01	< 0.01
Perfluorononanesulfonic acid (PFNS)[N15]	0.01	ug/L	-	< 0.01	< 0.01	< 0.01
Perfluoropropanesulfonic acid (PFPrS)[N15]	0.01	ug/L	-	< 0.01	< 0.01	< 0.01
Perfluoropentanesulfonic acid (PFPeS)[N15]	0.01	ug/L	-	< 0.01	< 0.01	< 0.01
Perfluorohexanesulfonic acid (PFHxS)[N11]	0.01	ug/L	-	< 0.01	< 0.01	< 0.01
Perfluoroheptanesulfonic acid (PFHpS)[N15]	0.01	ug/L	-	< 0.01	< 0.01	< 0.01
Perfluorooctanesulfonic acid (PFOS)[N11]	0.01	ug/L	-	< 0.01	< 0.01	< 0.01
Perfluorodecanesulfonic acid (PFDS)[N15]	0.01	ug/L	-	< 0.01	< 0.01	< 0.01
13C3-PFBS (surr.)	1	%	-	79	89	80
18O2-PFHxS (surr.)	1	%	-	63	71	66
13C8-PFOS (surr.)	1	%	-	69	71	84
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)[N11]	0.01	ug/L	-	< 0.01	< 0.01	< 0.01
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)[N11]	0.05	ug/L	-	< 0.05	< 0.05	< 0.05
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)[N11]	0.01	ug/L	-	< 0.01	< 0.01	< 0.01
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)[N11]	0.01	ug/L	-	< 0.01	< 0.01	< 0.01
13C2-4:2 FTSA (surr.)	1	%	-	134	114	77
13C2-6:2 FTSA (surr.)	1	%	-	122	136	117
13C2-8:2 FTSA (surr.)	1	%	-	107	107	150
13C2-10:2 FTSA (surr.)	1	%	-	91	84	92

Client Sample ID			SPLIT	GW18-12	GW17-12	GW17-30
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M21-JI16854	M21-JI18771	M21-JI18772	M21-JI18773
Date Sampled			Jul 09, 2021	Jul 09, 2021	Jul 09, 2021	Jul 09, 2021
Test/Reference	LOR	Unit				
PFASs Summations						
Sum (PFHxS + PFOS)*	0.01	ug/L	-	< 0.01	< 0.01	< 0.01
Sum of US EPA PFAS (PFOS + PFOA)*	0.01	ug/L	-	< 0.01	< 0.01	< 0.01
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	-	< 0.01	< 0.01	< 0.01
Sum of WA DWER PFAS (n=10)*	0.05	ug/L	-	< 0.05	< 0.05	< 0.05
Sum of PFASs (n=30)*	0.1	ug/L	-	< 0.1	< 0.1	< 0.1

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
Eurofins Suite B4A			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Jul 12, 2021	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Jul 12, 2021	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Jul 12, 2021	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Melbourne	Jul 12, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Polycyclic Aromatic Hydrocarbons	Melbourne	Jul 12, 2021	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (Halogenated)	Melbourne	Jul 12, 2021	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (non-Halogenated)	Melbourne	Jul 12, 2021	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Eurofins Suite B15			
Organochlorine Pesticides	Melbourne	Jul 09, 2021	7 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water (USEPA 8270)			
Organophosphorus Pesticides	Melbourne	Jul 09, 2021	7 Days
- Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS (USEPA 8270)			
Polychlorinated Biphenyls	Melbourne	Jul 09, 2021	7 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water (USEPA 8082)			
Eurofins Suite B19E: Total N, TKN, NOx, NO2, NO3, NH3, Total P, Reactive P			
Ammonia (as N)	Melbourne	Jul 12, 2021	28 Days
- Method: APHA 4500-NH3 Ammonia Nitrogen by FIA			
Nitrate & Nitrite (as N)	Melbourne	Jul 12, 2021	28 Days
- Method: LTM-INO-4120 Analysis of NOx NO2 NH3 by FIA			
Nitrate (as N)	Melbourne	Jul 12, 2021	28 Days
- Method: LTM-INO-4120 Analysis of NOx NO2 NH3 by FIA			
Nitrite (as N)	Melbourne	Jul 12, 2021	2 Days
- Method: LTM-INO-4120 Analysis of NOx NO2 NH3 by FIA			
Phosphate total (as P)	Melbourne	Jul 12, 2021	28 Days
- Method: LTM-INO-4040 Phosphate by CFA			
Phosphorus reactive (as P)	Melbourne	Jul 12, 2021	2 Days
- Method: APHA 4500-P			
Total Kjeldahl Nitrogen (as N)	Melbourne	Jul 12, 2021	7 Days
- Method: APHA 4500-Norg B,D Total Kjeldahl Nitrogen by FIA			
Chemical Oxygen Demand (COD)	Melbourne	Jul 14, 2021	28 Days
- Method: LTM-INO-4220 Determination of COD in Water			
Total Organic Carbon	Melbourne	Jul 12, 2021	28 Days
- Method: LTM-INO-4060 Total Organic Carbon in water and soil			
Total Suspended Solids Dried at 103–105°C	Melbourne	Jul 12, 2021	7 Days
- Method: LTM-INO-4070 Analysis of Suspended Solids in Water by Gravimetry			
Heavy Metals (filtered)	Melbourne	Jul 12, 2021	180 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Eurofins Suite B11C: Na/K/Ca/Mg	Melbourne	Jul 12, 2021	180 Days
- Method: LTM-MET-3010 Alkali Metals by ICP-AES			
Eurofins Suite B11C filtered: Na/K/Ca/Mg	Melbourne	Jul 09, 2021	180 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Volatile Organics	Melbourne	Jul 12, 2021	7 Days
- Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices (USEPA 8260)			

Description	Testing Site	Extracted	Holding Time
Explosives	Melbourne	Jul 12, 2021	7 Days
- Method: LTM-ORG-2230 Determination of Explosive by HPLC			
Glyphosate & AMPA	Brisbane	Jul 13, 2021	7 Days
- Method: LTM-ORG-2090 Determination of glyphosate/AMPA in aqueous and soil samples by LC-MS			
Volatile Fatty Acids (VFA) by GC-MS	Melbourne	Jul 16, 2021	28 Day
- Method: LTM-ORG-2360 Determination of Volatile Fatty Acids in Water by GC-MS			
Thermotolerant Coliforms (MPN)	WaterTestingVic	Jul 10, 2021	24 Hours
- Method: LTM-MIC-6623 Thermotolerant Coliforms by MPN			
Eurofins Suite B11E: Cl/SO4/Alkalinity			
Chloride	Melbourne	Jul 12, 2021	28 Days
- Method: LTM-INO-4090 Chloride by Discrete Analyser			
Sulphate (as SO4)	Melbourne	Jul 12, 2021	28 Days
- Method: LTM-INO-4110 Sulfate by Discrete Analyser			
Alkalinity (speciated)	Melbourne	Jul 12, 2021	14 Days
- Method: LTM-INO-4250 Alkalinity by Electrometric Titration			
Total Dissolved Solids Dried at 180°C ± 2°C	Melbourne	Jul 12, 2021	7 Days
- Method: LTM-INO-4170 Total Dissolved Solids in Water			
Chromium (hexavalent)	Melbourne	Jul 12, 2021	28 Days
- Method: LTM-INO-4100 Hexavalent Chromium in water			
Mobil Metals : Metals M15	Melbourne	Jul 12, 2021	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Per- and Polyfluoroalkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs)	Melbourne	Jul 12, 2021	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonamido substances	Melbourne	Jul 12, 2021	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonic acids (PFSAs)	Melbourne	Jul 12, 2021	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)	Melbourne	Jul 12, 2021	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
PFASs Summations	Melbourne	Jul 10, 2021	
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			

eurofins | Environment Testing

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Project Name: CW1121900
Project ID: SBWMF WATER MONITORING

Order No.:
Report #: 809522
Phone: 8 8942 8200
Fax:

Received: Jul 9, 2021 10:45 AM
Due: Jul 16, 2021
Priority: 5 Day
Contact Name: David James

Eurofins Analytical Services Manager : Michael Morrison

Sample Detail						AOX (Adsorbable Organic Halogen)	Barium (filtered)	Chemical Oxygen Demand (COD)	E.coli (MPN)	Iron (filtered)	Thermotolerant Coliforms (MPN)	Total Organic Carbon	Total Suspended Solids Dried at 103–105°C	Vanadium (filtered)	Volatile Fatty Acids (as Acetic Acid)	Explosives	NEPM 2013 Metals : Metals M13 filtered	Volatile Organics	Glyphosate & AMPA	Eurofins Suite B4A	Eurofins Suite B19E: Total N, TKN, NOx, NO2, NO3, NH3, Total P, Reactive P	Eurofins Suite B11E: Cl/SO4/Alkalinity	Per- and Polyfluoroalkyl Substances (PFASs)	Eurofins Suite B11C: Na/K/Ca/Mg	Total Dissolved Solids Dried at 180°C ± 2°C
Melbourne Laboratory - NATA Site # 1254							X	X		X		X	X	X	X	X	X	X		X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217																										
Brisbane Laboratory - NATA Site # 20794																			X							
Perth Laboratory - NATA Site # 23736																										
Mayfield Laboratory - NATA Site # 25079																										
External Laboratory						X			X		X															
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**																					
1	GW18-12	Jul 09, 2021		Water	M21-Jl18771	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
2	GW17-12	Jul 09, 2021		Water	M21-Jl18772	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
3	GW17-30	Jul 09, 2021		Water	M21-Jl18773	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Test Counts						3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

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

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

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

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

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

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

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

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

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version 5.3
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

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

Results <10 times the LOR : No Limit

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

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

Surrogate Recoveries: Recoveries must lie between 20-130% Phenols & 50-150% PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.3 where no positive PFAS results have been reported have been reviewed and no data was affected.

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

QC Data General Comments

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

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
Naphthalene	mg/L	< 0.01			0.01	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total*	mg/L	< 0.003			0.003	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/L	< 0.001			0.001	Pass	
Acenaphthylene	mg/L	< 0.001			0.001	Pass	
Anthracene	mg/L	< 0.001			0.001	Pass	
Benz(a)anthracene	mg/L	< 0.001			0.001	Pass	
Benzo(a)pyrene	mg/L	< 0.001			0.001	Pass	
Benzo(b&j)fluoranthene	mg/L	< 0.001			0.001	Pass	
Benzo(g.h.i)perylene	mg/L	< 0.001			0.001	Pass	
Benzo(k)fluoranthene	mg/L	< 0.001			0.001	Pass	
Chrysene	mg/L	< 0.001			0.001	Pass	
Dibenz(a.h)anthracene	mg/L	< 0.001			0.001	Pass	
Fluoranthene	mg/L	< 0.001			0.001	Pass	
Fluorene	mg/L	< 0.001			0.001	Pass	
Indeno(1.2.3-cd)pyrene	mg/L	< 0.001			0.001	Pass	
Naphthalene	mg/L	< 0.001			0.001	Pass	
Phenanthrene	mg/L	< 0.001			0.001	Pass	
Pyrene	mg/L	< 0.001			0.001	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/L	< 0.002			0.002	Pass	
4.4'-DDD	mg/L	< 0.0002			0.0002	Pass	
4.4'-DDE	mg/L	< 0.0002			0.0002	Pass	
4.4'-DDT	mg/L	< 0.0002			0.0002	Pass	
a-HCH	mg/L	< 0.0002			0.0002	Pass	
Aldrin	mg/L	< 0.0002			0.0002	Pass	
b-HCH	mg/L	< 0.0002			0.0002	Pass	
d-HCH	mg/L	< 0.0002			0.0002	Pass	
Dieldrin	mg/L	< 0.0002			0.0002	Pass	
Endosulfan I	mg/L	< 0.0002			0.0002	Pass	
Endosulfan II	mg/L	< 0.0002			0.0002	Pass	
Endosulfan sulphate	mg/L	< 0.0002			0.0002	Pass	
Endrin	mg/L	< 0.0002			0.0002	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endrin aldehyde	mg/L	< 0.0002			0.0002	Pass	
Endrin ketone	mg/L	< 0.0002			0.0002	Pass	
g-HCH (Lindane)	mg/L	< 0.0002			0.0002	Pass	
Heptachlor	mg/L	< 0.0002			0.0002	Pass	
Heptachlor epoxide	mg/L	< 0.0002			0.0002	Pass	
Hexachlorobenzene	mg/L	< 0.0002			0.0002	Pass	
Methoxychlor	mg/L	< 0.0002			0.0002	Pass	
Toxaphene	mg/L	< 0.001			0.001	Pass	
Method Blank							
Organophosphorus Pesticides							
Azinphos-methyl	mg/L	< 0.002			0.002	Pass	
Bolstar	mg/L	< 0.002			0.002	Pass	
Chlorfenvinphos	mg/L	< 0.02			0.02	Pass	
Chlorpyrifos	mg/L	< 0.002			0.002	Pass	
Chlorpyrifos-methyl	mg/L	< 0.002			0.002	Pass	
Coumaphos	mg/L	< 0.02			0.02	Pass	
Demeton-S	mg/L	< 0.002			0.002	Pass	
Demeton-O	mg/L	< 0.002			0.002	Pass	
Diazinon	mg/L	< 0.002			0.002	Pass	
Dichlorvos	mg/L	< 0.002			0.002	Pass	
Dimethoate	mg/L	< 0.002			0.002	Pass	
Disulfoton	mg/L	< 0.002			0.002	Pass	
EPN	mg/L	< 0.002			0.002	Pass	
Ethion	mg/L	< 0.002			0.002	Pass	
Ethoprop	mg/L	< 0.002			0.002	Pass	
Ethyl parathion	mg/L	< 0.002			0.002	Pass	
Fenitrothion	mg/L	< 0.002			0.002	Pass	
Fensulfothion	mg/L	< 0.002			0.002	Pass	
Fenthion	mg/L	< 0.002			0.002	Pass	
Malathion	mg/L	< 0.002			0.002	Pass	
Merphos	mg/L	< 0.002			0.002	Pass	
Methyl parathion	mg/L	< 0.002			0.002	Pass	
Mevinphos	mg/L	< 0.002			0.002	Pass	
Monocrotophos	mg/L	< 0.002			0.002	Pass	
Naled	mg/L	< 0.002			0.002	Pass	
Omethoate	mg/L	< 0.02			0.02	Pass	
Phorate	mg/L	< 0.002			0.002	Pass	
Pirimiphos-methyl	mg/L	< 0.02			0.02	Pass	
Pyrazophos	mg/L	< 0.002			0.002	Pass	
Ronnel	mg/L	< 0.002			0.002	Pass	
Terbufos	mg/L	< 0.002			0.002	Pass	
Tetrachlorvinphos	mg/L	< 0.002			0.002	Pass	
Tokuthion	mg/L	< 0.002			0.002	Pass	
Trichloronate	mg/L	< 0.002			0.002	Pass	
Method Blank							
Polychlorinated Biphenyls							
Aroclor-1016	mg/L	< 0.001			0.001	Pass	
Aroclor-1221	mg/L	< 0.001			0.001	Pass	
Aroclor-1232	mg/L	< 0.001			0.001	Pass	
Aroclor-1242	mg/L	< 0.001			0.001	Pass	
Aroclor-1248	mg/L	< 0.001			0.001	Pass	
Aroclor-1254	mg/L	< 0.001			0.001	Pass	
Aroclor-1260	mg/L	< 0.001			0.001	Pass	
Total PCB*	mg/L	< 0.001			0.001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Phenols (Halogenated)							
2-Chlorophenol	mg/L	< 0.003			0.003	Pass	
2.4-Dichlorophenol	mg/L	< 0.003			0.003	Pass	
2.4.5-Trichlorophenol	mg/L	< 0.01			0.01	Pass	
2.4.6-Trichlorophenol	mg/L	< 0.01			0.01	Pass	
2.6-Dichlorophenol	mg/L	< 0.003			0.003	Pass	
4-Chloro-3-methylphenol	mg/L	< 0.01			0.01	Pass	
Pentachlorophenol	mg/L	< 0.01			0.01	Pass	
Tetrachlorophenols - Total	mg/L	< 0.03			0.03	Pass	
Method Blank							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	mg/L	< 0.1			0.1	Pass	
2-Methyl-4.6-dinitrophenol	mg/L	< 0.03			0.03	Pass	
2-Nitrophenol	mg/L	< 0.01			0.01	Pass	
2.4-Dimethylphenol	mg/L	< 0.003			0.003	Pass	
2.4-Dinitrophenol	mg/L	< 0.03			0.03	Pass	
2-Methylphenol (o-Cresol)	mg/L	< 0.003			0.003	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/L	< 0.006			0.006	Pass	
Total cresols*	mg/L	-			0.002	N/A	
4-Nitrophenol	mg/L	< 0.03			0.03	Pass	
Dinoseb	mg/L	< 0.1			0.1	Pass	
Phenol	mg/L	< 0.003			0.003	Pass	
Total Non-Halogenated Phenol*	mg/L	< 0			0.1	Pass	
Method Blank							
Ammonia (as N)	mg/L	< 0.01			0.01	Pass	
Chemical Oxygen Demand (COD)	mg/L	< 25			25	Pass	
Chloride	mg/L	< 1			1	Pass	
Nitrate & Nitrite (as N)	mg/L	< 0.05			0.05	Pass	
Nitrate (as N)	mg/L	< 0.02			0.02	Pass	
Nitrite (as N)	mg/L	< 0.02			0.02	Pass	
Phosphate total (as P)	mg/L	< 0.01			0.01	Pass	
Phosphorus reactive (as P)	mg/L	< 0.01			0.01	Pass	
Sulphate (as SO4)	mg/L	< 5			5	Pass	
Total Dissolved Solids Dried at 180°C ± 2°C	mg/L	< 10			10	Pass	
Total Kjeldahl Nitrogen (as N)	mg/L	< 0.2			0.2	Pass	
Total Organic Carbon	mg/L	< 5			5	Pass	
Total Suspended Solids Dried at 103–105°C	mg/L	< 1			1	Pass	
Chromium (hexavalent)	mg/L	< 0.005			0.005	Pass	
Method Blank							
Alkalinity (speciated)							
Bicarbonate Alkalinity (as CaCO3)	mg/L	< 20			20	Pass	
Carbonate Alkalinity (as CaCO3)	mg/L	< 10			10	Pass	
Hydroxide Alkalinity (as CaCO3)	mg/L	< 20			20	Pass	
Total Alkalinity (as CaCO3)	mg/L	< 20			20	Pass	
Method Blank							
Heavy Metals							
Arsenic (filtered)	mg/L	< 0.001			0.001	Pass	
Barium (filtered)	mg/L	< 0.02			0.02	Pass	
Beryllium (filtered)	mg/L	< 0.001			0.001	Pass	
Boron (filtered)	mg/L	< 0.05			0.05	Pass	
Cadmium (filtered)	mg/L	< 0.0002			0.0002	Pass	
Chromium (filtered)	mg/L	< 0.001			0.001	Pass	
Cobalt (filtered)	mg/L	< 0.001			0.001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Copper (filtered)	mg/L	< 0.001			0.001	Pass	
Iron (filtered)	mg/L	< 0.05			0.05	Pass	
Lead (filtered)	mg/L	< 0.001			0.001	Pass	
Manganese (filtered)	mg/L	< 0.005			0.005	Pass	
Mercury (filtered)	mg/L	< 0.0001			0.0001	Pass	
Nickel (filtered)	mg/L	< 0.001			0.001	Pass	
Selenium (filtered)	mg/L	< 0.001			0.001	Pass	
Vanadium (filtered)	mg/L	< 0.005			0.005	Pass	
Zinc (filtered)	mg/L	< 0.005			0.005	Pass	
Method Blank							
Alkali Metals							
Calcium	mg/L	< 0.5			0.5	Pass	
Magnesium	mg/L	< 0.5			0.5	Pass	
Potassium	mg/L	< 0.5			0.5	Pass	
Sodium	mg/L	< 0.5			0.5	Pass	
Method Blank							
Volatile Organics							
1.1-Dichloroethane	mg/L	< 0.001			0.001	Pass	
1.1-Dichloroethene	mg/L	< 0.001			0.001	Pass	
1.1.1-Trichloroethane	mg/L	< 0.001			0.001	Pass	
1.1.1.2-Tetrachloroethane	mg/L	< 0.001			0.001	Pass	
1.1.2-Trichloroethane	mg/L	< 0.001			0.001	Pass	
1.1.2.2-Tetrachloroethane	mg/L	< 0.001			0.001	Pass	
1.2-Dibromoethane	mg/L	< 0.001			0.001	Pass	
1.2-Dichlorobenzene	mg/L	< 0.001			0.001	Pass	
1.2-Dichloroethane	mg/L	< 0.001			0.001	Pass	
1.2-Dichloropropane	mg/L	< 0.001			0.001	Pass	
1.2.3-Trichloropropane	mg/L	< 0.001			0.001	Pass	
1.2.4-Trimethylbenzene	mg/L	< 0.001			0.001	Pass	
1.3-Dichlorobenzene	mg/L	< 0.001			0.001	Pass	
1.3-Dichloropropane	mg/L	< 0.001			0.001	Pass	
1.3.5-Trimethylbenzene	mg/L	< 0.001			0.001	Pass	
1.4-Dichlorobenzene	mg/L	< 0.001			0.001	Pass	
2-Butanone (MEK)	mg/L	< 0.001			0.001	Pass	
2-Propanone (Acetone)	mg/L	< 0.001			0.001	Pass	
4-Chlorotoluene	mg/L	< 0.001			0.001	Pass	
4-Methyl-2-pentanone (MIBK)	mg/L	< 0.001			0.001	Pass	
Allyl chloride	mg/L	< 0.001			0.001	Pass	
Bromobenzene	mg/L	< 0.001			0.001	Pass	
Bromochloromethane	mg/L	< 0.001			0.001	Pass	
Bromodichloromethane	mg/L	< 0.001			0.001	Pass	
Bromoform	mg/L	< 0.001			0.001	Pass	
Bromomethane	mg/L	< 0.001			0.001	Pass	
Carbon disulfide	mg/L	< 0.001			0.001	Pass	
Carbon Tetrachloride	mg/L	< 0.001			0.001	Pass	
Chlorobenzene	mg/L	< 0.001			0.001	Pass	
Chloroethane	mg/L	< 0.001			0.001	Pass	
Chloroform	mg/L	< 0.005			0.005	Pass	
Chloromethane	mg/L	< 0.001			0.001	Pass	
cis-1.2-Dichloroethene	mg/L	< 0.001			0.001	Pass	
cis-1.3-Dichloropropene	mg/L	< 0.001			0.001	Pass	
Dibromochloromethane	mg/L	< 0.001			0.001	Pass	
Dibromomethane	mg/L	< 0.001			0.001	Pass	
Dichlorodifluoromethane	mg/L	< 0.001			0.001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Iodomethane	mg/L	< 0.001			0.001	Pass	
Isopropyl benzene (Cumene)	mg/L	< 0.001			0.001	Pass	
Methylene Chloride	mg/L	< 0.001			0.001	Pass	
Styrene	mg/L	< 0.001			0.001	Pass	
Tetrachloroethene	mg/L	< 0.001			0.001	Pass	
trans-1.2-Dichloroethene	mg/L	< 0.001			0.001	Pass	
trans-1.3-Dichloropropene	mg/L	< 0.001			0.001	Pass	
Trichloroethene	mg/L	< 0.001			0.001	Pass	
Trichlorofluoromethane	mg/L	< 0.001			0.001	Pass	
Vinyl chloride	mg/L	< 0.001			0.001	Pass	
Method Blank							
Explosives							
1.3-Dinitrobenzene (1.3-DNB)	mg/L	< 0.1			0.1	Pass	
1.3.5-Trinitrobenzene (1.3.5-TNB)	mg/L	< 0.1			0.1	Pass	
2-Nitrotoluene (2-NT)	mg/L	< 0.1			0.1	Pass	
2.4- & 2.6-Dinitrotoluene	mg/L	< 0.1			0.1	Pass	
3-Nitrotoluene (3-NT)	mg/L	< 0.1			0.1	Pass	
4-Nitrotoluene (4-NT)	mg/L	< 0.1			0.1	Pass	
Hexahydro-1.3.5-trinitro-1.3.5-triazine (RDX)	mg/L	< 0.1			0.1	Pass	
Nitrobenzene (NB)	mg/L	< 0.1			0.1	Pass	
TNT	mg/L	< 0.1			0.1	Pass	
Method Blank							
Volatile Fatty Acids (VFA) by GC-MS							
Acetic Acid	mg/L	< 5			5	Pass	
Propionic acid	mg/L	< 5			5	Pass	
Isobutyric acid	mg/L	< 5			5	Pass	
Butyric acid	mg/L	< 5			5	Pass	
Isovaleric acid	mg/L	< 5			5	Pass	
Valeric acid	mg/L	< 5			5	Pass	
4-Methylvaleric acid	mg/L	< 5			5	Pass	
Hexanoic acid	mg/L	< 5			5	Pass	
Heptanoic acid	mg/L	< 5			5	Pass	
Total VFA as Acetic Acid Equivalents*	mg/L	< 5			5	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.05			0.05	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.01			0.01	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.01			0.01	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.01			0.01	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.01			0.01	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.01			0.01	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.01			0.01	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.01			0.01	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.01			0.01	Pass	
Perfluorotridecanoic acid (PFTrDA)	ug/L	< 0.01			0.01	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.01			0.01	Pass	
Method Blank							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.05			0.05	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.05			0.05	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.05			0.05	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	ug/L	< 0.05			0.05	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	ug/L	< 0.05			0.05	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.05			0.05	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.01			0.01	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/L	< 0.01			0.01	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/L	< 0.01			0.01	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.01			0.01	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.01			0.01	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.01			0.01	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.01			0.01	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.01			0.01	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.01			0.01	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	ug/L	< 0.05			0.05	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.01			0.01	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.01			0.01	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons							
TRH C6-C9	%	103			70-130	Pass	
TRH C10-C14	%	105			70-130	Pass	
Naphthalene	%	83			70-130	Pass	
TRH C6-C10	%	97			70-130	Pass	
TRH >C10-C16	%	108			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	95			70-130	Pass	
Toluene	%	77			70-130	Pass	
Ethylbenzene	%	87			70-130	Pass	
m&p-Xylenes	%	84			70-130	Pass	
Xylenes - Total*	%	83			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	119			70-130	Pass	
Acenaphthylene	%	77			70-130	Pass	
Anthracene	%	72			70-130	Pass	
Benz(a)anthracene	%	95			70-130	Pass	
Benzo(a)pyrene	%	72			70-130	Pass	
Benzo(b&j)fluoranthene	%	91			70-130	Pass	
Benzo(g.h.i)perylene	%	83			70-130	Pass	
Benzo(k)fluoranthene	%	105			70-130	Pass	
Chrysene	%	101			70-130	Pass	
Dibenz(a.h)anthracene	%	98			70-130	Pass	
Fluoranthene	%	129			70-130	Pass	
Fluorene	%	104			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	101			70-130	Pass	
Naphthalene	%	116			70-130	Pass	
Phenanthrene	%	93			70-130	Pass	
Pyrene	%	96			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	102			70-130	Pass	
4.4'-DDD	%	84			70-130	Pass	
4.4'-DDE	%	105			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
4.4'-DDT	%	78			70-130	Pass	
a-HCH	%	97			70-130	Pass	
Aldrin	%	98			70-130	Pass	
b-HCH	%	87			70-130	Pass	
d-HCH	%	93			70-130	Pass	
Dieldrin	%	101			70-130	Pass	
Endosulfan I	%	106			70-130	Pass	
Endosulfan II	%	113			70-130	Pass	
Endosulfan sulphate	%	95			70-130	Pass	
Endrin	%	89			70-130	Pass	
Endrin aldehyde	%	71			70-130	Pass	
Endrin ketone	%	116			70-130	Pass	
g-HCH (Lindane)	%	112			70-130	Pass	
Heptachlor	%	89			70-130	Pass	
Heptachlor epoxide	%	79			70-130	Pass	
Hexachlorobenzene	%	104			70-130	Pass	
Methoxychlor	%	71			70-130	Pass	
LCS - % Recovery							
Organophosphorus Pesticides							
Diazinon	%	107			70-130	Pass	
Dimethoate	%	99			70-130	Pass	
Ethion	%	83			70-130	Pass	
Fenitrothion	%	76			70-130	Pass	
Methyl parathion	%	71			70-130	Pass	
Mevinphos	%	80			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls							
Aroclor-1260	%	104			70-130	Pass	
LCS - % Recovery							
Phenols (Halogenated)							
2-Chlorophenol	%	63			25-140	Pass	
2.4-Dichlorophenol	%	92			25-140	Pass	
2.4.5-Trichlorophenol	%	35			30-130	Pass	
2.4.6-Trichlorophenol	%	62			30-130	Pass	
2.6-Dichlorophenol	%	60			30-130	Pass	
4-Chloro-3-methylphenol	%	61			30-130	Pass	
Pentachlorophenol	%	76			30-130	Pass	
Tetrachlorophenols - Total	%	72			30-130	Pass	
LCS - % Recovery							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	%	76			30-130	Pass	
2-Methyl-4.6-dinitrophenol	%	112			30-130	Pass	
2-Nitrophenol	%	71			30-130	Pass	
2.4-Dimethylphenol	%	79			30-130	Pass	
2.4-Dinitrophenol	%	85			30-130	Pass	
2-Methylphenol (o-Cresol)	%	46			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	%	44			30-130	Pass	
4-Nitrophenol	%	119			30-130	Pass	
Dinoseb	%	118			30-130	Pass	
Phenol	%	88			25-145	Pass	
LCS - % Recovery							
Ammonia (as N)	%	94			70-130	Pass	
Chemical Oxygen Demand (COD)	%	98			70-130	Pass	
Chloride	%	113			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Nitrate & Nitrite (as N)	%	99			70-130	Pass	
Nitrate (as N)	%	99			70-130	Pass	
Nitrite (as N)	%	114			70-130	Pass	
Phosphate total (as P)	%	103			70-130	Pass	
Phosphorus reactive (as P)	%	92			70-130	Pass	
Sulphate (as SO4)	%	104			70-130	Pass	
Total Dissolved Solids Dried at 180°C ± 2°C	%	88			70-130	Pass	
Total Kjeldahl Nitrogen (as N)	%	113			70-130	Pass	
Total Organic Carbon	%	102			70-130	Pass	
Total Suspended Solids Dried at 103–105°C	%	82			70-130	Pass	
Chromium (hexavalent)	%	95			70-130	Pass	
LCS - % Recovery							
Alkalinity (speciated)							
Carbonate Alkalinity (as CaCO3)	%	94			70-130	Pass	
Total Alkalinity (as CaCO3)	%	101			70-130	Pass	
LCS - % Recovery							
Alkali Metals							
Calcium	%	117			80-120	Pass	
Magnesium	%	109			80-120	Pass	
Potassium	%	93			80-120	Pass	
Sodium	%	91			80-120	Pass	
LCS - % Recovery							
Volatile Organics							
1.1-Dichloroethene	%	112			70-130	Pass	
1.1.1-Trichloroethane	%	104			70-130	Pass	
1.2-Dichlorobenzene	%	98			70-130	Pass	
1.2-Dichloroethane	%	106			70-130	Pass	
Trichloroethene	%	101			70-130	Pass	
LCS - % Recovery							
Explosives							
1.3-Dinitrobenzene (1.3-DNB)	%	92			70-130	Pass	
1.3.5-Trinitrobenzene (1.3.5-TNB)	%	93			70-130	Pass	
2-Nitrotoluene (2-NT)	%	98			70-130	Pass	
2.4- & 2.6-Dinitrotoluene	%	89			70-130	Pass	
3-Nitrotoluene (3-NT)	%	94			70-130	Pass	
4-Nitrotoluene (4-NT)	%	92			70-130	Pass	
Hexahydro-1.3.5-trinitro-1.3.5-triazine (RDX)	%	92			70-130	Pass	
TNT	%	89			70-130	Pass	
LCS - % Recovery							
Volatile Fatty Acids (VFA) by GC-MS							
Acetic Acid	%	130			70-130	Pass	
Propionic acid	%	116			70-130	Pass	
Isobutyric acid	%	120			70-130	Pass	
Butyric acid	%	117			70-130	Pass	
Isovaleric acid	%	107			70-130	Pass	
Valeric acid	%	108			70-130	Pass	
4-Methylvaleric acid	%	108			70-130	Pass	
Hexanoic acid	%	110			70-130	Pass	
Heptanoic acid	%	106			70-130	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	72			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	86			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	92			50-150	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluoroheptanoic acid (PFHpA)	%	94			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	88			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	93			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	84			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	87			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	91			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	96			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	92			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	98			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	110			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	134			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	%	97			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	%	104			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	82			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	78			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	%	82			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	90			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	88			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	90			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	92			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	85			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	80			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	79			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	93			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	%	115			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	106			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	79			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons				Result 1					
TRH C10-C14	B21-JI13152	NCP	%	95			70-130	Pass	
TRH >C10-C16	B21-JI13152	NCP	%	97			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	M21-JI03417	NCP	%	98			70-130	Pass	
Acenaphthylene	M21-JI03417	NCP	%	77			70-130	Pass	
Anthracene	M21-JI03417	NCP	%	73			70-130	Pass	
Benz(a)anthracene	M21-JI03417	NCP	%	97			70-130	Pass	
Benzo(a)pyrene	M21-JI03417	NCP	%	90			70-130	Pass	
Benzo(b&j)fluoranthene	M21-JI03417	NCP	%	95			70-130	Pass	
Benzo(g.h.i)perylene	M21-JI03417	NCP	%	126			70-130	Pass	
Benzo(k)fluoranthene	M21-JI03417	NCP	%	103			70-130	Pass	
Chrysene	M21-JI03417	NCP	%	112			70-130	Pass	
Dibenz(a.h)anthracene	M21-JI03417	NCP	%	99			70-130	Pass	
Fluoranthene	M21-JI03417	NCP	%	114			70-130	Pass	
Fluorene	M21-JI03417	NCP	%	103			70-130	Pass	
Indeno(1.2.3-cd)pyrene	M21-JI03417	NCP	%	90			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Naphthalene	M21-JI03417	NCP	%	95			70-130	Pass	
Phenanthrene	M21-JI03417	NCP	%	123			70-130	Pass	
Pyrene	M21-JI03417	NCP	%	117			70-130	Pass	
Spike - % Recovery									
Organophosphorus Pesticides				Result 1					
Diazinon	M21-JI15444	NCP	%	78			70-130	Pass	
Dimethoate	M21-JI15444	NCP	%	107			70-130	Pass	
Ethion	M21-JI15444	NCP	%	99			70-130	Pass	
Fenitrothion	M21-JI15444	NCP	%	124			70-130	Pass	
Methyl parathion	M21-JI15444	NCP	%	118			70-130	Pass	
Mevinphos	M21-JI15444	NCP	%	113			70-130	Pass	
Spike - % Recovery									
Phenols (Halogenated)				Result 1					
2-Chlorophenol	M21-JI03417	NCP	%	39			30-130	Pass	
2.4-Dichlorophenol	M21-JI03417	NCP	%	31			30-130	Pass	
2.4.5-Trichlorophenol	M21-JI03417	NCP	%	53			30-130	Pass	
2.4.6-Trichlorophenol	M21-JI03423	NCP	%	95			30-130	Pass	
2.6-Dichlorophenol	M21-JI03423	NCP	%	76			30-130	Pass	
4-Chloro-3-methylphenol	M21-JI03423	NCP	%	80			30-130	Pass	
Pentachlorophenol	M21-JI03417	NCP	%	51			30-130	Pass	
Tetrachlorophenols - Total	M21-JI03417	NCP	%	48			30-130	Pass	
Spike - % Recovery									
Phenols (non-Halogenated)				Result 1					
2-Cyclohexyl-4.6-dinitrophenol	M21-JI03417	NCP	%	100			30-130	Pass	
2-Methyl-4.6-dinitrophenol	M21-JI03417	NCP	%	125			30-130	Pass	
2-Nitrophenol	M21-JI03417	NCP	%	98			30-130	Pass	
2.4-Dinitrophenol	M21-JI03417	NCP	%	90			30-130	Pass	
2-Methylphenol (o-Cresol)	M21-JI03423	NCP	%	44			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	M21-JI03423	NCP	%	99			30-130	Pass	
4-Nitrophenol	M21-JI03417	NCP	%	96			30-130	Pass	
Dinoseb	M21-JI03417	NCP	%	124			30-130	Pass	
Phenol	M21-JI03423	NCP	%	62			30-130	Pass	
Spike - % Recovery									
				Result 1					
Ammonia (as N)	M21-JI13874	NCP	%	94			70-130	Pass	
Chloride	M21-JI14835	NCP	%	83			70-130	Pass	
Nitrate & Nitrite (as N)	S21-JI14109	NCP	%	100			70-130	Pass	
Nitrate (as N)	S21-JI14109	NCP	%	99			70-130	Pass	
Nitrite (as N)	M21-JI13874	NCP	%	106			70-130	Pass	
Phosphate total (as P)	B21-JI13765	NCP	%	100			70-130	Pass	
Sulphate (as SO4)	M21-JI16850	CP	%	94			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Chromium (filtered)	M21-JI12244	NCP	%	93			75-125	Pass	
Copper (filtered)	M21-JI12244	NCP	%	88			75-125	Pass	
Lead (filtered)	M21-JI12244	NCP	%	84			75-125	Pass	
Nickel (filtered)	M21-JI12244	NCP	%	85			75-125	Pass	
Zinc (filtered)	M21-JI12244	NCP	%	102			75-125	Pass	
Spike - % Recovery									
Alkali Metals				Result 1					
Calcium	M21-JI16851	CP	%	100			75-125	Pass	
Calcium (filtered)	M21-JI16851	CP	%	100			75-125	Pass	
Magnesium	M21-JI16851	CP	%	99			75-125	Pass	
Magnesium (filtered)	M21-JI16851	CP	%	99			75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Potassium	M21-JI16851	CP	%	91			75-125	Pass	
Potassium (filtered)	M21-JI16851	CP	%	91			75-125	Pass	
Sodium	M21-JI16851	CP	%	108			75-125	Pass	
Sodium (filtered)	M21-JI16851	CP	%	108			75-125	Pass	
Spike - % Recovery									
				Result 1					
Total Kjeldahl Nitrogen (as N)	M21-JI16854	CP	%	106			70-130	Pass	
Spike - % Recovery									
				Result 1					
Total Organic Carbon	S21-JI17920	NCP	%	104			70-130	Pass	
Total Suspended Solids Dried at 103–105°C	S21-JI17651	NCP	%	88			70-130	Pass	
Chromium (hexavalent)	B21-JI11214	NCP	%	94			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic (filtered)	M21-JI18118	NCP	%	85			75-125	Pass	
Barium (filtered)	M21-JI18118	NCP	%	87			75-125	Pass	
Beryllium (filtered)	M21-JI18118	NCP	%	88			75-125	Pass	
Cadmium (filtered)	M21-JI18118	NCP	%	88			75-125	Pass	
Cobalt (filtered)	M21-JI18118	NCP	%	91			75-125	Pass	
Iron (filtered)	M21-JI18364	NCP	%	92			75-125	Pass	
Manganese (filtered)	M21-JI18118	NCP	%	90			75-125	Pass	
Mercury (filtered)	M21-JI18118	NCP	%	53			75-125	Fail	Q08
Selenium (filtered)	M21-JI18118	NCP	%	86			75-125	Pass	
Vanadium (filtered)	M21-JI18118	NCP	%	99			75-125	Pass	
Spike - % Recovery									
Alkali Metals				Result 1					
Calcium	M21-JI17889	NCP	%	88			75-125	Pass	
Magnesium	S21-JI22616	NCP	%	93			75-125	Pass	
Potassium	M21-JI17889	NCP	%	96			75-125	Pass	
Sodium	M21-JI17889	NCP	%	79			75-125	Pass	
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1					
Perfluorobutanoic acid (PFBA)	P21-JI16698	NCP	%	91			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	P21-JI16698	NCP	%	76			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	P21-JI16698	NCP	%	97			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	P21-JI16698	NCP	%	96			50-150	Pass	
Perfluorooctanoic acid (PFOA)	P21-JI16698	NCP	%	90			50-150	Pass	
Perfluorononanoic acid (PFNA)	P21-JI16698	NCP	%	97			50-150	Pass	
Perfluorodecanoic acid (PFDA)	P21-JI16698	NCP	%	94			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	P21-JI16698	NCP	%	94			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	P21-JI16698	NCP	%	91			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	P21-JI16698	NCP	%	86			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	P21-JI16698	NCP	%	88			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances				Result 1					
Perfluorooctane sulfonamide (FOSA)	P21-JI16698	NCP	%	108			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	P21-JI16698	NCP	%	114			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	P21-JI16698	NCP	%	145			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	P21-JI16698	NCP	%	99			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	P21-JI16698	NCP	%	112			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	P21-JI16698	NCP	%	90			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	P21-JI16698	NCP	%	83			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1					
Perfluorobutanesulfonic acid (PFBS)	P21-JI16698	NCP	%	86			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	P21-JI16698	NCP	%	93			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	P21-JI16698	NCP	%	93			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	P21-JI16698	NCP	%	97			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	P21-JI16698	NCP	%	99			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	P21-JI16698	NCP	%	88			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	P21-JI16698	NCP	%	88			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	P21-JI16698	NCP	%	79			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	P21-JI16698	NCP	%	98			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	P21-JI16698	NCP	%	120			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	P21-JI16698	NCP	%	109			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	P21-JI16698	NCP	%	102			50-150	Pass	
Spike - % Recovery									
Volatile Fatty Acids (VFA) by GC-MS				Result 1					
Isobutyric acid	M21-JI18772	CP	%	112			70-130	Pass	
Isovaleric acid	M21-JI18772	CP	%	92			70-130	Pass	
Valeric acid	M21-JI18772	CP	%	93			70-130	Pass	
4-Methylvaleric acid	M21-JI18772	CP	%	94			70-130	Pass	
Hexanoic acid	M21-JI18772	CP	%	93			70-130	Pass	
Heptanoic acid	M21-JI18772	CP	%	91			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C6-C9	M21-JI16493	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH C10-C14	B21-JI13151	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH C15-C28	B21-JI13151	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36	B21-JI13151	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Naphthalene	M21-JI16493	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
TRH C6-C10	M21-JI16493	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH >C10-C16	B21-JI13151	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH >C16-C34	B21-JI13151	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH >C34-C40	B21-JI13151	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	

Duplicate								
BTEX				Result 1	Result 2	RPD		
Benzene	M21-JI16493	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Toluene	M21-JI16493	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Ethylbenzene	M21-JI16493	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
m&p-Xylenes	M21-JI16493	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
o-Xylene	M21-JI16493	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Xylenes - Total*	M21-JI16493	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass
Duplicate								
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD		
Acenaphthene	M21-JI15716	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Acenaphthylene	M21-JI15716	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Anthracene	M21-JI15716	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Benz(a)anthracene	M21-JI15716	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Benzo(a)pyrene	M21-JI15716	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Benzo(b&j)fluoranthene	M21-JI15716	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Benzo(g.h.i)perylene	M21-JI15716	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Benzo(k)fluoranthene	M21-JI15716	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Chrysene	M21-JI15716	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Dibenz(a.h)anthracene	M21-JI15716	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Fluoranthene	M21-JI15716	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Fluorene	M21-JI15716	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Indeno(1.2.3-cd)pyrene	M21-JI15716	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Naphthalene	M21-JI15716	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Phenanthrene	M21-JI15716	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Pyrene	M21-JI15716	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Duplicate								
Organochlorine Pesticides				Result 1	Result 2	RPD		
Chlordanes - Total	M21-JI11195	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
4.4'-DDD	M21-JI11195	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
4.4'-DDE	M21-JI11195	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
4.4'-DDT	M21-JI11195	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
a-HCH	M21-JI11195	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Aldrin	M21-JI11195	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
b-HCH	M21-JI11195	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
d-HCH	M21-JI11195	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Dieldrin	M21-JI11195	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Endosulfan I	M21-JI11195	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Endosulfan II	M21-JI11195	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Endosulfan sulphate	M21-JI11195	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Endrin	M21-JI11195	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Endrin aldehyde	M21-JI11195	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Endrin ketone	M21-JI11195	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
g-HCH (Lindane)	M21-JI11195	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Heptachlor	M21-JI11195	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Heptachlor epoxide	M21-JI11195	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Hexachlorobenzene	M21-JI11195	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Methoxychlor	M21-JI11195	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Toxaphene	M21-JI11195	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Duplicate								
Organophosphorus Pesticides				Result 1	Result 2	RPD		
Azinphos-methyl	M21-JI11195	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Bolstar	M21-JI11195	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Chlorfenvinphos	M21-JI11195	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass
Chlorpyrifos	M21-JI11195	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Chlorpyrifos-methyl	M21-JI11195	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass

Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Coumaphos	M21-JI11195	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Demeton-S	M21-JI11195	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Demeton-O	M21-JI11195	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Diazinon	M21-JI11195	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Dichlorvos	M21-JI11195	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Dimethoate	M21-JI11195	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Disulfoton	M21-JI11195	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
EPN	M21-JI11195	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ethion	M21-JI11195	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ethoprop	M21-JI11195	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ethyl parathion	M21-JI11195	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Fenitrothion	M21-JI11195	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Fensulfothion	M21-JI11195	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Fenthion	M21-JI11195	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Malathion	M21-JI11195	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Merphos	M21-JI11195	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Methyl parathion	M21-JI11195	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Mevinphos	M21-JI11195	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Monocrotophos	M21-JI11195	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Naled	M21-JI11195	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Omethoate	M21-JI11195	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Phorate	M21-JI11195	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Pirimiphos-methyl	M21-JI11195	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Pyrazophos	M21-JI11195	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ronnel	M21-JI11195	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Terbufos	M21-JI11195	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Tetrachlorvinphos	M21-JI11195	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Tokuthion	M21-JI11195	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Trichloronate	M21-JI11195	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Duplicate									
Phenols (Halogenated)				Result 1	Result 2	RPD			
2-Chlorophenol	M21-JI15716	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2.4-Dichlorophenol	M21-JI15716	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2.4.5-Trichlorophenol	M21-JI15716	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
2.4.6-Trichlorophenol	M21-JI15716	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
2.6-Dichlorophenol	M21-JI15716	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
4-Chloro-3-methylphenol	M21-JI15716	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Pentachlorophenol	M21-JI15716	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Tetrachlorophenols - Total	M21-JI15716	NCP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
Duplicate									
Phenols (non-Halogenated)				Result 1	Result 2	RPD			
2-Cyclohexyl-4.6-dinitrophenol	M21-JI15716	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
2-Methyl-4.6-dinitrophenol	M21-JI15716	NCP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
2-Nitrophenol	M21-JI15716	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
2.4-Dimethylphenol	M21-JI15716	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2.4-Dinitrophenol	M21-JI15716	NCP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
2-Methylphenol (o-Cresol)	M21-JI15716	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
3&4-Methylphenol (m&p-Cresol)	M21-JI15716	NCP	mg/L	< 0.006	< 0.006	<1	30%	Pass	
4-Nitrophenol	M21-JI15716	NCP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
Dinoseb	M21-JI15716	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Phenol	M21-JI15716	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	

Duplicate									
				Result 1	Result 2	RPD			
Ammonia (as N)	M21-JI13874	NCP	mg/L	< 0.01	0.01	13	30%	Pass	
Chemical Oxygen Demand (COD)	M21-JI14649	NCP	mg/L	4300	4700	9.0	30%	Pass	
Chloride	B21-JI13153	NCP	mg/L	< 1	< 1	<1	30%	Pass	
Nitrate & Nitrite (as N)	N21-JI08172	NCP	mg/L	0.44	0.43	1.0	30%	Pass	
Nitrate (as N)	N21-JI08172	NCP	mg/L	0.44	0.43	1.0	30%	Pass	
Nitrite (as N)	M21-JI13874	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Sulphate (as SO4)	B21-JI13153	NCP	mg/L	< 5	< 5	<1	30%	Pass	
Total Dissolved Solids Dried at 180°C ± 2°C	M21-JI13349	NCP	mg/L	5500	5600	2.2	30%	Pass	
Duplicate									
Alkalinity (speciated)				Result 1	Result 2	RPD			
Bicarbonate Alkalinity (as CaCO3)	M21-JI16850	CP	mg/L	220	200	6.0	30%	Pass	
Carbonate Alkalinity (as CaCO3)	M21-JI16850	CP	mg/L	17	18	4.0	30%	Pass	
Hydroxide Alkalinity (as CaCO3)	M21-JI16850	CP	mg/L	< 20	< 20	<1	30%	Pass	
Total Alkalinity (as CaCO3)	M21-JI16850	CP	mg/L	230	220	5.0	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Boron (filtered)	M21-JI11883	NCP	mg/L	rerun is	rerun is	rerun is	30%	Pass	
Chromium (filtered)	M21-JI12244	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper (filtered)	M21-JI12244	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Lead (filtered)	M21-JI12244	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Nickel (filtered)	M21-JI12244	NCP	mg/L	0.013	0.013	4.0	30%	Pass	
Zinc (filtered)	M21-JI12244	NCP	mg/L	0.018	0.019	5.0	30%	Pass	
Duplicate									
Alkalinity (speciated)				Result 1	Result 2	RPD			
Bicarbonate Alkalinity (as CaCO3)	M21-JI16851	CP	mg/L	48	49	2.0	30%	Pass	
Carbonate Alkalinity (as CaCO3)	M21-JI16851	CP	mg/L	17	20	14	30%	Pass	
Hydroxide Alkalinity (as CaCO3)	M21-JI16851	CP	mg/L	< 20	< 20	<1	30%	Pass	
Total Alkalinity (as CaCO3)	M21-JI16851	CP	mg/L	65	69	5.0	30%	Pass	
Duplicate									
Alkali Metals				Result 1	Result 2	RPD			
Calcium	M21-JI16851	CP	mg/L	45	45	1.0	30%	Pass	
Calcium (filtered)	M21-JI16851	CP	mg/L	45	45	1.0	30%	Pass	
Magnesium	M21-JI16851	CP	mg/L	37	37	2.0	30%	Pass	
Magnesium (filtered)	M21-JI16851	CP	mg/L	37	37	2.0	30%	Pass	
Potassium	M21-JI16851	CP	mg/L	23	23	<1	30%	Pass	
Potassium (filtered)	M21-JI16851	CP	mg/L	23	23	<1	30%	Pass	
Sodium	M21-JI16851	CP	mg/L	330	330	<1	30%	Pass	
Sodium (filtered)	M21-JI16851	CP	mg/L	330	330	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Total Kjeldahl Nitrogen (as N)	M21-JI16853	CP	mg/L	23	20	14	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Phosphate total (as P)	M21-JI16854	CP	mg/L	0.07	0.08	10	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Total Organic Carbon	S21-JI17655	NCP	mg/L	< 5	< 5	<1	30%	Pass	
Total Suspended Solids Dried at 103–105°C	S21-JI17651	NCP	mg/L	2.0	4.0	67	30%	Fail	Q15
Chromium (hexavalent)	B21-JI20008	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic (filtered)	M21-JI18118	NCP	mg/L	0.069	0.069	<1	30%	Pass	
Barium (filtered)	M21-JI18118	NCP	mg/L	0.07	0.07	<1	30%	Pass	
Beryllium (filtered)	M21-JI18118	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cadmium (filtered)	M21-JI18118	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Cobalt (filtered)	M21-JI18118	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Iron (filtered)	M21-JI18118	NCP	mg/L	18	18	<1	30%	Pass	
Manganese (filtered)	M21-JI18118	NCP	mg/L	0.050	0.050	<1	30%	Pass	
Mercury (filtered)	M21-JI18118	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Selenium (filtered)	M21-JI18118	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Vanadium (filtered)	M21-JI18118	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Duplicate									
Alkali Metals				Result 1	Result 2	RPD			
Calcium	M21-JI17889	NCP	mg/L	17	14	20	30%	Pass	
Magnesium	S21-JI22616	NCP	mg/L	13	13	2.0	30%	Pass	
Potassium	M21-JI17889	NCP	mg/L	370	370	<1	30%	Pass	
Sodium	M21-JI17889	NCP	mg/L	49	40	20	30%	Pass	
Duplicate									
Volatile Fatty Acids (VFA) by GC-MS				Result 1	Result 2	RPD			
Total VFA as Acetic Acid Equivalents*	K21-JI00001	NCP	mg/L	< 50	< 50	<1	30%	Pass	
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	S21-JI11310	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
Perfluoropentanoic acid (PFPeA)	S21-JI11310	NCP	ug/L	0.02	0.02	4.0	30%	Pass	
Perfluorohexanoic acid (PFHxA)	S21-JI11310	NCP	ug/L	0.03	0.03	4.0	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	S21-JI11310	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	S21-JI11310	NCP	ug/L	0.01	0.01	<1	30%	Pass	
Perfluorononanoic acid (PFNA)	S21-JI11310	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorodecanoic acid (PFDA)	S21-JI11310	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluoroundecanoic acid (PFUnDA)	S21-JI11310	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorododecanoic acid (PFDoDA)	S21-JI11310	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorotridecanoic acid (PFTrDA)	S21-JI11310	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorotetradecanoic acid (PFTeDA)	S21-JI11310	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Duplicate									
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD			
Perfluorooctane sulfonamide (FOSA)	S21-JI11310	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	S21-JI11310	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	S21-JI11310	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	S21-JI11310	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	S21-JI11310	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	S21-JI11310	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	S21-JI11310	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	

Duplicate									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD			
Perfluorobutanesulfonic acid (PFBS)	S21-JI11310	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorononanesulfonic acid (PFNS)	S21-JI11310	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluoropropanesulfonic acid (PFPrS)	S21-JI11310	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluoropentanesulfonic acid (PFPeS)	S21-JI11310	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	S21-JI11310	NCP	ug/L	0.02	0.02	1.0	30%	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	S21-JI11310	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorooctanesulfonic acid (PFOS)	S21-JI11310	NCP	ug/L	0.03	0.03	4.0	30%	Pass	
Perfluorodecanesulfonic acid (PFDS)	S21-JI11310	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Duplicate									
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)				Result 1	Result 2	RPD			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	S21-JI11310	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	S21-JI11310	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	S21-JI11310	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	S21-JI11310	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	

Comments

Analysis of MICRO has been completed by Eurofins Food Testing, NATA Accreditation Number 20293, report reference AR-21-NV-005014-01
Analysis of AOX has been completed by Eurofins Unwelt, report reference AR-21-AN-030153-01

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	Yes

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
N11	Isotope dilution is used for calibration of each native compound for which an exact labelled analogue is available (Isotope Dilution Quantitation). The isotopically labelled analogues allow identification and recovery correction of the concentration of the associated native PFAS compounds.
N15	Where the native PFAS compound does not have labelled analogue then the quantification is made using the Extracted Internal Standard Analyte with the closest retention time to the analyte and no recovery correction has been made (Internal Standard Quantitation).
Q08	The matrix spike recovery is outside of the recommended acceptance criteria. An acceptable recovery was obtained for the laboratory control sample indicating a sample matrix interference.
Q15	The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised by:

Michael Morrison	Analytical Services Manager
Emily Rosenberg	Senior Analyst-Metal (VIC)
Jonathon Angell	Senior Analyst-Organic (QLD)
Joseph Edouard	Senior Analyst-Organic (VIC)
Joseph Edouard	Senior Analyst-PFAS (VIC)
Scott Beddoes	Senior Analyst-Inorganic (VIC)
Vivian Wang	Senior Analyst-Volatile (VIC)



Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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

Cardno NT
93 Mitchell Street, Level 6
Darwin
NT 0800

Attention: **Julian Brown**

Report **811736-A**
Project name SBWMF WATER MONITORING
Project ID CW1121900
Received Date Jul 09, 2021

Client Sample ID			**DS01**	**DS02**	**DS03**	**DS04**
Sample Matrix			**Dust Deposition**	**Dust Deposition**	**Dust Deposition**	**Dust Deposition**
Eurofins Sample No.			**M21-JI36956**	**M21-JI36957**	**M21-JI36958**	**M21-JI36959**
Date Sampled			**Jun 10, 2021**	**Jun 10, 2021**	**Jun 10, 2021**	**Jun 10, 2021**
Test/Reference	LOR	Unit				
Total Solids Dried at 103–105°C	0.1	g/m2/mth	38	110	330	150
Heavy Metals						
Arsenic	1.0	Total ug	< 1	< 1	< 1	< 1
Cadmium	0.5	Total ug	< 0.5	< 0.5	< 0.5	< 0.5
Chromium	1.0	Total ug	< 1	< 1	< 1	< 1
Lead	0.01	Total ug	< 0.01	< 0.01	< 0.01	< 0.01
Mercury	0.001	Total ug	< 0.001	< 0.001	< 0.001	< 0.001
Nickel	0.01	Total ug	< 0.01	< 0.01	< 0.01	< 0.01
Zinc	1	Total ug	< 1	< 1	< 1	< 1
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA)[N11]	20	Total ng	< 20	< 20	< 20	< 20
Perfluoropentanoic acid (PFPeA)[N11]	20	Total ng	< 20	< 20	< 20	< 20
Perfluorohexanoic acid (PFHxA)[N11]	20	Total ng	< 20	< 20	< 20	< 20
Perfluoroheptanoic acid (PFHpA)[N11]	20	Total ng	< 20	< 20	< 20	< 20
Perfluorooctanoic acid (PFOA)[N11]	20	Total ng	< 20	< 20	< 20	< 20
Perfluorononanoic acid (PFNA)[N11]	20	Total ng	< 20	< 20	< 20	< 20
Perfluorodecanoic acid (PFDA)[N11]	20	Total ng	< 20	< 20	< 20	< 20
Perfluoroundecanoic acid (PFUnDA)[N11]	20	Total ng	< 20	< 20	< 20	< 20
Perfluorododecanoic acid (PFDoDA)[N11]	20	Total ng	< 20	< 20	< 20	< 20
Perfluorotridecanoic acid (PFTrDA)[N15]	20	Total ng	< 20	< 20	< 20	< 20
Perfluorotetradecanoic acid (PFTeDA)[N11]	20	Total ng	< 20	< 20	< 20	< 20
13C4-PFBA (surr.)	1	%	72	54	109	53
13C5-PFPeA (surr.)	1	%	62	53	76	53
13C5-PFHxA (surr.)	1	%	83	73	108	67
13C4-PFHpA (surr.)	1	%	68	63	79	54
13C8-PFOA (surr.)	1	%	80	61	71	63
13C5-PFNA (surr.)	1	%	52	54	82	78
13C6-PFDA (surr.)	1	%	65	77	59	51
13C2-PFUnDA (surr.)	1	%	62	72	72	52
13C2-PFDoDA (surr.)	1	%	97	51	120	107
13C2-PFTeDA (surr.)	1	%	74	54	119	127

Client Sample ID			DS01	DS02	DS03	DS04
Sample Matrix			Dust Deposition	Dust Deposition	Dust Deposition	Dust Deposition
Eurofins Sample No.			M21-JI36956	M21-JI36957	M21-JI36958	M21-JI36959
Date Sampled			Jun 10, 2021	Jun 10, 2021	Jun 10, 2021	Jun 10, 2021
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA)[N11]	20	Total ng	< 20	< 20	< 20	< 20
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	20	Total ng	< 20	< 20	< 20	< 20
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	20	Total ng	< 20	< 20	< 20	< 20
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)[N11]	20	Total ng	< 20	< 20	< 20	< 20
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)[N11]	20	Total ng	< 20	< 20	< 20	< 20
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	20	Total ng	< 20	< 20	< 20	< 20
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	20	Total ng	< 20	< 20	< 20	< 20
13C8-FOSA (surr.)	1	%	56	30	72	38
D3-N-MeFOSA (surr.)	1	%	104	91	53	93
D5-N-EtFOSA (surr.)	1	%	97	78	51	116
D7-N-MeFOSE (surr.)	1	%	85	67	68	81
D9-N-EtFOSE (surr.)	1	%	95	71	70	98
D5-N-EtFOSAA (surr.)	1	%	127	143	104	69
D3-N-MeFOSAA (surr.)	1	%	63	72	90	131
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorobutanesulfonic acid (PFBS)[N11]	20	Total ng	< 20	< 20	< 20	< 20
Perfluorononanesulfonic acid (PFNS)[N15]	20	Total ng	< 20	< 20	< 20	< 20
Perfluoropropanesulfonic acid (PFPrS)[N15]	20	Total ng	< 20	< 20	< 20	< 20
Perfluoropentanesulfonic acid (PFPeS)[N15]	20	Total ng	< 20	< 20	< 20	< 20
Perfluorohexanesulfonic acid (PFHxS)[N11]	20	Total ng	< 20	< 20	< 20	< 20
Perfluoroheptanesulfonic acid (PFHpS)[N15]	20	Total ng	< 20	< 20	< 20	< 20
Perfluorooctanesulfonic acid (PFOS)[N11]	20	Total ng	< 20	< 20	< 20	< 20
Perfluorodecanesulfonic acid (PFDS)[N15]	20	Total ng	< 20	< 20	< 20	< 20
13C3-PFBS (surr.)	1	%	107	80	112	100
18O2-PFHxS (surr.)	1	%	90	73	80	87
13C8-PFOS (surr.)	1	%	65	79	84	50
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)[N11]	20	Total ng	< 20	< 20	< 20	< 20
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)[N11]	20	Total ng	< 20	< 20	< 20	< 20
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)[N11]	20	Total ng	< 20	< 20	< 20	< 20
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)[N11]	20	Total ng	< 20	< 20	< 20	< 20
13C2-4:2 FTSA (surr.)	1	%	84	60	81	52
13C2-6:2 FTSA (surr.)	1	%	55	82	139	69
13C2-8:2 FTSA (surr.)	1	%	83	67	98	54
13C2-10:2 FTSA (surr.)	1	%	20	98	43	72
PFASs Summations						
Sum (PFHxS + PFOS)*	20	Total ng	< 20	< 20	< 20	< 20
Sum of US EPA PFAS (PFOS + PFOA)*	20	Total ng	< 20	< 20	< 20	< 20
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	20	Total ng	< 20	< 20	< 20	< 20
Sum of WA DWER PFAS (n=10)*	20	Total ng	< 20	< 20	< 20	< 20
Sum of PFASs (n=30)*	20	Total ng	< 20	< 20	< 20	< 20

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
Total Solids Dried at 103–105°C	Melbourne	Jul 20, 2021	7 Days
- Method: LTM-INO-4160 Determination of Dust Deposition of Ambient Air			
Metals M8	Melbourne	Jul 21, 2021	28 Days
- Method:			
Per- and Polyfluoroalkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs)	Melbourne	Jul 20, 2021	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonamido substances	Melbourne	Jul 20, 2021	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonic acids (PFSAs)	Melbourne	Jul 20, 2021	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)	Melbourne	Jul 20, 2021	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
PFASs Summations	Melbourne	Jul 20, 2021	
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			

eurofins | Environment Testing

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Project Name: SBWMF WATER MONITORING
Project ID: CW1121900

Order No.:
Report #: 811736
Phone: 8 8942 8200
Fax:

Received: Jul 9, 2021 3:06 PM
Due: Jul 23, 2021
Priority: 10 Day
Contact Name: David James

Eurofins Analytical Services Manager : Michael Morrison

Sample Detail						Total Solids Dried at 103–105°C	Metals M8	Per- and Polyfluoroalkyl Substances (PFASs)
Melbourne Laboratory - NATA Site # 1254						X	X	X
Sydney Laboratory - NATA Site # 18217								
Brisbane Laboratory - NATA Site # 20794								
Perth Laboratory - NATA Site # 23736								
Mayfield Laboratory - NATA Site # 25079								
External Laboratory								
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**			
1	DS01	Jun 10, 2021		Dust Deposition	M21-Jl36956	X	X	X
2	DS02	Jun 10, 2021		Dust Deposition	M21-Jl36957	X	X	X
3	DS03	Jun 10, 2021		Dust Deposition	M21-Jl36958	X	X	X
4	DS04	Jun 10, 2021		Dust Deposition	M21-Jl36959	X	X	X
Test Counts						4	4	4

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

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

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

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

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

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

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

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

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

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version 5.3
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

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

Results <10 times the LOR : No Limit

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

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

Surrogate Recoveries: Recoveries must lie between 20-130% Phenols & 50-150% PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.3 where no positive PFAS results have been reported have been reviewed and no data was affected.

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

QC Data General Comments

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

Comments

The dust deposition method follows Australian Standard AS/NZ 3580.10.1:2003 - Determination of Particulate Matter - Deposited matter - Gravimetric and this requires the addition of a known volume of copper sulfate solution to prevent mould growth.

This solution is just technical or analytical reagent grade CuSO4 which means Cu cannot be analysed if we are to collect the dust deposition samples according to this standard.

Sample Integrity

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

Qualifier Codes/Comments

Code	Description
N11	Isotope dilution is used for calibration of each native compound for which an exact labelled analogue is available (Isotope Dilution Quantitation). The isotopically labelled analogues allow identification and recovery correction of the concentration of the associated native PFAS compounds.
N15	Where the native PFAS compound does not have labelled analogue then the quantification is made using the Extracted Internal Standard Analyte with the closest retention time to the analyte and no recovery correction has been made (Internal Standard Quantitation).

Authorised by:

Michael Morrison	Analytical Services Manager
Emily Rosenberg	Senior Analyst-Metal (VIC)
Joseph Edouard	Senior Analyst-PFAS (VIC)
Scott Beddoes	Senior Analyst-Inorganic (VIC)



Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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APPENDIX

E

SOP AND SWMS

PN3.04 - Groundwater Sampling Procedure

1 INTRODUCTION

This document specifies the procedure of Cardno's adopted techniques for groundwater sampling for environmental investigations.

2 PURPOSE

This document provides guidance for the use of various sampling techniques in order to obtain representative and unadulterated samples of groundwater from monitoring bores for the purpose of physical and chemical analysis of water samples.

3 GLOSSARY

1. **Bore**: Any bore, well or excavation or any artificially constructed or improved underground cavity used or to be used for the purpose of (a) the interception, collection, or storage of groundwater; or (b) groundwater observation or the collection of data. Source: EPA *Groundwater Sampling Guidelines* Publication 669 April 2000.
1. **Well**: a licensed groundwater bore.
2. **SWL**: Standing / Static Water Level 1) the elevation or level of the water table in a well when the pump is not operating. 2) the level or elevation to which water would rise in a tube connected to an artesian aquifer, or basin, or conduit under pressure. Source: US EPA website
3. **RWL**: Relative Water Level – surveyed and calculated water level referenced to an arbitrary fixed elevation level.
4. **AHD**: Australian Height Datum
5. **Recovery**: the difference between the measured water level in an observation well at a given time after pumping stops and the SWL?
6. **TOC**: Top of Casing
7. **Stick up**: The distance between TOC and ground level (can be negative when below ground level)
8. **Purging**: The process of removing stagnant water from a bore before sampling.
9. **Development**: The process of removing fine sand, silt and clay from the bore annulus around the bore screen and breaking down the drilling mud on the borehole wall.
10. **NEPM 2013**: National Environment Protection Measure 2013

4 SCOPE

The scope of this document covers the following list of groundwater monitoring activities;

1. Preparation for Fieldwork
2. Inspection of Bore
3. Water Level measurement
4. LNAPL / PSH measurement
5. Bore Purging

6. Sampling
7. Sample Handling & preservation
8. Quality control – Replicates
9. Quality control – Decontamination
10. Sample handling, forwarding and CoC
11. Field Records

4.1 Related Procedures/Forms

1. F3.01 ESA Planning Procedure
2. F3.01 Site Investigation Planning Checklist
3. F3.01 Field Work Daily Report
4. F3.01 QC Sample Register
5. F3.04 Groundwater Sampling Field Record
6. CLP-P2-4-QF01 Chain of Custody
7. PN3.04 Groundwater bore volumes
8. PN3.04 Slug test procedure (aquifer response)
9. Bore installation
10. PN3.04 Bore Development Procedure
11. Pumping tests
12. Equipment Field Calibration
13. Waste Management

4.2 Preparation for Field Work

Prior to commencing fieldwork the following preparations are required; Adapted from “EPA Groundwater Sampling Guidelines Publication 669 April 2000” and NEPM 2013

1. Define objectives of groundwater sampling program (to be found in Sampling and Analysis Plan (SAP) for specific site) – PM to complete as per NEPM requirements setting out data quality objectives
2. Review and compile results from past groundwater sampling events (where available) – PM to complete
3. Site specific parameters to be sampled & analysed (to be found in SAP and Work Request Form - WRF)
4. Number / frequency of samples to be collected (to be found in SAP and WRF)
5. Bore details – location, depth & diameter of bore, depth and length of screened interval, depth to groundwater, drilling, installation and development details (to be found in Bore Logs)
6. Previous field sheets, borelogs, water level gauging/purging data and bore construction details.
7. Sampling protocol – purging procedure and justification for this method, in-field measurements, sampling technique and equipment, filtration and preservation requirements, and QA/QC (to be found in this procedure and the SAP and WRF for site specific details)

8. Organise sample storage and transportation to the laboratory (NATA accredited) and order appropriate sample bottles, trip blanks and preservatives as required
9. Order, check and or/calibrate sampling equipment and/or field meters and ensure they are working correctly (either using pre-calibrated meters provided by rental company or calibrated prior to or during field events, where required following calibration procedures/manuals)
10. Sample forms and documentation including chain of custody forms, groundwater sampling field records etc
11. Notification to owner of bore(s) of proposed sampling and arrange for access (e.g. inductions, keys, etc).

4.2.1 Sample Registers

A sample register should be used for more than 15 bores located on a site. Site specific field records should be prepared in conjunction with the PM depending on the nature of the project and the number of monitoring events planned (refer to SAP and/or WRF for details).

4.2.2 Equipment Checklist

Please refer to F3.01 Site Investigation Planning Checklist for equipment required for groundwater sampling.

All equipment for groundwater sampling shall be stored in a dust free environment. Pumps and tubing shall be shrouded in plastic wrap to prevent ingress of contaminants during shipment of equipment.

4.3 Inspection of Bore

When inspecting the groundwater bore prior to sampling the following details should be recorded;

1. Bore condition / Locked? Damaged? Inundated?
2. Type of protective cap / cover
3. Water level measurement point
4. RL of measurement point (m AHD)
5. Casing stick up
6. Casing type and diameter
7. Any other useful observations

All details are to be recorded on document F3.04 Groundwater Sampling Field Record

4.4 Water Level Measurement

The first operation performed at each bore is to open the well cover and remove the well cap and measure for vapours particularly at bores known to have highly contaminated groundwater. The PID is held just over the top of the well and a measurement is recorded in your field notes as well as a description of odours identified. Refer to your JSA if vapours continue to emanate from the bore above action levels set for the assessment within the breathing zone.

Prior to groundwater purging/sampling a water level shall be recorded. This should be performed with a water level dip meter or an interface probe. If it safe and practical to do so, all groundwater wells should be measured on the same day, to provide accurate and consistent water levels (refer to WRF for details).

1. Measurements shall be made of the distance between the water level and the top of the protective casing (TOC) from a marked measurement point on the TOC, but must be referenced to ground level when bores have been surveyed to Australian Height Datum (AHD).
2. The water level dip meter should be lowered slowly down the well, until a beeping sound is heard. Slowly lift the probe up until no sound is heard and lowers the probe even slower than the first time to ensure the beeps indicate a water level within the well. Record this measurement as standing water level in meters below top of casing (TOC) ("SWL .m TOC to the nearest mm") on the document F3.04 Groundwater Sampling Field Record.
3. Record the depth of the well lowering the dip meter to the bottom of the bore. Record this level as the depth of the bore (m TOC). Turn the dip meter off to remove the beeping sound.
4. Decontamination of the dip meter should occur between each bore. Refer to section 4.7.1
5. Particular care needs to be taken to the probes during fieldwork and during decontamination process which includes rinsing the probes and retracting the tape of the dip meter evenly without kinks, twists or knots.

4.5 NAPL / PSH Measurement

Non aqueous phase liquids (NAPLs) are organic fluids that are immiscible (do not mix) with water. They can be lighter (LNAPL) or denser (DNAPL) than groundwater. Where LNAPL is present within a bore, it is not possible to obtain a representative sample of groundwater for dissolved phase of petroleum components. (EPA *Groundwater Sampling Guidelines*, Pub 669).

The following points should be noted for when sampling NAPLs;

- Sample at the interval where the NAPL is most likely to be encountered if fingerprint analysis is required.
- Do not purge before measuring the thickness of or sampling from the NAPL layer
- Measure LNAPL thickness with an interface probe
- These wells where LNAPL may be located should be measured last. Groundwater wells located up gradient or less contaminated should be measured first (see WRF for details for site).

1. To measure the interval where NAPL is present lower an oil/water interface probe down the bore very slowly from the measuring point. It is important that the interface meter is lowered slowly so that the probe is not plunged through the thickness of NAPL present into the dissolved phase water. The probe will not differentiate between the two layers if this occurs and it is best to start again. Lower the probe slowly until a continuous tone is heard at the top of the NAPL. Record this level as depth to product and continue to slowly lower the probe until a beeping sound is heard. Record this level as depth to water. Once probe is submerged in water pull the probe back up slowly to confirm the measured thickness of LNAPL. *Note : It is important that the interface probe is lowered through the water and pulled back slowly so that LNAPL is not caught in the instrument (probe head), which can give a false recording of LANPL thickness. The Interface probe can also be used for measuring DNAPL at base of bore using same approach* Record the depth of the well lowering the dip meter to the bottom of the bore. Record this level as the depth of the bore. Retrieve the interface probe from the bore and thoroughly decontaminated probe. Refer to section 4.7.1.
2. The thickness of NAPL is the difference between the depth to product and the depth to water. To confirm the presence of NAPL use a bailer to retrieve a sample. Ensure that you use a clear bailer and only collect the top layer of liquid. Approximately half to three quarters of a bailer so you can distinguish between the water and the NAPL. Again slowly lower the bailer, do not plunge it through the NAPL.
3. Clear photos should be taken of the bailer with NAPL present as well as indicating the bore number on the bailer. Record colour and appearance of NAPL on sampling sheet.

Please refer to the EPA Groundwater Sampling Guidelines Pub 669 for further information about sampling NAPLs and a separate procedure to collect LNAPL samples for specific analysis. (Preparation of a separate procedure to undertake this task is in progress).

To sample NAPL a syringe or bailer can be used to transfer into a vial. Check with your laboratory to the volumes required for fingerprint analysis.

4.6 Bore Purging

In order to ensure that each sample of water is representative of the groundwater in the formation outside the bore and unaffected by the bore or its connection with the atmosphere, each bore must be purged. A rule of thumb used for purging is to remove three bore volumes, based on the casing volume plus 30% of the sand pack annulus volume. Purge volumes can be reduced by the use of low flow pumping equipment (e.g. bladder pumps or peristaltic pumps) using field parameter stabilisation to determine the end point of purging instead of bore volumes (see instructions below), which may produce a large volume of contaminated water requiring disposal.

For a quick calculation of purging volumes for groundwater bores the water column (depth of the well-SWL) multiplied by 5 should be used for a 50mm well. Estimates of the amount of purging required before going into the field if data from previous groundwater monitoring events is not available. Bore volume must be calculated before purging each well and recorded on F3.04 GW Sampling Field Record.

The following methods can then be used to purge a well before sampling (refer to WRF for method to be used for specific site):

1. Bailing
2. Connecting twine to a bailer, lower it down into the bore/monitoring well until it is fully submersed.
3. Lift the bailer one or two times in the water column to ensure the bailer is full and remove the groundwater from the well.
4. At each bore volume record the field parameters of a small sample as described further below. Keep removing water until the field parameters stabilise or the bore becomes dry.
5. Sampling can occur if the bore becomes dry and the bore has recovered. However contact the PM and confirm this procedure. The bailer can be left in the well with the twine secured until sampling or further purging is undertaken.
6. Record the time the sampling commenced and concluded in your field notes.

Low Flow Pumping

1. Connect a submersible low flow pump to a controlled flow cell powered by a generator or bottled gas cylinder. (Set up and use of this method requires training in the field).
2. Lower the pump to the middle or just above the middle of the well screen interval. Be consistent with either sampling depth through the groundwater monitoring event. Use the dip meter to check the depth of the pump before commencing.
3. Lower a water level meter inside the well and record the standing water level with the pump in the well.
4. Set the pump to remove water at low cycle (e.g. 0.1L/min) and monitor the standing water level. Set the pump to remove water at rate where the standing water level does not drop more than 10cm below the original water depth.
5. If draw down is continuously greater than 20cm and the aquifer is not recovering on the lowest pump cycle - Stop using this method and seek alternative purging methods in discussion with the project manager such as bailing or additional time to proceed with low flow sampling at a very slow rate.

6. Collect field parameters during this process refer to section 4.5.1. Once stabilisation of parameters and water levels occur, sampling can commence refer to section 4.6. This method works best in fractured rock aquifers. Seek approval from the project manager before changing the sampling method. Record all changes to planned sampling methods for each bore.

Pumping Bore Volumes (Set up and use of this method requires training in the field).

- Using a hydrostatic (Waterra) pump attached to a monitoring bore can remove a large volume of water and useful for deep bores, particularly at landfills.
- Attach a non-return valve to a plastic tubing of suitable diameter. Lower the tubing into the bore and turn the pump to a rate where water is removed at a rate that can be collected. Collect field parameters after each calculated bore volume and sample once these parameters have stabilised.

Note that NEPM 2013 highlights that purging via bailing or pumping is less preferred to low flow sampling. A justification for the purging selection should be included in the planning stage. Refer to section 4.5, dot 6 as well as alternative methods if low flow sampling is not appropriate. Consideration of the geological formation, bore development and objectives of the sampling is required to select an alternative method.

4.6.1 Collection of Field Parameters

A critical part of purging during each method outlined above is the collection of field parameters of the extracted groundwater. This is to ensure to collect water that is representative of the aquifer and not the stagnant water present in the well or just used to take chemical readings. This connection with the aquifer can be measured using physico-chemical parameters relevant to the conditions, but pH and electrical conductivity are the most commonly used for this purpose. It is recommended that at least three bore volumes should be removed before accepting a stable pH as evidence of effective purging (unless a low flow purging method is used), in some cases one bore volume may be all that can be purged. The multi port flow cell allows these parameters to be measured continuously for methods where a continuous flow of water is extracted. Or the probes on a water quality meter can be used for a small sample of groundwater collected in a small container after each bore volume. This water must not be used for sampling.

The EPA Groundwater Sampling Guidelines state that the following parameters may be considered stable when three consecutive readings (obtained several minutes apart) are within;

7. ± 10% for dissolved oxygen (DO)
8. ± 3% for electrical conductivity
9. ± 0.1 for pH
10. ± 10 mv for redox potential
11. +/- 10% Temp (°C)

Purging the bore dry is not recommended as this may expose the sample to air producing an unrepresentative sample. However this does occur in some formations that are slow to recover. Discuss other sampling methods for such wells if this is the case with the PM.

The record of purging and collecting field parameters shall be recorded on F3.04 GW Sampling Field Record at each bore volume or after every few minutes of purging. This should include information about water level recovery rates, field parameters and any other observations including colour, turbidity, odour, unusual signs.

4.7 Sampling

Groundwater samples shall be obtained following bore purging and using the appropriately preserved and pre-labelled (see further below for labelling instructions) sample bottles provided by the laboratory.

1. Before the sample is taken the water quality field measurements should be taken using the flow cell. Results shall be immediately recorded on the field recording sheets.
2. The pump discharge hose or bailer nozzle (using a low flow discharge nozzle provided with the bailer) shall be placed as close as practicable to the bottle neck such that the water is not aerated as it enters the bottle.
3. The bottle shall be filled completely minimising or avoiding turbulent filling, by slightly holding bottles inclined from the vertical and letting water flow down the sides of the bottles.
    - When bailing adjust the sampling nozzle to a low stream over a bucket then fill vials as full as possible. The lid of the vial can be filled, then tipped over the vial to form a meniscus
    - When low flow sampling reduce the flow rate to fill sample vials and the lid and repeat as above.
4. The bottle cap shall be firmly fitted to exclude air or volatiles from the sample straight away
5. Sampling of groundwater in vials and glass jars require a convex meniscus to ensure air does not enter the sample jar. Once the cap is firmly fitted turn over the sample vials or jars and check for any air bubbles. If air bubbles are observed re-open sample container and top up as described above and repeat procedure until no air bubbles are observed.
6. Multiple sample containers may need to be filled to satisfy the varying preservation requirements for testing of different analytes or laboratory quality control requirements. This includes extra bottles as outlined in the NEPM 2013. Refer to your SAP/WRF, project manager or laboratory for bottle and sampling requirements.
7. Observations should be recorded during sampling including sample location, sample turbidity, odour, presence of any NAPLs and colour and recorded on the field recording sheets.
8. Field filtering is required where the water is turbid, particularly where samples are preserved in acid for metals analysis. Filtering should occur in the field during sampling to ensure sample results are indicative of sampling conditions in the aquifer.
9. Filtering can be undertaken by applying vacuum or pump pressure. Either inline filters can be attached to the sample tubing outlet (for pumped bores) or sample needs to be transferred into another container (e.g. syringe with filter attached or a filter jar with vacuum pump). The recommended filter pore size is 0.45um. Dedicated filtering devices should be used for each groundwater bore that is sampled.
10. Alternatively as a secondary option in consultation with the PM, if field filtering cannot be performed in the field an **unpreserved** sample container can be used to collect the sample, the sample will be chilled and shipped to the laboratory with minimum delay. The laboratory should be informed of the need to filter immediately on receipt of the sample (to be recorded on COC).

4.7.1 Naming Groundwater Samples

Samples shall be named consistently and number order for each site as follows:

1. MW01_(insert depth) for monitoring wells,
2. QC01_(insert date) for quality control samples such as duplicates, triplicates, field, rinsate and trip blanks.

Sample container labelling, preservation and storage shall be in accordance with the Australian Standard (AS 4482.1-1997) and will need to include:

3. Name of the sampling location on the side and lid of the jar or bottle

4. Site location (suburb)
5. Job Number
6. Date of Sampling
7. Initials of the Sampler

4.8 Sample Quality Control and Quality Assurance:

4.8.1 Duplicates and Triplicates

A minimum of one duplicate and one triplicate sample shall be taken for every 20 primary samples collected (refer to SAP/WRF for site specific details). The duplicate and triplicate samples shall be collected as follows:

1. A duplicate and triplicate sample should be collected at the same location as the primary sample at predetermined locations and/or locations where contamination is identified. Three samples from the one location aims to confirm the presence of contamination on the site and cross check the laboratory analysis program.
2. Duplicates / triplicates should include blind and split samples taken immediately at the same time as the primary sample. Samples collected for duplicates, triplicates and laboratory duplicates should be filled at the same time and not one bottle at a time. Samples should be numbered to hide the identity of the primary sample.
3. Three bottles are labelled (refer to naming below) and sample is evenly distributed over each jar.
4. Each of the three bottles are filled to the top as quickly as possible to minimise the loss of VOCs without soils caught up in the thread and the jar cap is screwed on tight.
5. The primary location where duplicate and triplicate sampling occurred is recorded on Cardnos QAQC record sheet.
6. Additional duplicates and triplicate samples can be collected to further assess contaminated areas on the site. These samples can be placed on hold pending analysis of the primary sample.
7. The duplicate sample shall be labelled QC01 or sequential numbering order for QC samples taken at that site, and shall also be entered on the F3.01 QC Sample Register and the F3.04 GW Sampling Field Record, in the space provide for "Duplicate Reference".
8. For large sites where multiple field crews are conducting work simultaneously a site specific QC register shall be prepared by the field or project manager so that each quality control sample is recorded correctly and uniquely (refer to site specific SAP/WRF).

4.8.2 Rinsates, Field Blanks and Trip Blanks.

Rinsates, Field Blanks and Trip Blanks allow for a high level of quality when sampling groundwater in the field. Minimum requirements for control samples are subject to the specific requirements of the project (see SAP/WRF for site specific details) but as a minimum, they are as follows:

1. **One rinsate** collected per day of a piece of equipment that is in regular contact with the samples. Eg a sample tube, the pump, a glove. A rinsate blank is used to check the effectiveness of re-useable equipment decontamination; therefore it can be undertaken at the end or close to the end of each day.
2. **One rinsate** shall be collected in the sample bottles and filling them with de-ionised water supplied by the laboratory. The water is decantered over the appropriately selected piece of equipment. The bottles are filled to the top. The QA/QC sampling requirements should be taken from the WRF and SAP.

3. **One field blank** is generally collected per day, but specifics depending on the sampling regime of the project (see SAP/WRF). A field blank shall be collected in the sample bottles and filled using de-ionised water supplied by the laboratory. The water is decantered into the bottles and filled to the top. A field blank is to assess the potential for contaminants in the laboratory water or in the ambient air in the vicinity of sampling to effect the results.
4. **One trip blank** per esky. Trip blanks are supplied by the laboratory with the sample containers prior to the sampling event and are placed in the eskies. The trip blank is a control sample to check if that sample integrity is not lost during transit to the laboratory, particularly for the loss of volatile compounds.
5. All QAQC samples discussed above are handled as follows:
    - These samples are placed on ice and are should remain chilled from collection on site to delivery to the laboratory under chain of custody.
    - Labelled as per section 4.8
    - Correctly recorded on the COC for analysis as per section 4.8, refer to the SAP/WRF or PM for analysis requirements.
    - Record the correct primary sampling and control details on a separate record sheet. F3.01 QC Sample Register

4.8.3 Equipment Decontamination

Decontamination is the process of neutralizing, washing, rinsing and removing material from exposed surfaces to minimise cross contamination of samples from sampling equipment.

As a minimum equipment such as low flow pumps, dip meters or grab samplers used to collect water samples shall be washed with biodegradable and phosphate free detergent and rinsed with tap and distilled water. Three buckets shall be set up prior to sampling to undertake this process as follows:

1. Bucket 1: Filled with water and decon solution for washing and scrubbing (if required) field equipment in contact with samples
2. Bucket 2: Filled with tap water to rinse equipment of detergent
3. Bucket 3: Filled with distilled water to further rinse equipment of detergent
4. Remove soil adhering to the sampling equipment. Then wash the equipment by scraping, brushing or wiping with a brush using water and decon bucket 1.
5. Rinse thoroughly in Bucket 2 with tap water.
6. Rinse thoroughly in Bucket 3 to remove detergents and dry with disposal towels.
7. Repeat steps above between each bore/sampling location

4.9 Sample Handling & Preservation

Sample bottle labelling, preservation and storage shall be in accordance with Australian Standard AS2031.1 Preservation & Storage of Water Samples. Samples shall be preserved according to the requirements of testing for the analysis required, for example acid preservation, freezing etc. Appropriately pre-preserved sampling containers need to be obtained from the laboratory prior to the field mobilisation for the analytes required (as per the WRF and SAP).

4.10 CoC and Primary and Secondary Laboratories

Chain of Custody (CoC) forms are used for the purpose of certifying the integrity of samples between the time taken and when received at the laboratory. The COC is a legal document for transporting groundwater samples and requesting analysis from the primary/secondary laboratory. The following

sequence of actions and requirements shall be used to prepare separate COC forms F3.01 Chain of Custody for the primary and secondary laboratory when sending groundwater samples:

1. At the completion of the sampling event (or day of sampling), the samples shall be removed from the Eskies and a check made that all sample bottles are present. These should then be checked against the bore location list to ensure that all bores have been sampled.
2. Pack the samples bottles in the Eskys in an upright position and ensure that seals or caps are secured to prevent leakage. Pack the supplied freezer bricks evenly around the water samples. Ensure that samples are packed to prevent breakage during transport by using bubble wrap.
3. The sample number, details of each container type to be placed in each Esky, location and depth of the sample, time of sampling, and details of the preservative added shall be entered onto a CoC Form.
4. The address of the laboratory, phone number and contact person is completed on the COC.
5. The analysis requested and which samples will be placed on HOLD. The correct laboratory codes for the analysis requested written next to the analysis requested. Specific project quote numbers or codes for specific analysis or special rates should also be included. This is information should be in the WRF and discussed with the PM on site. If this is not practical, samples on the COC can be placed on HOLD, with a supplementary COC sent within 24-48hours of the samples being sent.
6. Correct names of the samples with the corresponding sample jars including all quality control samples are recorded.
7. Field observations of strong odours or signs of contamination of particular samples are added on COC
8. The requested turnaround times. Eg Standard (5 days), Fast tracked (3 days), Urgent (24 or 48 hrs). Turnaround times within 5 days require confirmation with the laboratory prior to the sampling.
9. The names/signatures of the sampler and/or the person relinquishing the sample are added. The COC is signed by the courier picking up the samples (either from the office or in the field) is added.
10. Secure the lids on the Eskies and tape the lids in place with packing tape.
11. A copy of this signed COC form is kept as a record of dispatch to the laboratory and is placed inside the respective eskies in a plastic bag (such as a GLAD zip lock bag).

4.11 Field Notes & Fieldwork Requirements

1. Attend a kick off meeting with the project manager or project associate
2. Prepare a job safety analysis and/or HASP
3. Confirm sample naming convention for the site
4. Good on site practices and housekeeping (keep a tidy work area):
5. Call into the PM or nominated buddy at the start and end of each day and for any expected events.
6. The order of sampling soil bores is from up gradient or least contaminated bores, moving closer to bores located near source areas. The safety of staff and the practicality of undertaking sampling in this order takes precedence over sampling in this order (refer to SAP/WRF and discuss with PM).
7. All sections of the field notes must be filled in out in the field and are legible for someone else to read and transfer electronically if required. The vehicle or site office on site can be used during periods of inclement weather.
8. Refer to the waste management procedure for further guidance. As a minimum the field supervisor responsibility includes the following:

- Safe and secure location of drums, skip bins or bulky bins to collect “waste” generated from field assessments. The location of drums should be confirmed with the PM.
- Correct labelling of drums for soil or groundwater waste on the side of the drums with stickers provided by the waste contractor providing the drums.
- Delivery and pick up drums should occur at the start and conclusion of the fieldwork duration. If further drums are required these can be arranged by the field supervisor in conjunction with the PM. Waste transport certificates need to be completed with the waste contractor and copies of these documents kept safely with the field notes
- Your field notes should include the number of drums delivered, date, time and the number of drums collected which is full, part full or empty.
- Waste PPE, consumables such as bailers, gloves or tubing should be placed in drum on site and labelled correctly.
- All field notes should be scanned into the fieldwork folder at the conclusion of the fieldwork program.
- Data Quality Management requirements should be discussed with PM or team leader when results are received from the laboratory.

9. Clean up and secure sampling location to conditions as found prior to sampling prior to leaving location.

Specific project requirements will be undertaken for transportation of samples due to varying analysis and holding times and this shall be confirmed and pre-arranged by the field supervisor with the PM prior to commencing work on the site.

5 References

Australian/New Zealand Standard (1998). AS/NZS 5667.11:1998. Water Quality - Sampling, Part 11: Guidance on Sampling of Groundwaters.

Sundaram, B., Feitz, A., Caritat, P. de, Plazinska, A., Brodie, R., Coram, J. and Ransley, T., 2009. Groundwater Sampling and Analysis – A Field Guide. Geoscience Australia, Record 2009/27 95 pp.

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EPA Publication 669, Groundwater Sampling Guidelines, April 2000

Byrnes, M. E. 2009. Field Sampling Methods for Remedial Investigations. Second Edition, CRC Press, 322pp

Nielsen, D.M. & G.L. Nielsen, 2007. The Essential Handbook of Ground-Water Sampling. CRC Press, 309pp.

F3.04 – Groundwater Sampling Field Record

Site / Project:		Bore ID Number:
Client:		Job No.
Person Sampling:		Initials:
Bore / Site Details		
Bore Condition / Locked?	Type Protect. Cap / Cover:	Bore Depth (bTOC):
Inner casing/screen type & diameter:	Screen interval (bgl):	SWL (bTOC)
WL Measurement Point	RL of measurement point (mAHD)	SWL Date/Time
Other Observations on Bore/Site		
Bore Purge Data		
Purge method:	Bore Volume (L):	Purge Date:
Purge rate (L/min):	Total Purge volume (L):	LNAPL / PSH Thickness (mm) *None / ……..mm*

Purge Field Physicochemical Measurements:								
	Reading1	**Reading 2**	**Reading 3**	**Reading 4**	**Reading 5**	**Reading 6**	**Reading 7**	**Reading 8**
Start Time:								
DO (mg/L) ±10% (or ±0.2 if DO<2 mg/L)								
EC (µS/Cm) ±3%								
pH ±0.1								
Eh (mV) ±10mV								
Temp (°C)								
SWL (m) after								
Cum. Volume (L)								
Water Colour								
Turbidity ±10%								
Other Observations / Notes								

Sample Container & Preservation Data					
Number of sample container: (Include QC samples)	1	2	3	4	5
Container Volume					
Container Type					
Filtration					
Preservation					
Sample Number (for Lab ID):					
QC Dup Sample No.:					

PN3.08 - Surface Water Sampling Procedure

1 Purpose

This document specifies the procedure for conducting surface water sampling.

2 Scope

The procedure provides guidance for the collection of surface water (e.g. creek, river, dam) from a surface water body for laboratory analysis or testing for field parameters on site.

3 Equipment

The equipment required for surface water sampling can change depending on the nature of the surface water body that requires sampling. The following pieces of equipment and fieldwork sheets may be required:

1. Site specific JSA
2. Appropriate PPE to site conditions & potential contaminants of concern
3. Sampling plan
4. Surface water sampling equipment:
    - Telescopic scoop
    - Van Dorn sampler
    - Sampling containers
5. Sampling containers as required for analysis
6. Chain of Custody
7. Eskies & ice
8. Water quality meter
9. Dip meter (potentially)
10. GPS
11. Surface water sampling record F3.08 Surface Water Sampling Field Record

Additional equipment (e.g. boat) may be required depending on the nature of the surface water body to be sampled and can include, but not limited to, the following scenarios:

1. Shore line (e.g. beach) from ocean/ bay
12. Creek and/ or river
13. Dam, pond, lake and/ or wetland
14. Flooded excavation
15. Drain

4 Procedure

4.1 Preparation

1. Site specific JSA must be prepared and reviewed to identify any hazards that could potentially be at the site or associated with the sampling method. This may include:
   a) Unstable ground
   b) Slippery/ wet surfaces
   c) Access constraints
   d) Hazards involving sampling from a vessel (if applicable); see . T:\OHS Management System\OHS Safe Work Procedures\SAFE WORK PROCEDURE Small Water Craft.doc
   e) Flowing water or stagnant water
2. Establish the sampling objectives to select the correct sampling method and equipment:
   a) Required number and depth of samples
   b) Site sampling method using the correct sampling equipment to safely achieve the objectives of the sampling fieldwork (see Table 1).

Table 1: Surface Water Sampling Methods & Different Sampling Equipment

Sampling Equipment	Sampling Method Comments
Telescopic scoop 	▪ Multiple samples at near surface only ▪ Not suitable for multi depth sampling ▪ Not suitable for deeper water sampling (i.e. <3.0 m) ▪ Sample from embankment, vessel and/ or fixed structure over water
Van Dorn Sampler (Horizontal Water Sampler) 	▪ Multiple samples at varying depths ▪ Suitable for deep water sampling (i.e. >3.0 m) ▪ Able to sample in flowing water environments (Note: difficult to ensure sampler is at required depth in high flowing water environments due to under currents) ▪ Sample from vessel or structure over water
Sample Container	▪ Shallow water (i.e. <0.5 m) ▪ Flowing water (at low flow rates) ▪ Stable ground & easy access to sampling point

3. Establish if in situ water quality parameters are required as part of the sampling program. Ensure that the water quality instrument has the necessary capabilities.
4. Establish if a dip meter is required for multi depth sampling.

4.2 Sampling Method

Surface water sampling should always be taken before sediment samples (if applicable) so as to limit sediment disturbance potentially affecting surface water samples and water quality field parameters, see Figure 1.

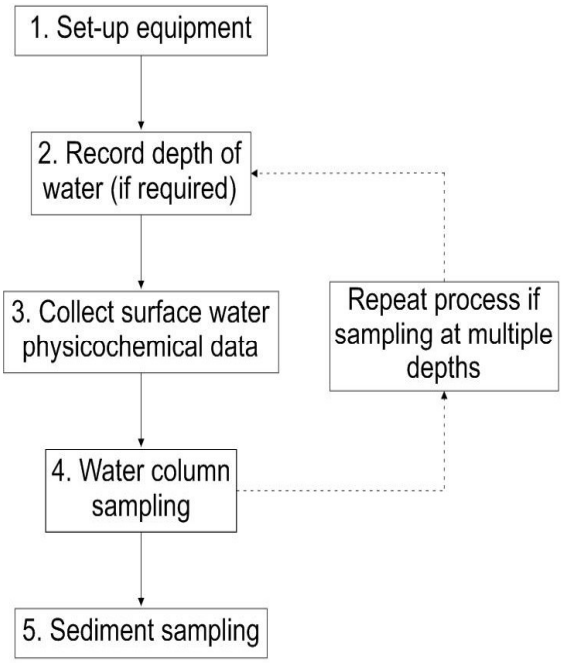


Figure 4-1 Figure 1: Surface Water Sampling Method Flow Chart

1. Slowly measure and record the depth of the surface water body using the dip meter. **Limit any water disturbance** that could occur when using the dip meter (e.g. dropping the dip meter can result in mixing of the water column).
2. Record the surface water field parameters (physiochemical data) using the surface water sampling field sheet.

   c) Lower the water quality meter sensors into the water until **all** sensors are submerged and record field parameters

   d) If further sampling is required, lower the water quality meter along with the dip meter to ensure target depth/s are accurately measured; record physiochemical data once stable

   e) Repeat step b) until the bottom of the surface water body or the specified sampling depth is reached.

   Limit any water disturbance while taking the surface water field parameters being careful to limit any excessive water mixing or sediment disturbance in the surface water body being sampled.

4.2.2 Telescopic Scoop Method

1. Be aware of surroundings as a fully extended scoop is approximately 4.0 m in length. When retrieving the sample, ensure that the rod is safely placed in an area and does not pose any trip hazard or accidentally pushes into a bee hive or an electric fence!
2. Ensure scoop has been decontaminated before use and sampling cup is firmly attached to the rod
3. Establish a safe sampling point
4. Extend scoop to required length (note: take care of the weight of the sample scoop which increases when the sampling cup is filled on the end of the fully extended - 4 m rod)
5. Rinse the scoop, downstream from intended sampling location, by simply dipping it into the water a couple of times. Discharge any excess water.

6. Lower scoop into water to required depth; if surface water body is flowing, sample upstream from operators sampling position (the scoop is not suitable for accurately sampling at various depths). Discharge the first sample of water from the scoop downstream from sampling point. Collect the water samples as required.
7. Retrieve the scoop and place surface water sample directly into the required sampling containers
8. Place samples into a chilled esky.
9. Decontaminate the scoop between each sample location

4.2.3 Van Dorn Sampler (VDS) Method

1. The VDS can be hired from Eco Environmental (Adelaide)
2. Ensure the VDS has been decontaminated before use
3. Ensure the rope is securely attached to the top (Purchase a new untreated cotton and/or nylon rope before each project to ensure cross contamination does not occur)
4. Place the rope through the 'messenger' and ensure it is securely attached
5. Establish safe sampling point
6. Set the VDS to its sampling set up, shown here in Table 1 and
7. Slowly lower the VDS into the water column allowing water to pass through the sampling chamber as it comes to rest horizontally at the sampling point (see Figure 2).
8. Release the messenger down the rope and retrieve VDS using the rope
9. Pour surface water sample from the 'taps' of the VDS directly into required sampling container and store in chilled esky

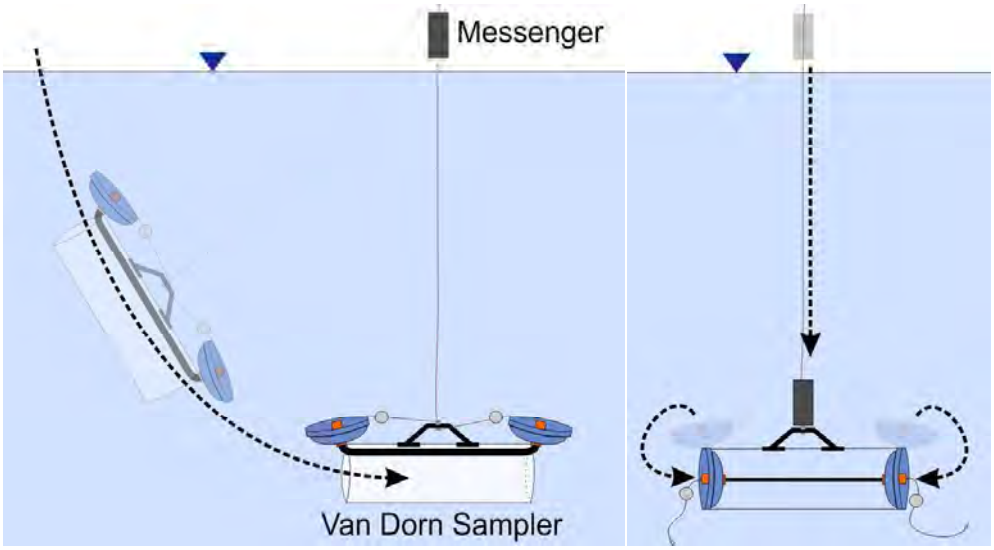


Figure 2: Surface Water Sampling using a Van Dorn Sampler

10. Decontaminate the VDS and all equipment that comes in contact with surface water between each sample location.

4.2.4 Direct Sample Collection Method

1. Ensure appropriate PPE is worn (e.g. long gloves, gum boots or waders)
2. Lower the lip of the sampling container below the surface water level upstream of body position. Unscrew sampling container under water and collect the respective samples
3. Transfer and slowly fill the respective sampling container and place cap on sample container once full (do not use a metals bottle for direct surface water sampling as the acid placed in the bottle can be displaced).
4. Place samples in a chilled esky.

4.3 Sample Quality Control and Quality Assurance:

4.3.1 Duplicates and Triplicates

A minimum of one duplicate and one triplicate sample shall be taken for every 20 primary samples collected (refer to SAP/WRF for site specific details). The duplicate and triplicate samples shall be collected as follows:

> A duplicate and triplicate sample should be collected at the same location as the primary sample at predetermined locations and/or locations where contamination is identified. Three samples from the one location aims to confirm the presence of contamination on the site and cross check the laboratory analysis program.

> Duplicates / triplicates should include blind and split samples taken immediately at the same time as the primary sample. Samples collected for duplicates, triplicates and laboratory duplicates should be filled at the same time and not one bottle at a time. Samples should be numbered to hide the identity of the primary sample.

> Three bottles are labelled (refer to naming below) and sample is evenly distributed over each jar.

> Each of the three bottles are filled to the top as quickly as possible to minimise the loss of VOCs without soils caught up in the thread and the jar cap is screwed on tight.

> The primary location where duplicate and triplicate sampling occurred is recorded on Cardno Lane Pipers QAQC record sheet.

> Additional duplicates and triplicate samples can be collected to further assess contaminated areas on the site. These samples can be placed on hold pending analysis of the primary sample.

> The duplicate sample shall be labelled QC01 or sequential numbering order for QC samples taken at that site, and shall also be entered on the F3.01 QC Sample Register and the F3.08 Surface Water Sampling Field Record, in the space provide for "Duplicate Reference".

> For large sites where multiple field crews are conducting work simultaneously a site specific QC register shall be prepared by the field or project manager so that each quality control sample is recorded correctly and uniquely (refer to site specific SAP/WRF).

Rinsates, Field Blanks and Trip Blanks.

Rinsates, Field Blanks and Trip Blanks allow for a high level of quality when sampling surface water in the field. Minimum requirements for control samples are subject to the specific requirements of the project (see SAP/WRF for site specific details) but as a minimum, they are as follows:

> **One rinsate** collected per day of a piece of equipment that is in regular contact with the samples. Eg a sample tube, the pump, a glove. A rinsate blank is used to check the effectiveness of re-useable equipment decontamination; therefore it can be undertaken at the end or close to the end of each day.

> **One rinsate** shall be collected in the sample bottles and filling them with de-ionised water supplied by the laboratory. The water is decantered over the appropriately selected piece of equipment. The bottles are filled to the top. The QA/QC sampling requirements should be taken from the WRF and SAP.

> **One field blank** is generally collected per day, but specifics depending on the sampling regime of the project (see SAP/WRF). A field blank shall be collected in the sample bottles and filled using de-ionised water supplied by the laboratory. The water is decantered into the bottles and filled to the top. A field blank is to assess the potential for contaminants in the laboratory water or in the ambient air in the vicinity of sampling to effect the results.

> **One trip blank** per esky. Trip blanks are supplied by the laboratory with the sample containers prior to the sampling event and are placed in the eskies. The trip blank is a control sample to check if that sample integrity is not lost during transit to the laboratory, particularly for the loss of volatile compounds.

> All QAQC samples discussed above are handled as follows:

- These samples are placed on ice and are should remain chilled from collection on site to delivery to the laboratory under chain of custody.
- Correctly recorded on the COC for analysis, refer to the SAP/WRF or PM for analysis requirements.
- Record the correct primary sampling and control details on a separate record sheet. F3.01 QC Sample Register

4.3.2 Equipment Decontamination

Decontamination is the process of neutralizing, washing, rinsing and removing material from exposed surfaces to minimise cross contamination of samples from sampling equipment.

As a minimum equipment such as low flow pumps, dip meters or grab samplers used to collect water samples shall be washed with biodegradable and phosphate free detergent and rinsed with tap and distilled water. Three buckets shall be set up prior to sampling to undertake this process as follows:

> Bucket 1: Filled with water and decon solution for washing and scrubbing (if required) field equipment in contact with samples

> Bucket 2: Filled with tap water to rinse equipment of detergent

> Bucket 3: Filled with distilled water to further rinse equipment of detergent

> Remove soil adhering to the sampling equipment. Then wash the equipment by scraping, brushing or wiping with a brush using water and decon bucket 1.

> Rinse thoroughly in Bucket 2 with tap water.

> Rinse thoroughly in Bucket 3 to remove detergents and dry with disposal towels.

> Repeat steps above between each bore/sampling location

4.4 Sample Handling & Preservation

Sample bottle labelling, preservation and storage shall be in accordance with Australian Standard AS2031.1 Preservation & Storage of Water Samples. Samples shall be preserved according to the requirements of testing for the analysis required, for example acid preservation, freezing etc. Appropriately pre-preserved sampling containers need to be obtained from the laboratory prior to the field mobilisation for the analytes required (as per the WRF and SAP).

4.5 CoC and Primary and Secondary Laboratories

Chain of Custody (CoC) forms are used for the purpose of certifying the integrity of samples between the time taken and when received at the laboratory. The COC is a legal document for transporting surface water samples and requesting analysis from the primary/secondary laboratory. The following sequence of actions and requirements shall be used to prepare separate COC forms F3.01 Chain of Custody for the primary and secondary laboratory when sending groundwater samples:

> At the completion of the sampling event (or day of sampling), the samples shall be removed from the Eskies and a check made that all sample bottles are present. These should then be checked against the bore location list to ensure that all locations have been sampled.

- Pack the samples bottles in the Eskys in an upright position and ensure that seals or caps are secured to prevent leakage. Pack the supplied freezer bricks evenly around the water samples. Ensure that samples are packed to prevent breakage during transport by using bubble wrap.
- The sample number, details of each container type to be placed in each Esky, location and depth of the sample, time of sampling, and details of the preservative added shall be entered onto a CoC Form.
- The address of the laboratory, phone number and contact person is completed on the COC.
- The analysis requested and which samples will be placed on HOLD. The correct laboratory codes for the analysis requested written next to the analysis requested. Specific project quote numbers or codes for specific analysis or special rates should also be included. This is information should be in the WRF and discussed with the PM on site. If this is not practical, samples on the COC can be placed on HOLD, with a supplementary COC sent within 24-48hours of the samples being sent.
- Correct names of the samples with the corresponding sample jars including all quality control samples are recorded.
- Field observations of strong odours or signs of contamination of particular samples are added on COC
- The requested turnaround times. Eg Standard (5 days), Fast tracked (3 days), Urgent (24 or 48 hrs). Turnaround times within 5 days require confirmation with the laboratory prior to the sampling.
- The names/signatures of the sampler and/or the person relinquishing the sample are added. The COC is signed by the courier picking up the samples (either from the office or in the field) is added.
- Secure the lids on the Eskies and tape the lids in place with packing tape.
- A copy of this signed COC form is kept as a record of dispatch to the laboratory and is placed inside the respective eskies in a plastic bag (such as a GLAD zip lock bag).

4.6 Field Notes & Fieldwork Requirements

- Attend a kick off meeting with the project manager or project associate
- Prepare a job safety analysis and/or HASP
- Confirm sample naming convention for the site
- Good on site practices and housekeeping (keep a tidy work area):
- Call into the PM or nominated buddy at the start and end of each day and for any expected events.
- The order of sampling locations is from up gradient/river or least contaminated location, moving closer to sample locations situated near source areas. The safety of staff and the practicality of undertaking sampling in this order takes precedence over sampling in this order (refer to SAP/WRF and discuss with PM).
- All sections of the field notes must be filled in out in the field and are legible for someone else to read and transfer electronically if required. The vehicle or site office on site can be used during periods of inclement weather.
- Refer to the waste management procedure for further guidance. As a minimum the field supervisor responsibility includes the following:
    - Safe and secure location of drums, skip bins or bulky bins to collect “waste” generated from field assessments. The location of drums should be confirmed with the PM.
    - Waste PPE, consumables such as bailers, gloves or tubing should be placed in drum on site and labelled correctly.

- All field notes should be scanned into the fieldwork folder at the conclusion of the fieldwork program.
- Data Quality Management requirements should be discussed with PM or team leader when results are received from the laboratory.

> Clean up and secure sampling location to conditions as found prior to sampling prior to leaving location.

Specific project requirements will be undertaken for transportation of samples due to varying analysis and holding times and this shall be confirmed and pre-arranged by the field supervisor with the PM prior to commencing work on the site.

F3.08 Surface Water Sampling Field Record

Site / Project:	**Page: _____ of _____**	
Client:	**Job No.:**	
Person Sampling:	**Initials:**	**Date:**

Site Details
Water Scoop / Van Dorn Sampler / Directly into bottle / Other:
Last rain event/ Recent storms/ Any unnatural releases/ Other:

Sample Details, Observations, GPS Coordinates & Field Physiochemical Measurements (if possible, record parameters once stable):				
Sample ID				
Time				
Sample Depth (m)				
Water Body Depth m				
Location On-Site/ Off-Site				
Flow Rate High/ Med./ Low				
GPS Zone (i.e. 55H)				
Easting mE				
Northing mN				
GPS Error ±m				
DO mg/L				
EC µS/Cm				
pH				
Eh mV				
Temp °C				
Water Colour				
Turbidity High/ Medium/ Low				
Observations/Notes				

Container & Preservation Data										
Container Volume										
Container Type	Plastic/ Amber/ Vial	Plastic/ Amber/ Vial	Plastic/ Amber/ Vial	Plastic/ Amber/ Vial	Plastic/ Amber/ Vial	Plastic/ Amber/ Vial	Plastic/ Amber/ Vial	Plastic/ Amber/ Vial	Plastic/ Amber/ Vial	Plastic/ Amber/ Vial
Preservation										
Sample ID (Inc. QC samples below)										

HEALTH SAFETY & ENVIRONMENT
WORK METHOD STATEMENT (HSEWMS)

WMS NO.: V160382P **REVISION#:** 01.1

PREPARED DATE: 1 May 2020

PRINCIPAL CONTRACTOR: City of Darwin	**CONTRACTOR NAME:** Cardno
PROJECT NAME: SBWMF – Ground Water Monitoring	**CARDNO ADDRESS:** 93 Mitchell St, Level 6, Darwin, NT 0820
PROJECT LOCATION: Shoal Bay Waste Management Facility	**CARDNO ABN:** 47 106 610 913

JOB DESCRIPTION: Groundwater Monitoring Event (GME)

PLANNED HIGH RISK CONSTRUCTION ACTIVITY

☐ Confined Space Entry	☐ On/Near Energised Electrical Services	☐ Excavation Entry >1.5m	☐ Explosives Use	☐ Work On/Near Gas / Chem / Fuel / Refrigerant line
☒ On/in/near traffic corridor (e.g. road, rail, shipping)	☐ Mobile Plant Movement	☐ Diving Work	☐ Work on a roof	☐ Flammable / Contaminated Atmosphere
☐ Structural Alterations	☐ Tilt Up / Precast Use (Concrete)	☐ Fall from Heights >2m	☐ Work In / Over Water	☐ Artificial Extreme Temperature
☐ Disturbance of Asbestos	☐ Telecommunications Tower	☐ Demolition Work	☒ Hazardous Substances	☐ Asbestos/Demolition License No. -

PLANT AND EQUIPMENT REQUIRED FOR THIS ACTIVITY: Wide Brimmed Hat, Sunscreen, Digital Camera, Multi Parameter Probe, Dip Meter, Hydrasleeve Samplers

PERSONNEL TRAINING & QUALIFICATIONS REQUIRED FOR THIS ACTIVITY:

MSDS Required: Yes ☐ No ☒

d

Personal Protective Equipment Required



☒ ☒ ☒ ☒ ☒ ☐ ☒ ☐ ☒

Legislative Governance: This Work Method Statement is in compliance with the Australian Work Health and Safety Act 2011, in particular with sections 17, 20, 21, 22, and the Work Health and Safety Regulations 2011, in particular sections 299, 300, 301, 302, 303. (Please Refer to Local Legislation in VIC & W.A.)
For NZ the Health and Safety in Employment Act 1992 in particular section 7 (a)(b)(c), 8, 9 (a)(b) 10 (1)(2)(3)(4)(5)(6) and Health and Safety in Employment Regulations 1995 in particular section 4 (1)(2).

WMS DEVELOPED BY:

No	Name	Position	Date
1	David James	Project Director	1 May 2020
2	Julian Brown	Environmental Scientist	1 May 2020
3			

PERMITS

☐ Confined Space Entry ☐ Hot Work
☐ Electrical ☐ Working At Heights
☐ Guards Off ☐ Excavation
☐ Diving

COPY OF SWMS SUPPLIED TO PRINCIPAL CONTRACTOR/CLIENT/CUSTOMER: APPROVAL: ☒ *(PC/Client/Customer USE ONLY BELOW)*

Name: Matthew Vitucci	**Signature:**	**Position:**	**Contact No.:** 0429156860	**Date:**

JOB DESCRIPTION:						WMS No.:V160382P		REVISION: 01.1
#	**Job Step** *Describe the job by step*	**Hazard** *What are the hazards of each step?*	**Possible Consequences** *What are the possible injury/incident consequences of each step?*	**Risk Rating** *Use the Risk Matrix to give an initial rating*	**Control Methods to be Implemented** *What control measures will be used?*	**Residual Risk Rating** *Use the Risk Matrix to give a residual risk rating*	**Responsible Person**	**Monitor & Review**
General Activities / Hazards								
1	**Transport to and from site**	Traffic and other road users	Impact with other vehicles or road users, injury/death. Damage to vehicle.	E22	• Drivers must hold a current, valid driver's license, knowledge of relevant road rules. • Driver to remain vigilant of other road users and respond to hazards appropriately and in accordance with road rules. • Trip planning – the route should be planned prior to commencing, including having a map of the planned route available. • First Aid kit to be kept in vehicle.	M12	Field staff (planning and preparation) PM/PD (training and works preparation)	Project Manager Project Director Site supervisor / field Staff
		Obstructions / unexpected diversions	Impact with obstructions, other vehicles or road users, injury/death. Damage to vehicle.	E22	• Driver to remain vigilant of road conditions and obey all road rules, including temporary road signs/warnings.	M12	Field staff (planning and preparation) PM/PD (training and works preparation)	Project Manager Project Director Site supervisor / field Staff
		Driver competence	Impact with other vehicles or road users, injury/death. Damage to vehicle.	E22	• Drivers must hold a current, valid driver's license, knowledge of relevant road rules.	M12	Field staff (planning and preparation) PM/PD (training and works preparation)	Project Manager Project Director Site supervisor / field Staff
		Driver wellness (fatigue, drug and alcohol influence, physical state)	Impact with other vehicles or road users, injury/death. Damage to vehicle.	E22	• No person is to drive if under the influence of alcohol or drugs or if they are suffering from fatigue or have a physical impairment that may affect their ability to drive safely.	M12	Field staff (planning and preparation)	Project Manager Project Director

JOB DESCRIPTION:						WMS No.:V160382P	REVISION: 01.1	
#	**Job Step** *Describe the job by step*	**Hazard** *What are the hazards of each step?*	**Possible Consequences** *What are the possible injury/incident consequences of each step?*	**Risk Rating** *Use the Risk Matrix to give an initial rating*	**Control Methods to be Implemented** *What control measures will be used?*	**Residual Risk Rating** *Use the Risk Matrix to give a residual risk rating*	**Responsible Person**	**Monitor & Review**
					• Verbal communication, in person, is to be made with Project Manager or Supervisor. • Supervisor to ensure staff are not tired and their awareness and/or judgment have not been adversely affected by work activities, weather and/or other influencing factors. • Alcohol and drug testing may be enforced. • For long journeys frequent breaks should be taken (approx. every 2 hours) – driving should be shared where possible. • Vehicle to carry minimum of 10L of water per day.		PM/PD (training and works preparation)	Site supervisor / field Staff
		Inclement weather	Impact with other vehicles or road users, injury/death. Impact with flying debris/falling trees. Damage to vehicle.	E22	• Monitor BOM website and do not travel if weather conditions are considered to present too high hazard. • If the journey is undertaken driving style should be adapted appropriately in accordance with the conditions.	M12	Field staff (planning and preparation) PM/PD (training and works preparation)	Project Manager Project Director Site supervisor / field Staff
2	**Site housekeeping**	Poor housekeeping Excessive tools, materials and equipment in the work area Obstructed walkways / roads Uneven ground / trip hazards	Slips, trips and falls. Other injury. Damage to equipment.	H17	• Complete Safety STOP (aka SLAM, Take 5) prior to assess hazards in work area • Conduct pre-site checks, clear work area of debris, excess tools and materials, litter etc. • Stack and/or store materials and equipment in approved lay down areas off the ground. • Clean and tidy area as work progresses.	M9	Site supervisor / field staff (fieldwork) PM/PD (training and preparation)	Project Manager Project Director Site supervisor / field Staff

#	Job Step *Describe the job by step*	Hazard *What are the hazards of each step?*	Possible Consequences *What are the possible injury/incident consequences of each step?*	Risk Rating *Use the Risk Matrix to give an initial rating*	Control Methods to be Implemented *What control measures will be used?*	Residual Risk Rating *Use the Risk Matrix to give a residual risk rating*	Responsible Person	Monitor & Review
					• Ensure all open penetrations are barricaded /signposted prior to leaving the work area. • Remove all excess waste after each task and place in receptacles provided, follow posted waste segregation signage.			
3	**Manual handling**	Heavy lifts / dropped objects	Injury from heavy lifts / dropped objects, damage to muscles and soft tissue, bruises, scrapes.	H14	• No single person unaided lift of objects > 25 kg. • Mechanical lifting/transport aid where possible. • Two man lift if safe to do so for heavy/awkward objects (25kg or more) where mechanical lift is not practical. • Appropriate gloves to be worn for all tasks. • Manual handling training to be provided (i.e. “safe spine, bend knees not back”). • Conduct stretch and flex exercises after pre-starts, and after breaks if necessary.	M6	Site supervisor / field staff (fieldwork) PM/PD (training and preparation)	Project Manager Project Director Site supervisor / field Staff
4	**Workforce skills**	Unskilled workers Insufficient training Level of job knowledge	Injury caused by inappropriate use of tools or equipment, or by not adhering to site rules / task rules and procedures	H19	• Stop work authority in place. • Tool box talk to be undertaken prior to the works commencing and at the start of each day. • Mandatory PPE to be worn at all times. • Daily equipment pre-start inspections. • Ensure that all stakeholders are informed of works. • During the period of the project, staff that either change position or join the project must be assessed against the project training needs	M12	Site Supervisor / field staff (assessment of contractors) PM/PD (training and preparation)	Project Manager Project Director Site supervisor / field Staff

#	Job Step *Describe the job by step*	Hazard *What are the hazards of each step?*	Possible Consequences *What are the possible injury/incident consequences of each step?*	Risk Rating *Use the Risk Matrix to give an initial rating*	Control Methods to be Implemented *What control measures will be used?*	Residual Risk Rating *Use the Risk Matrix to give a residual risk rating*	Responsible Person	Monitor & Review
					to ensure all specific H&S training needs are met. • Ensure compliance with requirements identified by the SWMS.			
5	**Monitoring of tasks and procedures**	Ineffective control measures implemented and/or not being used properly	Injury, incident, damage to equipment	H14	• Obtain Work Permit(s) from Central Control Room prior to commencement of tasks. • Obtain gas pre-clearance and hot works permit prior to undertaking works in ammonia plant area. (Incl. continues monitoring). • PLAN - DO – CHECK – ACT. • Stop work immediately if any additional hazards have been identified and review SWMS. • Advise each person affected by any amendment to the SWMS and the details of the amendment, have safety review and sign. • Consult with supervisors and workers, regarding any ineffective control measures, stop work until corrected. • Daily work place inspections.	M9	Site supervisor / field staff (monitoring of procedures) PM/PD (training and preparation)	Project Manager Project Director Site supervisor / field Staff
6	**Environmental**	Ultraviolet light	Sunburn, sunstroke, long-term UV effects	E24	• Avoid sun exposure wherever possible. • Apply a broad spectrum sun screen =>30+ every 2hrs. • Take shaded rest breaks. • Wear a hard hat brim. • Long sleeves to be rolled down and buttoned.	M8	Field staff (planning and preparation) PM/PD (training, PPE and works preparation)	Project Manager Project Director Site supervisor / field Staff

JOB DESCRIPTION:						WMS No.:V160382P	REVISION: 01.1	
#	**Job Step** *Describe the job by step*	**Hazard** *What are the hazards of each step?*	**Possible Consequences** *What are the possible injury/incident consequences of each step?*	**Risk Rating** *Use the Risk Matrix to give an initial rating*	**Control Methods to be Implemented** *What control measures will be used?*	**Residual Risk Rating** *Use the Risk Matrix to give a residual risk rating*	**Responsible Person**	**Monitor & Review**
		Excessive temperatures	Dehydration	E24	• Drink plenty of water and take regular meal breaks. • Work in shaded areas where possible. • Air condition containers, cabins and/or site vehicles. • Regular rest breaks in cooler shaded areas. • Supervisor to monitor work crew and look after your mates. • Store chemicals out of direct sunlight, in proper cabinets where required. • Ensure adequate potable drinking water is available. • Implement the Cardno Heat Stress Protocol (see attached).	M8	Field staff (planning and preparation) PM/PD (training and works preparation)	Project Manager Project Director Site supervisor / field Staff
		Environmental incident: 1. Disturbance of flora and fauna. 2. Spillages. 3. Air quality. 4. Interaction with snakes, spiders and other fauna.	Environmental incident, damage to the environment, personal injury	H18	• Regular inspections & maintenance to be carried out on tools, plant and equipment. • Avoid interaction with fauna – Stop Work Authority, contact supervisor/project manager, monitor risk/hazard if safe to do so. • Trained first aiders on work site. • Personnel to be familiar with emergency response procedures, hold toolbox meeting with crew. • Environmental incidents to be reported to appropriate persons where required. (in the event of incident CSPB has in house emergency response team, call 84118444)	9M	Field staff (planning and preparation) PM/PD (training and works preparation)	Project Manager Project Director Site supervisor / field Staff
		Contaminated waste / water	Contamination of “clean” soil/water	H14	• Water to be placed into appropriate containers for temporary storage prior to classification and appropriate transport/disposal.	M6	Field staff (planning and preparation)	Project Manager Project Director

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#	**Job Step** *Describe the job by step*	**Hazard** *What are the hazards of each step?*	**Possible Consequences** *What are the possible injury/incident consequences of each step?*	**Risk Rating** *Use the Risk Matrix to give an initial rating*	**Control Methods to be Implemented** *What control measures will be used?*	**Residual Risk Rating** *Use the Risk Matrix to give a residual risk rating*	**Responsible Person**	**Monitor & Review**
					• Storage containers should be securely closed, clearly labelled, and positioned such that they are unlikely to be disturbed by other site activities. • Site supervisor and/or client to be informed of their location and content.		PM/PD (training and works preparation)	Site supervisor / field Staff
		Inclement weather	Injury, environmental incident	H19	• Monitor BOM website pre-mobilization and advise work crew of any potential hazards/restrictions/control methods. • Stop Work Authority in place.	M9	Field staff (planning and preparation) PM/PD (training and works preparation)	Project Manager Project Director Site supervisor / field Staff
7	**Use of PPE**	PPE not suitable/inadequate for tasks being undertaken	Injury (slip, trip, fall, dropped objects, cuts, impact, traps)	E22	• Check PPE prior to works. • Ensure PPE is serviceable and correctly fitted. • Ensure clothing is fitted correctly (loose clothing has the potential to be drawn into the moving parts of machinery). • Shirts must be buttoned to at least the 3rd button from the top of the shirt • Sleeves must be rolled down and buttoned.	M9	Field staff (planning and preparation) PM/PD (training, PPE and works preparation)	Project Manager Project Director Site supervisor / field Staff
8	**Noise**	Excessive noise	Impaired hearing	H18	• Follow mandatory safety signage and use appropriate hearing protection as required by site requirements. • Where exposure to excessive noise cannot be avoided personnel will wear appropriate hearing protection.	M9	Field staff (planning and preparation) PM/PD (training, PPE and works preparation)	Project Manager Project Director Site supervisor / field Staff

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#	**Job Step** *Describe the job by step*	**Hazard** *What are the hazards of each step?*	**Possible Consequences** *What are the possible injury/incident consequences of each step?*	**Risk Rating** *Use the Risk Matrix to give an initial rating*	**Control Methods to be Implemented** *What control measures will be used?*	**Residual Risk Rating** *Use the Risk Matrix to give a residual risk rating*	**Responsible Person**	**Monitor & Review**
• **Job Step Activities / Hazards**								
A	**Traversing the site by foot**	Slopes, uneven ground, wet ground	Injury from slips, trips and falls.	H17	• Obtain Work Permit(s) from Central Control Room prior to commencement of tasks • Obtain gas pre-clearance and hot works permit prior to undertaking works in ammonia plant area. (Incl. continues monitoring). • Personnel should plan route across the site, keeping to pedestrian tracks/pathways where possible. • Personnel should be aware of the environment that is around them and ensure that solid footing is kept at all times. • PPE including steel capped boots should be worn to prevent injury in the event of a trip, slip or fall.	M9	Field staff (planning and preparation) PM/PD (training and works preparation)	Project Manager Project Director Site supervisor / field Staff
B	**Driving light vehicle across site**	Site traffic and other site users. Members of the public / trespassers. Fatigue. Soft or uneven ground, or obstructions.	Incident, injury, damage to vehicle or infrastructure	E22	• Obtain Work Permit(s) from Central Control Room prior to commencement of tasks • Obtain gas pre-clearance and hot works permit prior to undertaking works in ammonia plant area. (incl. continues monitoring) • Drivers must hold a current, valid driver's license, knowledge of relevant site/road rules. • Hazard lights to be used. • Speed to be kept to < 15 kph unless other site speed limits apply.	M10	Field staff (planning and preparation) PM/PD (training and works preparation)	Project Manager Project Director Site supervisor / field Staff

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#	**Job Step** *Describe the job by step*	**Hazard** *What are the hazards of each step?*	**Possible Consequences** *What are the possible injury/incident consequences of each step?*	**Risk Rating** *Use the Risk Matrix to give an initial rating*	**Control Methods to be Implemented** *What control measures will be used?*	**Residual Risk Rating** *Use the Risk Matrix to give a residual risk rating*	**Responsible Person**	**Monitor & Review**
					• The route should be planned, keeping to vehicle tracks where possible, and avoiding areas of soft or uneven ground to avoid bogging or tipping. • No person is to drive if under the influence of alcohol or drugs or if they are suffering from fatigue or have a physical impairment that may affect their ability to drive safely. • Verbal communication, in person, is to be made with Project Manager or Supervisor. • Supervisor to ensure staff are not tired and their awareness and/or judgment have not been adversely affected by work activities, weather and/or other influencing factors. • Alcohol and drug testing may be enforced.			
C	**Changing Tyre**	Raised Vehicle, Muscular stress, falling objects, damage to equipment	Injury, incident, damage to vehicle.	E22	• Isolate vehicle • Ensure vehicle is in gear, with handbrake on, wheels choked. • Ensure Jack is stable and at correct jacking point (see vehicle manual). • Do not over exert, causing muscle strain. • Use correct lifting and manual handling techniques, eg. Bend knees with straight back. Roll tyre where possible. • Keep everything clear from beneath vehicle when jack in use.	M10	Field staff (planning and preparation) PM/PD (training and works preparation)	Project Manager Project Director Site supervisor / field Staff

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#	**Job Step** *Describe the job by step*	**Hazard** *What are the hazards of each step?*	**Possible Consequences** *What are the possible injury/incident consequences of each step?*	**Risk Rating** *Use the Risk Matrix to give an initial rating*	**Control Methods to be Implemented** *What control measures will be used?*	**Residual Risk Rating** *Use the Risk Matrix to give a residual risk rating*	**Responsible Person**	**Monitor & Review**
					• Insert spare wheel under axel, to provide extra support when vehicle is jacked. • Re-check wheel-nut tightness.			
G	**Groundwater development / monitoring / sampling**	Liquid spray. Exposure to contaminated groundwater.	Injury, exposure to hazardous chemicals	H17	• Personnel will be required to wear PPE appropriate to the conditions at the site in order to avoid contact with chemicals that may be present in the groundwater at the site (i.e. safety glasses, nitrile gloves etc.	M9	Field staff (planning and preparation) PM/PD (training and works preparation)	Project Manager Project Director Site supervisor / field Staff
D	**Survey Bore headworks / TOC / Ground level**	Exposure to contaminated groundwater. Explosive atmosphere Fauna / Flora Interaction	Injury, incident, damage to vehicle or infrastructure, exposure to hazardous chemicals	E22	• Obtain Work Permit(s) from Central Control Room prior to commencement of tasks • Obtain gas pre-clearance and hot works permit prior to undertaking works in ammonia plant area. (incl. continues monitoring) • Personnel will be required to wear PPE appropriate to the conditions at the site in order to avoid contact with chemicals that may be present in the groundwater at the site (i.e. safety glasses, nitrile gloves etc. • Follow mandatory safety signage and use appropriate hearing protection as required by site requirements. • Avoid interaction with fauna – Stop Work Authority, contact supervisor/project manager,	M12	Field staff (planning and preparation) PM/PD (training and works preparation)	Project Manager Project Director Site supervisor / field Staff

JOB DESCRIPTION:						WMS No.:V160382P		REVISION: 01.1
#	**Job Step** *Describe the job by step*	**Hazard** *What are the hazards of each step?*	**Possible Consequences** *What are the possible injury/incident consequences of each step?*	**Risk Rating** *Use the Risk Matrix to give an initial rating*	**Control Methods to be Implemented** *What control measures will be used?*	**Residual Risk Rating** *Use the Risk Matrix to give a residual risk rating*	**Responsible Person**	**Monitor & Review**
					monitor risk/hazard if safe to do so.			
G	**Groundwater Water Level monitoring**	Liquid spray. Exposure to contaminated groundwater.	Injury, exposure to hazardous chemicals	H17	• Personnel will be required to wear PPE appropriate to the conditions at the site in order to avoid contact with chemicals that may be present in the groundwater at the site (i.e. safety glasses, nitrile gloves etc.	M9	Field staff (planning and preparation) PM/PD (training and works preparation)	Project Manager Project Director Site supervisor / field Staff

Sign-Off Sheet

All persons performing any activity covered by this WMS MUST sign off prior to commencement of this task as recognition of having read and understood the work steps and preventative actions required to reduce the risk of harm, and ensure safe work practices are maintained.
I, the undersigned declare that I have read and understand the requirements of this WMS and will work in accordance with the prescribed controls.

Name	*Signature*	*Position*	*Date*	*Name*	*Signature*	*Position*	*Date*
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LIKELIHOOD OR FREQUENCY (How much chance is there of It happening)	CONSEQUENCE SEVERITY				
	1 INSIGNIFICANT	2 MINOR	3 MODERATE	4 MAJOR	5 CATASTROHPIC
A – Almost Certain	Moderate 11	High 16	Extreme 20	Extreme 23	Extreme 25
B - Likely	Moderate 7	High 13	High 17	Extreme 21	Extreme 24
C - Possible	Moderate 5	Moderate 8	High 14	High 18	Extreme 22
D - Unlikely	Low 2	Low 4	Moderate 9	High 15	High 19
E - Rare	Low 1	Low 3	Moderate 6	Moderate 10	Moderate 12

E = Extreme Risk	Immediate action required to implement better controls. Activity must not start or be stopped if started. Senior Management to give approval for work to commence or continue.
H = High Risk	Immediate manager to give approval for work to commence or continue. More suitable controls to be investigated.
M = Moderate Risk	Work to proceed once risk is reduced to as low as reasonably practicable and controls are implemented.
L = Low Risk	Work to proceed while monitoring and managing risk.

QUALITATIVE MEASURES OF IMPACT – CONSEQUENCE

LEVEL	IMPACT	EXAMPLE OF CONSEQUENCE
1	Insignificant	No injuries; no environmental impact.
2	Minor	First Aid; environmental release immediately contained.
3	Moderate	Medical Treatment; environmental release not immediately contained with no detrimental effects.
4	Major	Lost Time Injury/Illness; environmental release not immediately contained with toxic effects.
5	Catastrophic	Fatality; release to the environment with long term/permanent toxic effects.

QUALITATIVE MEASURES OF LIKELIHOOD

LEVEL	MEASURE	DESCRIPTION	GUIDE
A	Almost Certain	The event is expected to occur in most circumstances	Once or several times a day
B	Likely	Will probably occur in most circumstances	Once per week
C	Possible	Might occur at some time	Once per month
D	Unlikely	Could occur at some time	Once per year
E	Rare	May occur only in exceptional circumstances	May occur once per ten years

Step 1

Determine the **consequence** : What do you perceive as the likely outcome or loss if the hazard were not managed appropriately? To assist with this component, you may wish to consult with others from the area or activity and review previous safety performance data.

Step 2

Determine the **likelihood** : How likely do you perceive an incident would result if the hazard were not managed appropriately? To assist with this component, you may wish to consult with others from the area or activity and review previous safety performance data.

Step 3

Determine the **risk rating** : Match up your consequence rating and likelihood rating. You should end up with either a low, moderate, high or extreme risk rating.

Hazard Control Prompts

most effective

Elimination	Can we get rid of it altogether? e.g. doing the at ground level rather than at height eliminates falls from height risk.
Substitution	Can we find a process / substance etc less hazardous? e.g. use of less toxic solvents.
Isolation	Can we put something between the hazard and people? e.g. install guarding and handrails.
Administrative	What can we tell, show people about safety? e.g. training, safe work procedures.
PPE	What can people wear that will reduce either the probability or the consequence of something happening?

least effective

Hazard Prompts

General:	• Struck by • Strike against • Caught in / between • Slips, trips • Falls on same level • Falls from height • Manual Handling • Visibility • People/pedestrians
Energy Source: (Contact with)	• Electricity • Mechanical • Pressure • Chemical • Other
Exposure to:	• Dust • Noise • Fumes • Heat • UV • Wet conditions • Animals