MEMO

Date: 24 March 2021
To: Andrew Grime (Arup Senior Engineer)
From: Alan Foley
Pages: 9 inc. this page excluding attachments
Regarding: Surface Water Quality – Event #8 summary

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Fremantle Swan River Crossing – Surface Water Quality Monitoring Event #8

Background

Arup on behalf of Main Roads Western Australia (MRWA), has commissioned RPS Australia West Pty Ltd (RPS) to provide environmental services to support the Swan River Crossing (SRC) project development. The works include the replacement of the Fremantle Traffic Bridge and the improvement/duplication of the Fremantle Rail Bridge. As detailed within the Preliminary Environmental Impact Assessment (MRWA, 2020), surface water quality has the potential to be impacted during new bridge construction and demolition of the old structure. As such, a baseline assessment of the surface water quality is being completed to inform a future Construction Environment Management Plan (CEMP) monitoring program. This memo provides details on the surface water monitoring Event #8, the final event under the current contract, completed in March 2021.

Sampling locations

The program includes collection of surface water samples from five locations. Further details on sampling locations are presented in Figure A and Table 1.

For previous sampling events, Event #1 (August 2020) and Event #2 (September 2020), the program was reduced to four locations with background location WS-5 excluded due to the project awaiting Department Biodiversity, Conservation and Attractions (DBCA) access approval. Approval was received for sampling within the Swan River DBCA control area on 5 October 2020. As such, all sampling locations have been included from Event #3 onwards.

A copy of the DBCA approval, 2020-1928 Permit P12652, has been included in Appendix A.

Table 1: Surface water sampling locations summary

Sampling point	Swan River Bathymetry[1,2] (m)	Commentary
WS1	~4.0-6.0[1]	• Central channel (northern side) • Sample collected from Fremantle Traffic Bridge northern access point
WS2	~4.0-6.0[1]	• Central channel (southern side) • Sample collected from Fremantle Traffic Bridge southern access point
WS3	~2.0-4.0[1]	• Northern shoreline
WS4	~4.0-5.0[1]	• Southern shoreline • Small craft pen jetty
WS5	~2.0-6.0[2]	• Southern shoreline • Public jetty • Background location

MEMO

Date: 24 March 2021
Regarding: Surface Water Quality – Event #8 summary

Notes: 1. Results of a geophysical survey of the portions of the site was undertaken in 2012 (Marine & Earth Sciences, 2012), which was used inform the Arup reports (Arup, 2013a and 2013b)

2. Swan and Canning Rivers navigation chart 1:25,000. April 2014, Edition 7. Department of Transport https://www.transport.wa.gov.au/imarine/coastaldata/nauticalcharts/pdfs/WA898_swan_and_canning_rivers.pdf.

Sampling program schedule overview

The proposed SWQS sampling program schedule is presented in Table 2.

Table 2: Sampling program

Event	Sampling locations	Event Date	Date Completed	Status
Event 1	WS2, WS4	August 2020	7/08/2020	Completed
Event 2	WS1-WS4	September 2020	10/09/2020	Completed
Event 3	WS1-WS5	October 2020	7/10/2020	Completed
Event 4	WS1-WS5	November 2020	5/11/2020	Completed
Event 5	WS1-WS5	December 2020	3/12/2020	Completed
Event 6	WS1-WS5	January 2021	13/01/2021	Completed
Event 7	WS1-WS5	February 2021	11/02/2021	Completed
Event 8	WS1-WS5	March 2021	04/03/2021	Completed – this round

Notes: Event 8 (this event) is the last monitoring event completed as part of the current contract.

Surface water sampling methodology

Surface water sampling was conducted in accordance with the following relevant guidance:

- Department of Water and Environmental Regulation, *Assessment and Management of Contaminated Sites – Contaminated Sites Guidelines* (DER, 2014)
- National Environment Protection (Assessment of Site Contamination) Measure 1999, *Schedule B – General Guidelines for the Assessment of Site Contamination* (NEPC, 2013)
- *Water Quality—Sampling. Part 1: Guidance on the Design of Sampling Programs, Sampling Techniques and the Preservation and Handling of Samples* (Standards Australia, 1998. AS/NZS 5667.1:1998)
- *Water Quality—Sampling. Part 6: Guidance on sampling of rivers and streams* (Standards Australia,1998. AS/NZS 5667.6:1998)
- *Water Quality—Sampling. Part 9: Guidance on sampling from marine waters* (Standards Australia, 1998. AS/NZS 5667.9:1998)
- Heads of EPAs Australia and New Zealand (HEPA), *PFAS National Environmental Management Plan, Version 2.0* (HEPA, 2020).

Each Swan River surface water sample was collected using a Niskin Flask or surface water sampling pole depending upon water column depth as detailed below:

- Where the water column was >2 m, the following two depths were targeted:
  - Sample 1 (shallow sample): collected at ~1 m below surface level
  - Sample 2 (deep sample): collected ~1 m above riverbed level.

- Where the water column was <2 m (WS3), the sample was collected in the middle of the water column, using a surface water pole sampler.

Field observations were collected during each sampling event and included commentary on weather conditions, tides and vessel movement within the Fremantle port and surrounding waters.

Analysis Program

All samples were analysed for the following analytical suite:

- Dissolved metals and metalloids: aluminium, arsenic, cadmium, chromium, cobalt, copper, iron, lead, manganese, mercury, molybdenum, nickel, selenium, silicon, silver, and zinc.
- Total metals: aluminium and iron.
- Major anions: sulfate (SO_4^{2-}), chloride (Cl^-), fluoride (F^-), alkalinity (hydroxide OH^-, carbonate CO_3^{2-}, bicarbonate HCO_3^-).
- Major cations: sodium, potassium, calcium, magnesium.
- Nutrients: total and reactive phosphorus, total nitrogen, total Kjeldahl nitrogen (TKN), total ammonia (NH_4-N + NH_3-N), nitrates and nitrites (NO_X-N).
- Sulfide (S^{2-})
- Total dissolved solids (TDS) and Total suspended solids (TSS)
- Turbidity
- Hydrocarbons: Total recoverable hydrocarbons (TRH), benzene, toluene, ethylbenzene and xylene (BTEX) and polycyclic aromatic hydrocarbons (PAH)
- Organochlorine Pesticides (OCP)
- Per- and poly-fluoroalkyl substances (PFAS)
- Dissolved organic carbon (DOC)
- Chlorophyll-A and Phaeophytin-A.

Water column profiles for temperature, salinity (electrical conductivity (EC)), pH and dissolved oxygen (DO) were also collected at each sampling location.

MEMO

Date: 24 March 2021
Regarding: Surface Water Quality – Event #8 summary

Surface water assessment levels

All analytes were compared against relevant Water Quality Australia 2019 guidelines, nominally (95% species protection) as follows:

- Water Quality Australia (WQA, 2019)
  - Marine Water Guidelines (MWG) 95% species protection level
    - Estuary water (for nutrients and pH only).
  - Recreational Water Guidelines (RWG)
- PFAS National Environmental Management Plan (HEPA, 2020).
  - Marine Guidelines 99% species protection level[1]
  - Recreational Water
- Treatment and management of soil and water in acid sulfate soil landscapes (DER, June 2015b).
  - Guideline levels for ASS surface water quality (ASS)

Site conditions

Site conditions noted during the monitoring Event #8 are summarised within Table 3.

Table 3: Site conditions

Items	Commentary
Weather conditions (during sampling event)	Overcast, with north-north-westerly winds in the morning, turning west-north-westerly in the afternoon 11-13 km/hr, maximum temperature of 27.3°C.
Rainfall (noted during the previous week)	A total of 29.8 mm of rain was recorded at the Perth Station (Number: 9225) in the week prior to sampling.
Tide condition and direction	• Incoming tide. • Closest peak: – Low tide (5:12 am / 0.66 m) – High tide (1:59 pm / 1.00 m)
Fremantle Port and Swan River vessel activities	• WS1: Low general harbour / river traffic during sampling. • WS2: Low general harbour / river traffic during sampling. • WS3: Low general harbour / river traffic during sampling. • WS4: One tugboat located adjacent to sampling location on small craft jetty. Three ships being unloaded. Low general river traffic during sampling. • WS5: Low general harbour traffic. Seven boats moored to jetty.

[1] The 99% species protection value is considered to most appropriate as PFAS is known bioaccumulate in aquatic organisms.

MEMO

Date: 24 March 2021
Regarding: Surface Water Quality – Event #8 summary

Monitoring Results Discussion

Results have been tabulated and are presented in Tables A to E, with laboratory reporting presented in Appendix B. Further commentary on specific analytes is provided below.

Field parameters

Field parameters were measured throughout the water column prior to sampling at each location. The water column profiles are presented in surface water sampling logs at the rear of the report (Appendix C), with field parameters of sampling depths summarised in Table 4.

Table 4: Sampling location field parameters

Sample Location	Depth (m)	Temp (°C)	pH	EC (µS/cm)	Redox (mV)	DO (%sat)
WS1-S	1.00	23.2	8.15	56,880	154	86
WS1-D	3.50	23.2	8.16	56,866	152	86
WS2-S	1.00	23.2	8.14	56,887	162	84
WS2-D	4.50	23.2	8.14	56,886	162	82
WS3-S	0.15	23.6	8.16	56,731	132	81
WS4-S	1.00	23.1	8.07	56,909	150	82
WS4-D	4.00	23.1	8.10	56,910	143	81
WS5-S	1.00	23.3	8.15	56,880	159	89
WS5-D	6.50	23.3	8.16	56874	165	92.7

Physical parameters were noted to be relatively consistent throughout the profile i.e., alkaline, saline and in an oxidising state. These conditions are consistent with the significant flushing that occurs as a result of daily tidal movement of marine waters. RPS did note the following minor trends and guideline exceedances:

- Trends:
  - Redox marginally decreased with depth at all locations except two locations, WS3-S and WS5. Marginal increases of pH with depth were observed at all locations except WS2 and WS3.
  - Dissolved oxygen decreased with depth at two locations, WS2 and WS4. Increases with depth were observed at one location (WS5) however no change with depth was observed at the remaining locations.
- Guideline exceedances:
  - DO percentage saturation (%sat) did not comply with the MWG (90-110%sat) at all locations except one, WS5-D (93%sat). DO percentage saturations at WS4 were significantly lower than previous sampling events. DO percentage saturations in two samples; WS2-D and WS3-S were higher than the previous sampling event but were within historical ranges. The DO percentage saturation decreased at all other locations when compared to the previous sampling event. DO percentage values ranged from 81%sat (WS3-S and WS4-D) to 93%sat (WS5-D).

Acid sulfate soil parameters

Acid sulfate soil (ASS) parameters observed during Event #8 can be summarised as follows:

- Total acidity was below the laboratory limit of reporting (LOR) (<5 mg/L) and therefore was below the relevant guideline in all samples. Total acidity concentrations were comparable with previous events.

- Sulfide concentrations exceeded the ASS surface water quality guideline (>0.5 mg/L) in five locations: WS2-D, WS4-S, WS4-D, WS5-S and WS5-D with a maximum concentration of 0.9 mg/L observed at WS2-D. The sulfide concentrations during Event #8 were marginally higher than the previous event but within the historical range.

- Sulfate concentrations exceeded the recreational water guideline (500 mg/L) at all locations with a mean of 3,000 mg/L and a maximum of 3,100 mg/L observed at WS1-S. These concentrations are consistent with previous events and is typical of water quality at the mouth of the Swan River.

- Total alkalinity results were relatively consistent, ranging from 120 mg/L (WS1-S and WS4-S) to 130 mg/L (all other locations) across all monitoring locations. All results were consistent with previous events.

Solids

- TDS concentrations were relatively consistent over all locations and ranged from 30,000 mg/L (WS5-S) to 38,000 mg/L (WS3-S). Results were marginally lower than the previous event.

- TSS ranged from <5 mg/L (WS1-S and WS4-D) to 23 mg/L (WS1-D). The TSS was lower at three locations:WS1-S, WS3-S and WS4-D when compared to the previous event (Event #7). TSS remained consistent or increased marginally at all remaining locations, with a large increase observed at WS2-D. All results were within the historical range for each location, except WS2-D.

- Turbidity results ranged from 0.3 (WS1-S) to 0.8 (WS1-D) NTU[2]. Turbidity was relatively consistent with previous events.

Nutrients

Nutrient analytical results observed during Event #8 can be summarised as follows:

- Total phosphorous was at or below the LOR at all locations during Event #8. The total phosphorous concentration at WS5-D (0.01 mg/L) was significantly lower than the previous event (Event, #7, 0.14 mg/L) but is within the historical range. All other results were consistent with previous events.

- Reactive phosphorus (RP) marginally exceeded the MWG (0.005 mg/L) in two samples: WS1-D and WS2-D (both 0.006 mg/L). Concentrations ranged from <0.005 mg/L (WS1-S, WS3-S and WS5) to 0.006 mg/L, with a mean of 0.005 mg/L, consistent with previous events.

- All nitrogen species were below relevant MWG and RWG assessment criteria. Results were relatively consistent with previous sampling events, with marginal decreases in total nitrogen and a marginal increase in ammonia observed at all locations.

Chlorophyll

All Chlorophyll “A” sample results were below the MWG (0.003 mg/L) with a concentration range of 0.0006 mg/L (WS4) to 0.0011 mg/L (WS1-D and WS5-D) observed. Results from this event were marginally lower than the previous event.

Low concentrations of Phaeophytin "A" were detected within all surface water samples except for two: WS1-D and WS5-D with concentrations ranging from <0.0002 mg/L to 0.0004 mg/L (WS4-D and WS5-S). A marginal decrease was observed in all sampling locations compared to the previous sampling event.

[2] NTU: Nephelometric Turbidity unit, i.e., the unit used to measure the turbidity of a fluid or the presence of suspended particles in water.

MEMO

Date: 24 March 2021
Regarding: Surface Water Quality – Event #8 summary

Metals and metalloids

Metal analytical results observed during Event #8 can be summarised as follows:

- Dissolved metals:
  - The concentrations of all dissolved metals were below the adopted criteria for all samples.
- Total metals:
  - Total aluminium concentrations were relatively consistent across all locations with a mean of 0.02 mg/L and a range of <0.02 mg/L (WS1-D, WS2-S, WS3-S and WS4) to 0.04 mg/L (WS5-D) observed.
  - All total iron concentrations were significantly below the MWG (1 mg/L) with a mean of 0.02 mg/L and a maximum of 0.03 mg/L (WS1-D) observed.
  - All results were consistent with previous events.

Hydrocarbons

All hydrocarbon results (BTEX, TRH and PAH) were below their relevant LOR.

Pesticides

All organochlorine pesticides results were below their relevant LOR.

PFAS

PFAS analytical results observed during Event #8 can be summarised as follows:

- Perfluorooctanesulfonate (PFOS) exceeded the 99% species protection MWG (0.00023 µg/L) in all samples, ranging from 0.0004 µg/L (WS1-S and WS3-S) to 0.0008 µg/L (WS4) with a mean of 0.0006 µg/L observed, which is significantly lower than the previous event and historical average (0.0028 µg/L).
- Minor detections of Perfluorohexanesulfonic acid (PFHxS) and Perfluorooctanoic acid (PFOA) were observed marginally above their relevant LOR. However, all concentrations were significantly below all relevant guidelines or no guidelines are available.
- Total PFAS were relatively consistent between all locations and ranged from 0.001 µg/L (WS3-S, WS4 and WS5) to 0.002 µg/L (WS1-D) with a mean of 0.001 µg/L, which was significantly lower than previous events.

Quality Control and Quality Assurance

To maintain a high level of Quality Control and Quality Assurance (QAQC) sampling and analysis was undertaken with reference to relevant guidelines (DER, 2014, NEPC, 2013 and HEPA, 2020) and *Australian Standard 4482.1:1997* (Standards Australia, 2005). Strict hygiene procedures were applied throughout to assure a high level of sample integrity and quality was maintained, including the decontamination of all sampling equipment between sampling locations to prevent possible cross-contamination.

In accordance with HEPA (2020) guidance, one field duplicate was collected per 10 primary samples. In addition, one field blank, trip blank and field rinsate was collected per day of sampling. The results are presented in Tables F to N and summarised as follows:

- A total of 114 of the 120 (95%) analyte tests performed on the field duplicate sample had a Relative Percentage Difference (RPD) within 30% of the original samples indicating the sampling and analysis procedures applied by RPS and the laboratory were generally reproducible.

- Two of the six total duplicate RPD failures were considered insignificant as both the primary and duplicate results were less than 5 x LOR. In such instances the elevated RPD merely indicates that analytical precision decreases as concentrations approach the LOR.

- The remaining RPD exceedances (turbidity, sulfide, Perfluoroheptanoic acid and total positive PFAS) were considered significant as the concentration of either the primary or secondary sample was greater than 5 x LOR. The failures are likely due to minor differences in water quality when sampling. The duplicate sample concentration was higher for sulfide and as such was used for the data assessment. This exceedance was not considered to have affected the water quality assessment.

- The concentrations of zinc and turbidity were marginally above their respective LORs within the field rinsate sample (WR1). Additionally, the concentrations of silicon and turbidity were marginally above their respective LORs within the field blank sample (WB1). Minor exceedances of acceptance criteria (>LOR) are potentially a reflection of the quality of deionised water used for the blank collection.

- All trip blank samples were below their respective LORs.

- All internal laboratory QAQC procedures (method blanks, matrix spikes, laboratory control standards, internal duplicates) except for the following were within acceptable limits:

  – N-Methyl perfluorooctane sulfonamide and N-Ethyl perfluorooctanesulfon-amide internal standards were outside of acceptance criteria. This is not considered a significant issue, as other internal standards were within range, these PFAS compounds are not typically observed onsite and there are no guidelines for these compounds.

- All samples were analysed within the recommended holding time for each analyte with the exception of Chlorophyll “A” and Phaeophytin “A” which were noted to exceed holding time criteria, however, this was due to extract or analysis dates not being provided. As such, the holding times could not be calculated.

The conclusion of the QAQC assessment indicates that sampling and analysis was generally reproducible and complied with accepted standards. As such, the data collected is considered representative of the site and suitable for the data assessment undertaken.

Conclusions

Surface water monitoring Event #8 was completed on 4 March 2021. Samples were collected from all five of the sampling locations (Figure A). A shallow and deep sample were collected at each sampling point utilising the defined Niskin flask methodology, with the exception of WS3. Due to the shallow nature of WS3 (water column depth approximately ~0.60 m) a shallow sample was collected utilising a surface water sampling pole from a central point in the water column (~0.30 m).

A review of the analytical data collected indicates that the site waters were alkaline, saline and in an oxidising state. Minor exceedances of assessment criteria were noted (DO), however, these conditions are consistent with the marine environment present at the mouth of the Swan River.

Minor exceedances of reactive phosphorus MWG (0.005 mg/L) were observed in two samples, WS1-D and WS2-D (both 0.006 mg/L). All other nitrogen and phosphorous concentrations were below relevant criteria. Results were relatively consistent with previous sampling events with marginal decreases in total nitrogen and a marginal increase in ammonia observed at all locations.

MEMO

Date: 24 March 2021
Regarding: Surface Water Quality – Event #8 summary

The concentrations of all metal and metalloids were below relevant guidelines at all locations. All results were relatively consistent with previous events.

All hydrocarbon and organochlorine pesticides results were below their relevant LOR and as such, adopted criteria in all samples analysed.

Minor detections of PFAS (PFHxS, PFOS and PFOA), were detected within all samples. The 99% species protection PFOS MWG (0.00023 mg/L) was exceeded in all samples, however, was significantly below the 95% species protection MWG (0.13 mg/L). No exceedances of any other relevant MWG of RWG were noted. Total PFAS concentrations were marginally higher than historical data.

We trust that this is to your satisfaction, should you have any queries please contact the undersigned.

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Enc. Tables
Figure A - Water quality sampling locations
Appendix A – DBCA approval
Appendix B – Laboratory reports
Appendix C – Surface water sampling logs

TABLES

Table A
Surface Water Results: Field Paremeters, ASS, Cations, Nutrients and Miscellaneous

Definitions:

MWG (Marine Water Esturary Guideline) for slightly - moderately disturbed systems, RWG (Recreational Water Guidelines), ASS (Acid Sulfate Soils) Standing Advice from DWER on dewatering trigger values taken from ASS Guideline Series (2015),
- (No Guideline), --- not tested, LOR (Limit of Reporting), # duplicate value

Notes:

Guideline values have been adopted from the following guidance documentation:
- *Treatment and Management of Soil and Water in Acid Sulfate Soil Landscapes* (DER 2015b)
- *Assessment and Management of Contaminanted Sites* (DER 2014)
- *Freshwater and Marine Water Quality Guidelines Chapter 3* (ANZECC/ARMCANZ 2000)

All results expressed as mg/L except for pH (pH units), ratios (unitless), Redox mV (mili Volts), turbidity (NTU) and EC (µS/cm)
a) Values for estuary environments - Table 3.3.6 ANZECC/ARMCANZ 2000 Freshwater and Marine WQ Guidelines Chapter 3
c) Values based on Austalina Government, National Health and Medical Research Council, Guideline for Managing Risks in Recreational Water (NHMRC, 2008)
d) Recreational water guideline values based on drinking water guidelines NHMRC & ARMCANZ (2011) Australian Drinking Water Guidelines
e) TKN concentration calculated (TKN = TN-NOx-N)
Denotes less than LOR

Sample ID	Date	Trigger	Field Parameters				Acid Sulfate Soil Parameters and Anions									ASS Ratios		Cations				Nutrients						Miscellaneous		
			pH	E.C	Redox	DO	Total Acidity ($CaCO_3$)	Total Alkalinity ($CaCO_3$)	TDS	TSS	Turbidity	Sulfide	Sulfate	Chloride	Flouride	Acidity: Alkalinity	Sulfate: Chloride	Calcium	Magnesium	Potassium	Sodium	Total P	Reactive P	Total N	TKN[e]	NH_3-N	NO_x-N	Dissolved Organic Carbon (DOC)	Chlorophyll "A"	Phaeophytin "A"
		Units	pH units	µS/cm	mV	%sat	mg/L	mg/L	mg/L	mg/L	NTU	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
		MWG	7.5-8.5	-	-	90-110	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.03[a]	0.005[a]	0.75[a]	-	0.62[b]	0.045[a]	-	0.003[a]	-
		RWG	6.5-8.5[c]	-	-	>80[c]	-	-	-	-	-	-	500[d]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		ASS	<6	-	-	-	>40	-	-	-	-	>0.5	-	-	-	>1	>0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
		LOR	-	-	-	-	5	5	5	5	0.1	0.5	1	1	0.1	-	-	0.5	0.5	0.5	0.5	0.01	0.005	0.1	0.005	0.005	0.005	1	0.0001	0.0002
WS1 - S	10/09/2020		8.18	50,919	80	104	9	120	36,000	<5	0.5	<0.5	2,400	18,000	---	0.08	0.13	390	1200	360	11000	0.03	0.006	0.2	0.2	0.009	<0.005	2	0.0012	0.0006
WS1 - S	7/10/2020		8.25	52,200	134	106	7	120	37,000	<5	0.4	0.6	2,300	17,000	<5	0.06	0.14	400	1300	380	10000	0.03	0.007	0.2	0.2	<0.005	<0.005	2	0.0009	0.0005
WS1 - S	5/11/2020		8.11	51,108	128	82	<5	120	37,000	<5	0.7	<0.5	2,800	20,000	<5	0.04	0.14	350	1200	310	10000	0.02	0.006	0.2	0.2	0.007	<0.005	3	0.0015	0.0006
WS1 - S	3/12/2020		8.08	49,503	178	86	---	120	37,000	<5	0.8	<0.5	2,700	19,000	<5	---	0.14	410	1300	390	12000	0.02	<0.005	0.6	0.6	<0.005	0.005	3	0.0014	0.0005
WS1 - S	13/01/2021		8.17	54,827	93	102	<5	130	37,000	<5	0.7	0.6	2,800	21,000	1	0.04	0.13	390	1200	390	11000	0.02	0.007	0.3	0.3	<0.005	<0.005	2	0.0017	0.0006
WS1 - S	11/02/2021		8.27	54,769	101	97	<5	130	37,000	20	0.8	<0.5	2,900	20,000	<5	0.04	0.15	400	1200	360	12000	0.02	<0.005	0.5	0.5	<0.005	<0.005	3	0.0025	0.0005
WS1 - S	4/03/2021		8.15	56,880	154	84	<5	120	37,000	<5	0.3	<0.5	3,100	21,000	<5	0.04	0.15	430	1400	410	12000	<0.01	<0.005	0.2	0.2	0.011	<0.005	<1	0.0008	0.0002
WS1 - D	10/09/2020		8.20	50,935	91	107	9	120	36,000	<5	0.7	<0.5	2,400	18,000	---	0.08	0.13	390	1200	360	11000	0.03	0.005	0.2	0.2	0.008	<0.005	2	0.0008	0.0006
WS1 - D	7/10/2020		8.29	53,399	131	104	7	120	37,000	<5	0.5	0.6	2,500	18,000	<5	0.06	0.14	420	1300	400	11000	0.04	0.005	0.1	0.1	0.006	0.007	2	0.0008	0.0004
WS1 - D	5/11/2020		8.12	51,230	125	80	<5	130	37,000	<5	0.7	<0.5	2,800	20,000	<5	0.04	0.14	350	1200	310	11000	0.02	0.006	0.2	0.2	0.009	<0.005	3	0.0012	0.0005
WS1 - D	3/12/2020		8.08	49,803	178	87	---	130	37,000	<5	0.8	0.6	2,800	20,000	<5	---	0.14	410	1300	390	12000	0.02	0.005	0.6	0.6	0.006	<0.005	2	0.0011	0.0004
WS1 - D	13/01/2021		8.16	54,836	92	97	<5	130	37,000	<5	0.8	0.7	2,900	21,000	1	0.04	0.14	380	1200	390	11000	0.02	0.006	0.2	0.2	<0.005	<0.005	2	0.0018	0.0006
WS1 - D	11/02/2021		8.27	54,761	100	98	<5	130	38,000	<5	0.6	<0.5	3,000	21,000	<5	0.04	0.14	380	1200	350	11000	0.02	0.006	0.4	0.4	<0.005	<0.005	3	0.0025	0.0005
WS1 - D	4/03/2021		8.16	56,866	152	86	<5	130	34,000	23	0.8	<0.5	3,000	21,000	<5	0.04	0.14	430	1400	410	12000	<0.01	0.006	0.2	0.2	0.019	<0.005	<1	0.0011	<0.0002
WS2-S	7/08/2020		8.70	50,710	181	105	6	120	39,000	9	0.6	0.9	2,800	20,000	---	0.05	0.14	420	1300	370	12000	<0.05	<0.005	0.1	0.1	0.007	<0.005	<1	0.0004	0.0005
WS2-S	10/09/2020		8.11	50,645	60	110	9	120	36,000	<5	0.6	<0.5	2,400	19,000	---	0.08	0.13	410	1300	360	11000	0.03	<0.005	0.2	0.2	0.007	0.009	2	0.0010	0.0005
WS2-S	7/10/2020		8.16	49,541	94	102	6	120	34,000	<5	0.6	0.7	2,300	17,000	<5	0.05	0.14	380	1200	360	9700	0.04	<0.005	0.2	0.2	<0.005	0.017	2	0.0019	0.0006
WS2-S	5/11/2020		8.07	49,927	60	79	7	120	36,000	<5	0.6	<0.5	2,700	19,000	<5	0.06	0.14	330	1100	300	10000	0.02	0.007	0.2	0.2	0.007	0.01	3	0.0017	0.0006
WS2-S	3/12/2020		8.06	48,338	145	78	---	130	36,000	<5	0.7	0.6	2,700	19,000	<5	---	0.14	400	1300	380	12000	0.02	<0.005	0.8	0.8	<0.005	0.01	3	0.0022	0.0006
WS2-S	13/01/2021		8.10	54,365	93	87	<5	130	37,000	<5	0.5	0.8	2,800	21,000	1	0.04	0.13	390	1200	390	11000	0.03	0.009	0.3	0.3	0.008	0.01	2	0.0014	0.0007
WS2-S	11/02/2021		8.19	54,438	87	85	<5	130	37,000	11	0.5	<0.5	2,800	19,000	<5	0.04	0.15	370	1200	340	11000	0.02	0.01	0.5	0.5	0.008	0.014	2	0.0025	0.0005
WS2-S	4/03/2021		8.14	56,887	163	84	<5	130	31,000	21	0.6	<0.5	3,000	21,000	<5	0.04	0.14	440	1400	420	13000	0.01	0.005	0.2	0.2	0.027	<0.005	<1	0.0009	0.0003
WS2-D	7/08/2020		8.19	50,966	179	105	7	120	39,000	5	0.5	0.8	2,800	20,000	---	0.06	0.14	410	1300	360	11000	<0.05	<0.005	0.1	0.1	0.007	<0.005	<1	0.0005	0.0005
WS2-D	10/09/2020		8.19	50,453	79	110	9	120	35,000	<5	0.6	<0.5	2,400	18,000	---	0.08	0.13	380	1200	350	11000	0.03	<0.005	0.2	0.2	0.006	0.009	2	0.0011	0.0004
WS2-D	7/10/2020		8.23	50,511	97	100	7	120	35,000	<5	0.5	0.6	2,400	17,000	<5	0.06	0.14	400	1200	380	10000	0.04	<0.005	0.3	0.3	<0.005	0.022	2	0.0017	0.0006
WS2-D	5/11/2020		8.09	50,009	68	78	6	130	36,000	<5	0.8	<0.5	2,700	19,000	<5	0.05	0.14	330	1100	290	9700	0.02	0.006	0.2	0.2	0.006	0.01	3	0.0016	0.0007
WS2-D	3/12/2020		8.06	48,410	155	74	---	130	35,000	<5	1	0.5	2,700	19,000	<5	---	0.14	400	1300	380	12000	0.03	<0.005	0.8	0.8	0.005	0.015	3	0.0017	0.0008
WS2-D	13/01/2021		8.10	54,420	95	84	<5	130	38,000	<5	0.6	0.7	2,800	21,000	1	0.04	0.13	380	1200	380	11000	0.03	0.009	0.3	0.3	0.008	0.015	2	0.0014	0.0006
WS2-D	11/02/2021		8.21	54,527	91	73	<5	130	37,000	<5	0.6	<0.5	2,900	20,000	<5	0.04	0.15	390	1200	350	11000	0.02	0.01	0.5	0.5	<0.005	<0.005	4	0.0026	0.0006
WS2-D	4/03/2021		8.14	56,886	162	82	<5	130	34,000	22*	0.7	0.9*	3,000	21,000	<5	0.04	0.14	430	1400	400	12000	0.01	0.006	0.2	0.2	0.021	<0.005	<1	0.0008	0.0003
WS3-S	10/09/2020		8.25	50,920	109	128	7	120	35,000	14	1.8	<0.5	2,400	19,000	---	0.06	0.13	390	1200	350	11000	0.04	0.005	0.2	0.2	<0.005	<0.005	2	0.0006	0.0008
WS3-S	7/10/2020		8.29	52,289	132	115	7	120	37,000	33#	1.6	0.8	2,400	18,000	<5	0.06	0.13	420	1300	400	11000	0.05	0.006	0.2	0.2	0.018	0.043	1	0.0019	0.0009
WS3-S	5/11/2020		8.15	51,444	126	55	6	120	37,000	7	1	<0.5	2,700	19,000	<5	0.05	0.14	350	1200	310	11000	0.02	0.006	0.2	0.2	0.01	<0.005	2	0.0017	0.0009
WS3-S	3/12/2020		8.11	49,569	184	98	---	110	38,000	19	2.4	<0.5	2,700	19,000	<5	---	0.14	380	1200	370	12000	0.03	0.006	0.8	0.8	<0.005	<0.005	2	0.0013	0.0011
WS3-S	13/01/2021		8.19	55,172	102	101	<5	130	38,000	<5	0.5	0.5	2,900	21,000	1	0.04	0.14	390	1200	400	11000	0.03#	0.005	0.2	0.2	0.006	0.006	2#	0.0012	0.0006
WS3-S	11/02/2021		8.28	54,792	106	67	<5	130	37,000	70#	1.5	<0.5	3,000	21,000	<5	0.04	0.14	370	1200	340	11000	0.03	0.006	0.5	0.5	<0.005	<0.005	3	0.0026	0.0021#
WS3-S	4/03/2021		8.16	56,731	132	81	<5	130	38,000	10	0.4	<0.5	3,000	21,000	<5	0.04	0.14	460	1500	430	13000	0.01	<0.005	0.2	0.2	0.013	<0.005	<1	0.0007	0.0003
WS4-S	7/08/2020		8.27	50,809	106	106	6	130	40,000	16	0.6	0.7	3,100	21,000	---	0.05	0.15	400	1300	370	11000	<0.05	0.006	0.2	0.2	0.008	<0.005	1	0.0005	0.0005
WS4-S	10/09/2020		7.93	50,651	42	109	9	120	35,000	11	0.5	0.6	2,400	18,000	---	0.08	0.13	390	1200	350	11000	0.03	<0.005	0.2	0.2	0.008	0.01	2	0.0007	0.0007
WS4-S	7/10/2020		7.82	49,672	55	95	8	120	36,000	<5	0.3	0.8	2,300	17,000	<5	0.07	0.14	390	1200	370	10000	0.03	<0.005	0.2	0.2	0.006	0.007	2	0.0016	0.0007
WS4-S	5/11/2020		7.89	50,039	32	81	7	130	36,000	<5	0.6	<0.5	2,700	19,000	<5	0.05	0.14	340	1100	300	10000	0.02	0.006	0.2	0.2	0.009	0.008	2	0.0013	0.0005
WS4-S	3/12/2020		7.94	48,677	105	85	---	130	37,000	<5	0.8	0.8	2,700	19,000	<5	---	0.14	400	1200	380	12000	0.02	<0.005	0.6	0.6	<0.005	0.01	3	0.0016	0.0006
WS4-S	13/01/2021		7.88	54,357	145	83	<5	130	38,000	<5	0.6	0.7	2,800	21,000	1	0.04	0.13	390	1200	390	11000	0.03	0.008	0.3	0.3	<0.005	0.01	2	0.0022	0.0007
WS4-S	11/02/2021		7.99	54,440	100	131	<5	130	37,000	<5	0.8	<0.5	3,000	21,000	<5	0.04	0.14	380	1200	350	11000	0.02	0.009	0.5	0.5	<0.005	0.016	4	0.003	0.0009
WS4-S	4/03/2021		8.07	56,909	150	82	<5	120	35,000	8	0.4	0.6	3,000	21,000	<5	0.04	0.14	470	1500	440	13000	0.01	0.005	0.2	0.2	0.024	<0.005	<1	0.0006	0.0003

MAKING COMPLEX EASY

Sample ID	Date	Trigger	Field Parameters				Acid Sulfate Soil Parameters and Anions									ASS Ratios		Cations				Nutrients						Miscellaneous		
			pH	E.C	Redox	DO	Total Acidity (CaCO3)	Total Alkalinity (CaCO3)	TDS	TSS	Turbidity	Sulfide	Sulfate	Chloride	Flouride	Acidity: Alkalinity	Sulfate: Chloride	Calcium	Magnesium	Potassium	Sodium	Total P	Reactive P	Total N	TKN[e]	NH_3-N	NO_x-N	Dissolved Organic Carbon (DOC)	Chlorophyll "A"	Phaeophytin "A"
		Units	pH units	µS/cm	mV	%sat	mg/L	mg/L	mg/L	mg/L	NTU	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
		MWG	7.5-8.5	-	-	90-110	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.03[a]	0.005[a]	0.75[a]	-	0.62[b]	0.045[a]	-	0.003[a]	-
		RWG	6.5-8.5[c]	-	-	>80[c]	-	-	-	-	-	-	500[d]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		ASS	<6	-	-	-	>40	-	-	-	-	>0.5	-	-	-	>1	>0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
		LOR	-	-	-	-	5	5	5	5	0.1	0.5	1	1	0.1	-	-	0.5	0.5	0.5	0.5	0.01	0.005	0.1	0.005	0.005	0.005	1	0.0001	0.0002
WS4-D	7/08/2020		8.27	50,996	108	105	<5	130	40,000	21	0.5	0.7	2,800	20,000	---	0.04	0.14	420	1300	380	12000	<0.05	<0.005	0.1	0.1	0.007	<0.005	<1	0.0004	0.0006
WS4-D	10/09/2020		8.05	50,680	56	112	9	120	35,000	7	0.7	<0.5	2,400	18,000	---	0.08	0.13	370	1200	340	10000	0.03	<0.005	0.2	0.2	0.007	0.008	2	0.0008	0.0006
WS4-D	7/10/2020		8.04	50,044	63	98	8	120	35,000	<5	0.4	<0.5	2,400	18,000	<5	0.07	0.13	410	1300	390	10000	0.03	<0.005	0.1	0.1	0.006	0.01	2	0.0015	0.0006
WS4-D	5/11/2020		7.97	50,024	40	81	5	120	36,000	6	0.7	<0.5	2,700	19,000	<5	0.04	0.14	350	1200	300	10000	0.02	0.006	0.2	0.2	0.008	0.008	2	0.0012	0.0007
WS4-D	3/12/2020		7.98	48,630	115	83	---	130	37,000	7	1.1	3.8	2,600	19,000	<5	---	0.14	400	1200	380	12000	0.02	<0.005	0.7	0.7	<0.005	0.008	3	0.0016	0.0006
WS4-D	13/01/2021		7.98	54,348	124	86	<5	130	37,000	<5	0.6	<0.5	2,800	21,000	1	0.04	0.13	390	1200	390	11000	0.03	0.008	0.2	0.2	<0.005	0.04	2	0.0021	0.0007
WS4-D	11/02/2021		8.08	54,460	102	133	<5	130	37,000	12	0.4	<0.5	3,000	21,000	<5	0.04	0.14	380	1200	350	11000	0.02	0.009	0.5	0.5	<0.005	0.011	4	0.003	0.0007
WS4-D	4/03/2021		8.10	56,910	143	81	<5	130	32,000	<5	0.4	0.6	3,000	21,000	<5	0.04	0.14	460	1500	430	13000	0.01	0.005	0.2	0.2	0.023	<0.005	<1	0.0006	0.0004
WS5-S	7/10/2020		8.24	49,470	118	108	7	120	35,000	<5	0.3	<0.5	2,400	18,000	<5	0.06	0.13	410	1300	390	10000	0.04	<0.005	0.2	0.2	<0.005	0.015	2	0.0016	0.0005
WS5-S	5/11/2020		8.10	49,829	81	79	8	130	36,000	<5	0.6	<0.5	2,700	19,000	<5	0.06	0.14	380	1200	330	10000	0.02	0.006	0.2	0.2	0.008	<0.005	2	0.0017	0.0007
WS5-S	3/12/2020		8.10	49,008	166	109	---	130	36,000	7	1.1	0.6	2,700	19,000	<5	---	0.14	410	1300	390	12000	0.02	0.005	0.6	0.6	0.006	0.012	2	0.0017	0.0006
WS5-S	13/01/2021		8.19	54,706	96	98	<5	130	37,000	<5	0.6	<0.5	2,900	21,000	1	0.04	0.14	390	1200	390	11000	0.03	0.006	0.2	0.2	<0.005	0.008	2	0.0024	0.0006
WS5-S	11/02/2021		8.25	54,644	104	98	<5	130	37,000	<5	0.8	<0.5	3,000	21,000	<5	0.04	0.14	380	1200	350	11000	0.02	0.006	0.4	0.4	<0.005	0.006	3	0.0026	0.0006
WS5-S	4/03/2021		8.15	56,880	159	89	<5	130	30,000	7	0.4	0.7	3,000	21,000	<5	0.04	0.14	490	1600	440	13000	0.01	<0.005	0.2	0.2	0.019	<0.005	<1	0.0009	0.0004
WS5-D	7/10/2020		8.30	52,146	117	109	7	120	36,000	<5	0.4	0.9	2,400	17,000	<5	0.06	0.14	420	1300	400	11000	0.03	0.006	0.1	0.1	0.006	<0.005	2	0.0011	0.0006
WS5-D	5/11/2020		8.12	49,820	91	71	9	120	36,000	7	0.7	<0.5	2,700	19,000	<5	0.08	0.14	340	1200	310	11000	0.03	0.005	0.2	0.2	<0.005	<0.005	2	0.0022	0.0007
WS5-D	3/12/2020		8.09	49,116	175	103	---	120	37,000	6	1.4	2	2,700	19,000	<5	---	0.14	410	1300	400	12000	0.02	0.006	0.7	0.7	<0.005	0.009	2	0.0013	0.0006
WS5-D	13/01/2021		8.19	54,732	93	92	<5	130	38,000	<5	0.7	<0.5	2,800	21,000	1	0.04	0.13	390	1200	390	11000	0.03	0.006	0.2	0.2	<0.005	0.01	2	0.0021	0.0006
WS5-D	11/02/2021		8.27	54,667	101	95	<5	130	38,000	18	0.9	<0.5	3,000	21,000	<5	0.04	0.14	400	1300	360	12000	0.14	0.006	0.4	0.4	<0.005	<0.005	2	0.0023	0.0006
WS5-D	4/03/2021		8.16	56,874	165	93	<5	130	35,000	21	0.5	0.6	3,000	21,000	<5	0.04	0.14	510	1700	450	13000	0.01	<0.005	0.2	0.2	0.02	<0.005	<1	0.0011	<0.0002

MAKING COMPLEX EASY

Table B
Surface Water Results: Metals

Definitions:

MWG (Marine Water Esturary Guideline) for slightly - moderately disturbed systems, RWG (Recreational Water Guidelines), ASS (Acid Sulfate Soils) Standing Advice from DWER on dewatering trigger values taken from ASS Guideline Series (2015),
- (No Guideline), --- not tested, LOR (Limit of Reporting),* value for hexavalent chromium, # duplicate value

Notes:

Guideline values have been adopted from the following guidance documentation:

- *Treatment and Management of Soil and Water in Acid Sulfate Soil Landscapes* (DER 2015b)
- *Assessment and Management of Contamianted Sites* (DER 2014)
- *Freshwater and Marine Water Quality Guidelines Chapter 3* (ANZECC/ARMCANZ 2000)

All results expressed as mg/L except for pH (pH units), ratios (unitless), Redox mV (mili Volts), turbidity (NTU) and EC (µS/cm)
a) Chemicals for which possible bioaccumulation and secondary poisoning should be considered
b) Recreational water guideline values based on drinking water guidelines NHMRC & ARMCANZ (2011) Australian Drinking Water Guidelines
Denotes less than LOR

Sample ID	Date	Trigger	Dissolved Metals & Metalloids																Total Metals	
			Aluminium	Antimony	Arsenic	Cadmium	Cobalt	Chromium	Copper	Iron	Lead	Manganese	Mercury	Molybdenum	Nickel	Selenium	Silicon	Silver	Zinc	Total Aluminium	Total Iron
		Units	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
		MWG	-	-	-	-	0.001	-	0.0013	-	0.0044	-	0.0001[a]	-	-	-	-	0.0014	-	-	1[b]
		RWG	-	0.003[b]	0.007[b]	0.002[b]	-	0.05[b]	2[b]	-	0.01[b]	0.5[b]	0.001[b]	-	0.02[b]	0.01[b]	-	-	-	-	-
		ASS	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		LOR	0.01	0.002	0.001	0.0001	0.002	0.001	0.002	0.05	0.001	0.001	0.00005	0.001	0.001	0.01	0.1	0.00005	0.005	0.01	0.01
WS1 - S	10/09/2020		<0.01	<0.001	0.002	<0.0001	<0.001	<0.001	<0.001	<0.01	<0.001	<0.005	<0.00005	0.012	<0.001	<0.001	---	0.00006	0.002	0.02	0.02
WS1 - S	7/10/2020		<0.01	<0.001	0.002	<0.0001	<0.001	<0.001	0.001	<0.01	<0.001	<0.005	<0.00005	0.012	<0.001	<0.001	<0.5	0.00005	0.003	<0.02	0.02
WS1 - S	5/11/2020		<0.02	<0.002	<0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.01	<0.00005	0.014	<0.002	<0.002	<0.5	<0.0001	0.006	0.03	0.03
WS1 - S	3/12/2020		0.03	<0.002	<0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	0.011	<0.00005	0.012	<0.002	<0.002	<1	0.0001	0.006	0.03	0.03
WS1 - S	13/01/2021		<0.02	<0.002	0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.01	<0.00005	0.013	<0.002	<0.002	0.7	<0.0001	0.005	0.04	0.08
WS1 - S	11/02/2021		0.02	<0.002	0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.01	<0.00005	0.012	<0.002	<0.002	<0.5	<0.0001	0.011	0.03	0.04
WS1 - S	4/03/2021		<0.02	<0.002	<0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.01	<0.00005	0.013	<0.002	<0.002	<1	<0.0001	0.006	0.02	<0.02
WS1 - D	10/09/2020		<0.01	<0.001	0.002	<0.0001	<0.001	<0.001	<0.001	<0.01	<0.001	<0.005	<0.00005	0.012	<0.001	<0.001	---	0.00006	0.003	0.03	0.04
WS1 - D	7/10/2020		<0.01	<0.001	0.002	<0.0001	<0.001	<0.001	<0.001	<0.01	<0.001	<0.005	<0.00005	0.012	<0.001	<0.001	<0.5	<0.00005	0.002	0.02	<0.02
WS1 - D	5/11/2020		<0.02	<0.002	<0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.01	<0.00005	0.012	<0.002	<0.002	<0.5	<0.0001	0.004	0.03	0.03
WS1 - D	3/12/2020		<0.02	<0.002	<0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.01	<0.00005	0.012	<0.002	<0.002	<1	<0.0001	0.004	0.02	0.02
WS1 - D	13/01/2021		0.07	<0.002	0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.01	<0.00005	0.013	<0.002	<0.002	0.7	0.0002	0.043	0.05	0.07
WS1 - D	11/02/2021		<0.02	<0.002	0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.01	<0.00005	0.013	<0.002	<0.002	<0.5	<0.0001	0.006	0.03	0.03
WS1 - D	4/03/2021		<0.02	<0.002	<0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.01	<0.00005	0.013	<0.002	<0.002	<1	<0.0001	0.006	<0.02	0.03
WS2-S	7/08/2020		<0.02	<0.002	<0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.01	<0.00005	0.012	<0.002	<0.002	---	<0.0001	0.003	<0.02	<0.02
WS2-S	10/09/2020		<0.01	<0.001	0.002	<0.0001	<0.001	<0.001	<0.001	<0.01	<0.001	<0.005	<0.00005	0.012	<0.001	<0.001	---	<0.00005	0.003	0.02	0.02
WS2-S	7/10/2020		<0.01	<0.001	0.001	<0.0001	<0.001	<0.001	0.002	<0.01	<0.001	<0.005	<0.00005	0.011	<0.001	<0.001	0.7	<0.00005	0.003	<0.02	<0.02
WS2-S	5/11/2020		<0.02	<0.002	<0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.01	<0.00005	0.012	<0.002	<0.002	<0.5	<0.0001	0.004	0.03	0.04
WS2-S	3/12/2020		0.04	<0.002	<0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.01	<0.00005	0.012	<0.002	<0.002	<1	0.0002	0.0099	0.07	0.02
WS2-S	13/01/2021		<0.02	<0.002	0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.01	<0.00005	0.015	<0.002	<0.002	0.9	0.0002	0.007	0.09	0.03
WS2-S	11/02/2021		<0.02	<0.002	0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.01	<0.00005	0.013	<0.002	<0.002	<0.5	<0.0001	0.006	0.03	0.03
WS2-S	4/03/2021		<0.02	<0.002	0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.01	<0.00005	0.013	<0.002	<0.002	<1	<0.0001	0.007	<0.02	<0.02

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Sample ID	Date	Trigger	Dissolved Metals & Metalloids																Total Metals	
			Aluminium	Antimony	Arsenic	Cadmium	Cobalt	Chromium	Copper	Iron	Lead	Manganese	Mercury	Molybdenum	Nickel	Selenium	Silicon	Silver	Zinc	Total Aluminium	Total Iron
		Units	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
		MWG	-	-	-	-	0.001	-	0.0013	-	0.0044	-	0.0001[a]	-	-	-	-	0.0014	-	-	1[b]
		RWG	-	0.003[b]	0.007[b]	0.002[b]	-	0.05[b]	2[b]	-	0.01[b]	0.5[b]	0.001[b]	-	0.02[b]	0.01[b]	-	-	-	-	-
		ASS	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		LOR	0.01	0.002	0.001	0.0001	0.002	0.001	0.002	0.05	0.001	0.001	0.00005	0.001	0.001	0.01	0.1	0.00005	0.005	0.01	0.01
WS2-D	7/08/2020		<0.02	<0.002	<0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.01	<0.00005	0.012	<0.002	<0.002	---	<0.0001	0.007	0.03	0.02
WS2-D	10/09/2020		<0.01	<0.001	0.002	<0.0001	<0.001	<0.001	0.001	<0.01	<0.001	<0.005	<0.00005	0.012	<0.001	<0.001	---	0.00006	0.003	0.02	0.02
WS2-D	7/10/2020		<0.01	<0.001	0.002	<0.0001	<0.001	<0.001	0.001	<0.01	<0.001	<0.005	<0.00005	0.012	<0.001	<0.001	0.7	<0.00005	0.003	<0.02	<0.02
WS2-D	5/11/2020		<0.02	<0.002	<0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.01	<0.00005	0.013	<0.002	<0.002	<0.5	<0.0001	0.007	0.03	0.04
WS2-D	3/12/2020		0.02	<0.002	<0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.01	<0.00005	0.013	<0.002	<0.002	<1	<0.0001	0.005	0.03	0.04
WS2-D	13/01/2021		<0.02	<0.002	0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.01	<0.00005	0.013	<0.002	<0.002	0.9	0.0001	0.004	<0.02	0.03
WS2-D	11/02/2021		<0.02	<0.002	0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.01	<0.00005	0.013	<0.002	<0.002	<0.5	<0.0001	0.006	0.03	0.03
WS2-D	4/03/2021		<0.02	<0.002	<0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.01	<0.00005	0.013	<0.002	<0.002	<1	<0.0001	0.006	0.03	0.02
WS3-S	10/09/2020		<0.01	<0.001	0.002	<0.0001	<0.001	<0.001	<0.001	<0.01	<0.001	<0.005	<0.00005	0.012	<0.001	<0.001	---	<0.00005	0.003	0.05	0.08
WS3-S	7/10/2020		<0.01	<0.001	0.002	<0.0001	<0.001	<0.001	<0.001	<0.01	<0.001	<0.005	<0.00005	0.013	<0.001	<0.001	<0.5	<0.00005	0.003	0.02	0.2
WS3-S	5/11/2020		0.07	<0.002	<0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.01	<0.00005	0.013	<0.002	<0.002	<0.5	<0.0001	0.034	0.06	0.05
WS3-S	3/12/2020		0.03	<0.002	<0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.01	<0.00005	0.014	<0.002	<0.002	<1	<0.0001	0.008	0.05	0.09
WS3-S	13/01/2021		<0.02	<0.002	0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.01	<0.00005	0.014	<0.002	<0.002	<0.5	0.0001	0.005	0.02	0.03
WS3-S	11/02/2021		<0.02	<0.002	0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.01	<0.00005	0.014	<0.002	<0.002	<0.5	<0.0001	0.026	0.14	0.24
WS3-S	4/03/2021		<0.02	<0.002	<0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.01	<0.00005	0.013	<0.002	<0.002	<1	<0.0001	0.004	<0.02	<0.02
WS4-S	7/08/2020		<0.02	<0.002	<0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.01	<0.00005	0.012	<0.002	<0.002	---	0.0002	0.004	0.02	0.03
WS4-S	10/09/2020		<0.01	<0.001	0.002	<0.0001	<0.001	<0.001	<0.001	<0.01	<0.001	<0.005	<0.00005	0.012	<0.001	<0.001	---	<0.00005	0.002	0.02	0.02
WS4-S	7/10/2020		<0.01	<0.001	0.001	<0.0001	<0.001	<0.001	0.001	<0.01	<0.001	<0.005	<0.00005	0.012	<0.001	<0.001	0.6	<0.00005	0.003	<0.02	<0.02
WS4-S	5/11/2020		<0.02	<0.002	<0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.01	<0.00005	0.012	<0.002	<0.002	<0.5	<0.0001	0.004	0.03	0.04
WS4-S	3/12/2020		<0.02	<0.002	<0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.01	<0.00005	0.013	<0.002	<0.002	<1	<0.0001	0.004	0.03	0.03
WS4-S	13/01/2021		<0.02	<0.002	0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.01	<0.00005	0.014	<0.002	<0.002	0.9	0.0002	0.003	0.03	0.04
WS4-S	11/02/2021		<0.02	<0.002	0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.01	<0.00005	0.014	<0.002	<0.002	<0.5	<0.0001	0.006	0.04	0.03
WS4-S	4/03/2021		<0.02	<0.002	<0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.01	<0.00005	0.013	<0.002	<0.002	<1	<0.0001	0.005	<0.02	<0.02
WS4-D	7/08/2020		<0.02	<0.002	<0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.01	<0.00005	0.012	<0.002	<0.002	---	<0.0001	0.003	<0.02	<0.02
WS4-D	10/09/2020		<0.01	<0.001	0.002	<0.0001	<0.001	<0.001	<0.001	<0.01	<0.001	<0.005	<0.00005	0.012	<0.001	<0.001	---	<0.00005	0.002	0.02	0.02
WS4-D	7/10/2020		<0.01	<0.001	0.001	<0.0001	<0.001	<0.001	0.001	<0.01	<0.001	<0.005	<0.00005	0.012	<0.001	<0.001	0.6	<0.00005	0.003	<0.02	<0.02
WS4-D	5/11/2020		<0.02	<0.002	<0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.01	<0.00005	0.015	<0.002	<0.002	<0.5	<0.0001	0.004	0.04	0.04
WS4-D	3/12/2020		0.02	<0.002	<0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.01	<0.00005	0.012	<0.002	<0.002	<1	<0.0001	0.003	0.03	0.03
WS4-D	13/01/2021		<0.02	<0.002	0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.01	<0.00005	0.014	<0.002	<0.002	0.9	0.0001	0.006	0.03	0.03
WS4-D	11/02/2021		<0.02	<0.002	0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.01	<0.00005	0.013	<0.002	<0.002	<0.5	<0.0001	0.011	0.04	0.03
WS4-D	4/03/2021		<0.02	<0.002	<0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.01	<0.00005	0.013	<0.002	<0.002	<1	<0.0001	0.008	<0.02	<0.02
WS5-S	7/10/2020		<0.01	<0.001	0.002	<0.0001	<0.001	<0.001	0.002	<0.01	<0.001	<0.005	<0.00005	0.024	<0.001	<0.001	0.8	<0.00005	0.004	<0.02	0.02
WS5-S	5/11/2020		<0.02	<0.002	<0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.01	<0.00005	0.012	<0.002	<0.002	<0.5	<0.0001	0.005	0.04	0.04
WS5-S	3/12/2020		<0.02	<0.002	<0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.01	<0.00005	0.012	<0.002	<0.002	<1	<0.0001	0.004	0.03	0.03
WS5-S	13/01/2021		<0.02	<0.002	0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.01	<0.00005	0.013	<0.002	<0.002	0.8	0.0001	0.004	0.02	0.02
WS5-S	11/02/2021		<0.02	<0.002	0.002	<0.0002	<0.002	<0.002	0.002	<0.02	<0.002	<0.01	<0.00005	0.013	0.002	<0.002	<0.5	<0.0001	0.007	0.03	0.03
WS5-S	4/03/2021		<0.02	<0.002	<0.002	<0.0002	<0.002	0.006	<0.002	0.04	<0.002	<0.01	<0.00005	0.013	<0.002	<0.002	<1	<0.0001	0.006	0.02	<0.02
WS5-D	7/10/2020		<0.01	<0.001	0.002	<0.0001	<0.001	<0.001	<0.001	<0.01	<0.001	<0.005	<0.00005	0.012	<0.001	<0.001	<0.5	<0.00005	0.002	<0.02	<0.02
WS5-D	5/11/2020		<0.02	<0.002	<0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.01	<0.00005	0.012	<0.002	<0.002	<0.5	<0.0001	0.006	0.03	0.04
WS5-D	3/12/2020		0.04	<0.002	0.002	<0.0002	<0.002	0.005	<0.002	0.04	<0.002	<0.01	<0.00005	0.013	0.022	<0.002	<1	<0.0001	0.019	0.03	0.03
WS5-D	13/01/2021		0.03	<0.002	0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.01	<0.00005	0.013	<0.002	<0.002	0.8	0.0001	0.01	0.02	0.02
WS5-D	11/02/2021		0.03	<0.002	<0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.01	<0.00005	0.013	<0.002	<0.002	<0.5	<0.0001	0.006	0.03	0.03
WS5-D	4/03/2021		<0.02	<0.002	<0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.01	<0.00005	0.013	<0.002	<0.002	<1	<0.0001	0.006	0.04	0.02

MAKING COMPLEX EASY

Table C
Surface Water Results: MTBE, BTEX and TRH

Definitions:

MWG (Marine Water Guideline) for slightly - moderately disturbed systems, RWG (Recreational Water Guidelines)
LOR (Limits of Reporting), '- denotes no guideline. --- denotes not tested.

Notes:

All values in mg/L unless specified otherwise
All guideline values are adopted from:

- *National Environment Protection (Assessment of Site Contamination) Measure 1999, Guideline on Investigation Levels for Soil and Groundwater* (NEPC 2013)
- *Assessment and Management of Contaminated Sites* (DWER 2014)
- *Health screening for petroleum hydrocarbons in soil and groundwater Part 2: Application document (CRC Care 2011)*

a) Value may not protect key test species from chronic toxicity, refer to chapter eight of ANZECC & ARMCANZ (2000)
b) Recreational water guideline values based on drinking water guidelines NHMRC & ARMCANZ (2011) Australian Drinking Water Guidelines
Table uses colour coding for data interpretation, avoid black and white reproduction.
Denotes <LOR

Sample ID	Date	Trigger	MTBE	BTEX					TRH				Polycyclic Aromatic Hydrocarbons															
			MTBE	Benzene	Toluene	Ethylbenzene	m+p-xylene	o-xylene	F1: C6-C10 minus BTEX	F2: C>10-C16 minus N	F3: C>16-C34	F4: C>34-C40	Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo(a)anthracene	Chrysene	Benzo(b,j+k)fluoranthene	Benzo(a)pyrene	Indeno(1,2,3-c,d)pyrene	Dibenzo(a,h)anthracene	Benzo(g,h,i)perylene	Total Carcinogenic PAHs	Total Positive PAHs
			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	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
		MWG	-	0.50[a]	-	-	-	-	-	-	-	-	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		RWG	-	0.001[b]	0.8[b]	0.3[b]	0.6[b]		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00001[b]	-	-	-	-	-
		LOR	0.001	0.001	0.001	0.001	0.002	0.001	0.01	0.05	0.1	0.1	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002	0.0001	0.0001	0.0001	0.0001	0.0005	0.0001
WS1 - S	10/09/2020		<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS1 - S	7/10/2020		<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS1 - S	5/11/2020		<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS1 - S	3/12/2020		<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS1 - S	13/01/2021		<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS1 - S	11/02/2021		<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS1 - S	4/03/2021		<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS1 - D	10/09/2020		<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS1 - D	7/10/2020		<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS1 - D	5/11/2020		<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS1 - D	3/12/2020		<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS1 - D	13/01/2021		<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS1 - D	11/02/2021		<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS1 - D	4/03/2021		<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS2-S	7/08/2020		<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS2-S	10/09/2020		<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS2-S	7/10/2020		<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS2-S	5/11/2020		<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS2-S	3/12/2020		<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS2-S	13/01/2021		<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS2-S	11/02/2021		<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS2-S	4/03/2021		<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS2-D	7/08/2020		<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS2-D	10/09/2020		<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS2-D	7/10/2020		<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS2-D	5/11/2020		<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS2-D	3/12/2020		<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS2-D	13/01/2021		<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS2-D	11/02/2021		<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS2-D	4/03/2021		<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS3-S	10/09/2020		<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS3-S	7/10/2020		<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS3-S	5/11/2020		<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS3-S	3/12/2020		<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS3-S	13/01/2021		<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS3-S	11/02/2021		<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS3-S	4/03/2021		<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS4-S	7/08/2020		<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS4-S	10/09/2020		<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS4-S	7/10/2020		<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS4-S	5/11/2020		<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS4-S	3/12/2020		<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS4-S	13/01/2021		<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS4-S	11/02/2021		<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS4-S	4/03/2021		<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS4-D	7/08/2020		<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS4-D	10/09/2020		<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS4-D	7/10/2020		<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS4-D	5/11/2020		<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS4-D	3/12/2020		<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS4-D	13/01/2021		<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS4-D	11/02/2021		<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS4-D	4/03/2021		<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS5-S	7/10/2020		<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS5-S	5/11/2020		<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS5-S	3/12/2020		<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS5-S	13/01/2021		<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS5-S	11/02/2021		<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS5-S	4/03/2021		<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS5-D	7/10/2020		<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS5-D	5/11/2020		<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS5-D	3/12/2020		<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS5-D	13/01/2021		<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS5-D	11/02/2021		<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WS5-D	4/03/2021		<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001

Table D
Surface Water Results - OC/OP Pesticides

Definitions:
MWG (Marine Water Guideline) for slightly - moderately disturbed systems, RWG (Recreational Water Guidelines)
- denotes no guideline. --- denotes not tested.

Notes:
All values in mg/L unless specified otherwise
All guideline values are adopted from:
- *National Environment Protection (Assessment of Site Contamination) Measure 1999, Guideline on Investigation Levels for Soil and Groundwater* (NEPC 2013)
- *Assessment and Management of Contaminated Sites* (DWER 2014)

a) Chemicals for which possible bioaccumulation and secondary poisoning effects should be considered. Refer to section 8.3.3.4 and 8.3.5.7 of ANZECC & ARMCANZ (2000)
b) Recreational water guideline values based on drinking water guidelines NHMRC & ARMCANZ (2011) Australian Drinking Water Guidelines
Table uses colour coding for data interpretation, avoid black and white reproduction.
denotes <LOR

Sample ID	Date	Trigger	Organochlorine Pesticides																				
			Aldrin	Aldrin + Dieldrin	a-BHC	b-BHC	d-BHC	g-BHC (Lindane)	a-Chlordane	g-Chlordane	DDD	DDE	DDT	DDD + DDE + DDT	Dieldrin	a-Endosulfan	b-Endosulfan	Endosulfan sulphate	Endrin	Heptachlor	Heptachlor epoxide	Hexachlorobenzene	Methoxychlor
			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
		MWG	-	-	-	-	-	-	-	-	-	-	-	-	-	0.000005[a]		-	0.000004[a]	-	-	-	-
		RWG	-	-	-	-	-	0.01[b]	0.002[b]		-	-	0.009[b]	-	-	0.02[b]		-	-	-	0.0003[b]	-	-
		LOR	0.00001	0.00002	0.00005	0.00005	0.00005	0.00005	0.00001	0.00001	0.00001	0.00001	0.000006	0.00003	0.00001	0.00002	0.00002	0.00002	0.00001	0.00001	0.00001	0.00001	0.00002
WS1 - S	10/09/2020		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS1 - S	7/10/2020		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS1 - S	5/11/2020		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS1 - S	3/12/2020		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS1 - S	13/01/2021		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS1 - S	11/02/2021		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS1 - S	4/03/2021		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS1 - D	10/09/2020		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS1 - D	7/10/2020		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS1 - D	5/11/2020		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS1 - D	3/12/2020		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS1 - D	13/01/2021		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS1 - D	11/02/2021		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS1 - D	4/03/2021		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS2-S	7/08/2020		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS2-S	10/09/2020		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS2-S	7/10/2020		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS2-S	5/11/2020		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS2-S	3/12/2020		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS2-S	13/01/2021		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS2-S	11/02/2021		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS2-S	4/03/2021		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS2-D	7/08/2020		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS2-D	10/09/2020		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS2-D	7/10/2020		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS2-D	5/11/2020		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS2-D	3/12/2020		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS2-D	13/01/2021		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS2-D	11/02/2021		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS2-D	4/03/2021		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS3-S	10/09/2020		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS3-S	7/10/2020		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS3-S	5/11/2020		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS3-S	3/12/2020		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS3-S	13/01/2021		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS3-S	11/02/2021		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS3-S	4/03/2021		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS4-S	7/08/2020		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS4-S	10/09/2020		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS4-S	7/10/2020		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS4-S	5/11/2020		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS4-S	3/12/2020		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS4-S	13/01/2021		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS4-S	11/02/2021		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS4-S	4/03/2021		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS4-D	7/08/2020		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS4-D	10/09/2020		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS4-D	7/10/2020		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS4-D	5/11/2020		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS4-D	3/12/2020		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS4-D	13/01/2021		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS4-D	11/02/2021		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS4-D	4/03/2021		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS5-S	7/10/2020		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS5-S	5/11/2020		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS5-S	3/12/2020		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS5-S	13/01/2021		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS5-S	11/02/2021		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS5-S	4/03/2021		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS5-D	7/10/2020		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS5-D	5/11/2020		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS5-D	3/12/2020		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS5-D	13/01/2021		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS5-D	11/02/2021		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WS5-D	4/03/2021		<0.00001	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002

Table E
Surface Water Results: Per- and Poly-Fluoroalkyl Substances

Definitions:
LOR (Limits of Reporting), MWG (Marine Water Guideline) -99 (99% species protection level) -95 (95% species protection level), RWG (Recreational Water Guidelines)
- denotes no guideline. --- denotes not tested.

Notes:
All values in µg/L unless specified otherwise
Table uses colour coding for data interpretation, avoid black and white reproduction.
All guideline values are adopted from:
- PFAS National Environmental Managament Plan Version 2.0 (HEPA 2020)
Denotes <LOR

			Perfluoroalkyl Sulfonic Acids						Perfluoroalkyl Carboxylic Acids										(n:2) Fluorotelomer Sulfonic Acids				Perfluoroalkyl Sulfonamides							PFAS Sums		
Sample ID	Date	Trigger	Perfluorobutanesulfonic acid	Perfluoropentanesulfonic acid	Perfluorohexanesulfonic acid	Perfluoroheptanesulfonic acid	Perfluorooctanesulfonate PFOS	Perfluorodecanesulfonic acid	Perfluorobutanoic acid	Perfluoropentanoic acid	Perfluorohexanoic acid	Perfluoroheptanoic acid	Perfluorooctanoic acid PFOA	Perfluorononanoic acid	Perfluorodecanoic acid	Perfluoroundecanoic acid	Perfluorododecanoic acid	Perfluorotridecanoic acid	Perfluorotetradecanoic acid	4:2 FTSA	6:2 FTSA	8:2 FTSA	10:2 FTSA	Perfluorooctane sulfonamide	N-Methyl perfluorooctane sulfonamide	N-Ethyl perfluorooctanesulfon -amide	N-Me perfluorooctanesulfonamid- oethanol	N-Et perfluorooctanesulfonamid-oethanol	MePerfluorooctanesulf- amid oacetic acid	EtPerfluorooctanesulf- amid oacetic acid	Total Positive PFHxS & PFOS	Total Positive PFOS & PFOA	Total Positive PFAS
			µg/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	µg/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	µg/L	µg/L	µg/L	µg/L
		MWG-99	-	-	-	-	0.00023	-	-	-	-	-	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		MWG-95	-	-	-	-	0.13	-	-	-	-	-	220	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		RWG	-	-	2	-	2	-	-	-	-	-	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-
		LOR	0.0004	0.001	0.0002	0.001	0.0002	0.002	0.002	0.002	0.0004	0.0004	0.0002	0.001	0.002	0.002	0.005	0.01	0.05	0.001	0.0004	0.0004	0.002	0.01	0.005	0.01	0.005	0.05	0.002	0.002	0.0002	0.0002	0.0002
WS1 - S	10/09/2020		0.0004	<0.001	0.0020	<0.001	0.0030	<0.002	<0.002	<0.002	0.001	0.0004	0.0006	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.005	0.0036	0.0074
WS1 - S	7/10/2020		<0.0004	<0.001	0.0020	<0.001	0.0021	<0.002	<0.002	<0.002	0.0008	<0.0004	0.0005	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.0041	0.0026	0.0054
WS1 - S	5/11/2020		0.0004	<0.001	0.0020	<0.001	0.0025	<0.002	<0.002	<0.002	0.001	0.0005	0.0007	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.0045	0.0032	0.0071
WS1 - S	3/12/2020		<0.0004	<0.001	0.0020	<0.001	0.0024	<0.002	<0.002	<0.002	0.0009	0.002	0.0006	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.0044	0.003	0.0079
WS1 - S	13/01/2021		<0.0004	<0.001	0.0010	<0.001	0.0020	<0.002	<0.002	<0.002	0.0008	0.0004	0.0006	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.003	0.0026	0.0048
WS1 - S	11/02/2021		0.0007	<0.001	0.0020	<0.001	0.0023	<0.002	<0.002	<0.002	0.0009	0.0006	0.0007	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.0043	0.003	0.0072
WS1 - S	4/03/2021		<0.0004	<0.001	0.0002	<0.001	0.0004	<0.002	<0.002	<0.002	<0.0004	<0.0004	<0.0002	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.0006	0.0004	0.0006
WS1 - D	10/09/2020		<0.0004	<0.001	0.0020	<0.001	0.0026	<0.002	<0.002	<0.002	0.001	0.0004	0.0006	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.0046	0.0032	0.0066
WS1 - D	7/10/2020		<0.0004	<0.001	0.0010	<0.001	0.0020	<0.002	<0.002	<0.002	0.0007	<0.0004	0.0004	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.003	0.0024	0.0041
WS1 - D	5/11/2020		<0.0004	<0.001	0.0020	<0.001	0.0028	<0.002	<0.002	<0.002	0.001	0.0005	0.0007	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.0048	0.0035	0.007
WS1 - D	3/12/2020		0.0004	<0.001	0.0020	<0.001	0.0026	<0.002	<0.002	<0.002	0.0009	0.002	0.0006	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.0046	0.0032	0.0085
WS1 - D	13/01/2021		<0.0004	<0.001	0.0010	<0.001	0.0010	<0.002	<0.002	<0.002	0.001	0.0007	0.0008	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.002	0.002	0.0045
WS1 - D	11/02/2021		0.0005	<0.001	0.0020	<0.001	0.0023	<0.002	<0.002	<0.002	0.0009	0.0006	0.0007	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.0043	0.003	0.007
WS1 - D	4/03/2021		0.0004	<0.001	0.0003	<0.001	0.0006	<0.002	<0.002	<0.002	<0.0004	<0.0004	0.0002	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.0009	0.0008	0.002
WS2-S	7/08/2020		<0.0004	<0.001	0.0004	<0.001	0.0006	<0.002	<0.002	<0.002	<0.0004	<0.0004	0.0002	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.001	0.0008	0.001
WS2-S	10/09/2020		<0.0004	<0.001	0.0020	<0.001	0.0024	<0.002	<0.002	<0.002	0.001	0.0004	0.0005	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.0044	0.0029	0.0063
WS2-S	7/10/2020		0.0006	<0.001	0.0027	<0.001	0.0038	<0.002	<0.002	<0.002	0.001	0.0006	0.0008	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.0065	0.0046	0.0095
WS2-S	5/11/2020		0.0006	<0.001	0.0022	<0.001	0.0039	<0.002	<0.002	<0.002	0.002	0.0007	0.0009	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.0061	0.0048	0.01
WS2-S	3/12/2020		0.0005	<0.001	0.0021	<0.001	0.0045	<0.002	<0.002	<0.002	0.001	0.002	0.0008	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.0066	0.0053	0.011
WS2-S	13/01/2021		<0.0004	<0.001	0.0020	<0.001	0.0027	<0.002	<0.002	<0.002	0.001	0.0006	0.0008	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.0047	0.0035	0.0071
WS2-S	11/02/2021		0.0007	<0.001	0.0023	<0.001	0.0031	<0.002	<0.002	<0.002	0.001	0.0007	0.0008	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.0054	0.0039	0.0086
WS2-S	4/03/2021		<0.0004	<0.001	0.0005	<0.001	0.0007	<0.002	<0.002	<0.002	<0.0004	<0.0004	<0.0002	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.001	0.0007	0.001
WS2-D	7/08/2020		<0.0004	<0.001	0.0005	<0.001	0.0005	<0.002	<0.002	<0.002	<0.0004	<0.0004	0.0002	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.001	0.0007	0.001
WS2-D	10/09/2020		<0.0004	<0.001	0.0020	<0.001	0.0022	<0.002	<0.002	<0.002	0.001	0.0005	0.0006	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.0042	0.0028	0.0063
WS2-D	7/10/2020		0.0004	<0.001	0.0024	<0.001	0.0035	<0.002	<0.002	<0.002	0.001	0.0006	0.0008	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.0059	0.0043	0.0087
WS2-D	5/11/2020		0.0006	<0.001	0.0024	<0.001	0.0035	<0.002	<0.002	<0.002	0.002	0.0007	0.0009	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.0059	0.0044	0.01
WS2-D	3/12/2020		0.0005	<0.001	0.0022	<0.001	0.0039	<0.002	<0.002	<0.002	0.001	0.002	0.0009	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.0061	0.0048	0.01
WS2-D	13/01/2021		<0.0004	<0.001	0.0020	<0.001	0.0028	<0.002	<0.002	<0.002	0.001	0.0006	0.0008	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.0048	0.0036	0.0072
WS2-D	11/02/2021		0.0007	<0.001	0.0023	<0.001	0.0031	<0.002	<0.002	<0.002	0.001	0.0007	0.0009	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.0054	0.004	0.0087
WS2-D	4/03/2021		<0.0004	<0.001	0.0004	<0.001	0.0007	<0.002	<0.002	<0.002	<0.0004	<0.0004	0.0002	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.001	0.0009	0.001
WS3-S	10/09/2020		0.0005	<0.001	0.0030	<0.001	0.0044	<0.002	<0.002	<0.002	0.001	0.0004	0.0006	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.0074	0.005	0.0099
WS3-S	7/10/2020		<0.0004	<0.001	0.0010	<0.001	0.0021	<0.002	<0.002	<0.002	0.0007	<0.0004	0.0005	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.0048#	0.0026	0.0061#
WS3-S	5/11/2020		0.0005	<0.001	0.0020	<0.001	0.0047	<0.002	<0.002	<0.002	0.001	0.0005	0.0007	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.0067	0.0054	0.0094
WS3-S	3/12/2020		0.0007	<0.001	0.0028	<0.001	0.0084	<0.002	<0.002	<0.002	0.001	0.004	0.0008	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.011	0.0092	0.018
WS3-S	13/01/2021		<0.0004	<0.001	0.0008	<0.001	0.0010	<0.002	<0.002	<0.002	0.0005	<0.0004	0.0005	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.002	0.002	0.0028
WS3-S	11/02/2021		0.0009	<0.001	0.0020	<0.001	0.0024	<0.002	<0.002	<0.002	0.0009	0.0006	0.0005	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.0044	0.0029	0.0073
WS3-S	4/03/2021		<0.0004	<0.001	0.0002	<0.001	0.0004	<0.002	<0.002	<0.002	<0.0004	<0.0004	<0.0002	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.0006	0.0004	0.0006
WS4-S	7/08/2020		<0.0004	<0.001	0.0004	<0.001	0.0006	<0.002	<0.002	<0.002	<0.0004	<0.0004	0.0002	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.001	0.0008	0.001
WS4-S	10/09/2020		<0.0004	<0.001	0.0020	<0.001	0.0025	<0.002	<0.002	<0.002	0.001	0.0004	0.0006	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.0045	0.0031	0.0065
WS4-S	7/10/2020		0.0005	<0.001	0.0025	<0.001	0.0037	<0.002	<0.002	<0.002	0.001	0.0006	0.0008	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.0062	0.0045	0.0091
WS4-S	5/11/2020		0.0005	<0.001	0.0022	<0.001	0.0035	<0.002	<0.002	<0.002	0.002	0.0007	0.0009	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.0057	0.0044	0.0098
WS4-S	3/12/2020		0.0005	<0.001	0.0024	<0.001	0.0042	<0.002	<0.002	<0.002	0.001	0.003	0.0008	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.0066	0.005	0.012
WS4-S	13/01/2021		0.0005	<0.001	0.0020	<0.001	0.0026	<0.002	<0.002	<0.002	0.001	0.0006	0.0007	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.0046	0.0033	0.0074
WS4-S	11/02/2021		0.0006	<0.001	0.0021	<0.001	0.0024	<0.002	<0.002	<0.002	0.001	0.0008	0.0007	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.0045	0.0031	0.0076
WS4-S	4/03/2021		<0.0004	<0.001	0.0005	<0.001	0.0008	<0.002	<0.002	<0.002	<0.0004	<0.0004	<0.0002	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.001	0.0008	0.001
WS4-D	7/08/2020		<0.0004	<0.001	0.0003	<0.001	0.0003	<0.002	<0.002	<0.002	<0.0004	<0.0004	<0.0002	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.0006	0.0003	0.0006
WS4-D	10/09/2020		<0.0004	<0.001	0.0020	<0.001	0.0025	<0.002	<0.002	<0.002	0.001	0.0004	0.0006	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.0045	0.0031	0.0065
WS4-D	7/10/2020		0.0004	<0.001	0.0026	<0.001	0.0034	<0.002	<0.002	<0.002	0.001	0.0005	0.0008	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.006	0.0042	0.0087
WS4-D	5/11/2020		0.0005	<0.001	0.0022	<0.001	0.0033	<0.002	<0.002	<0.002	0.002	0.0006	0.0009	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.0055	0.0042	0.0095
WS4-D	3/12/2020		0.0005	<0.001	0.0022	<0.001	0.0038	<0.002	<0.002	<0.002	0.001	0.002	0.0009	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.006	0.0047	0.01
WS4-D	13/01/2021		0.0004	<0.001	0.0020	<0.001	0.0026	<0.002	<0.002	<0.002	0.001	0.0006	0.0007	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.0046	0.0033	0.0073
WS4-D	11/02/2021		0.0007	<0.001	0.0021	<0.001	0.0025	<0.002	<0.002	<0.002	0.001	0.0007	0.0009	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.0046	0.0034	0.0079
WS4-D	4/03/2021		<0.0004	<0.001	0.0004	<0.001	0.0008	<0.002	<0.002	<0.002	<0.0004	<0.0004	0.0002	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.001	0.001	0.001
WS5-S	7/10/2020		0.0004	<0.001	0.0025	<0.001	0.0035	<0.002	<0.002	<0.002	0.001	0.0005	0.0007	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.006	0.0042	0.0086
WS5-S	5/11/2020		0.0006	<0.001	0.0021	<0.001	0.0029	<0.002	<0.002	<0.002	0.002	0.0007	0.0008	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.005	0.0037	0.0091
WS5-S	3/12/2020		0.0005	<0.001	0.0021	<0.001	0.0034	<0.002	<0.002	<0.002	0.001	0.002	0.0007	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.0055	0.0041	0.0097
WS5-S	13/01/2021		<0.0004	<0.001	0.0010	<0.001	0.0021	<0.002	<0.002	<0.002	0.0009	0.0005	0.0006	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.0031	0.0027	0.0051
WS5-S	11/02/2021		0.0005	<0.001	0.0020	<0.001	0.0010	<0.002	<0.002	<0.002	0.0009	0.0005	0.0006	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.003	0.002	0.0055
WS5-S	4/03/2021		<0.0004	<0.001	0.0005	<0.001	0.0007	<0.002	<0.002	<0.002	<0.0004	<0.0004	0.0002	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.001	0.0009	0.001

Table E
Surface Water Results: Per- and Poly-Fluoroalkyl Substances

Definitions:
LOR (Limits of Reporting), MWG (Marine Water Guideline) -99 (99% species protection level) -95 (95% species protection level), RWG (Recreational Water Guidelines)
- denotes no guideline. --- denotes not tested.

Notes:
All values in µg/L unless specified otherwise
Table uses colour coding for data interpretation, avoid black and white reproduction.
All guideline values are adopted from:
- PFAS National Environmental Managament Plan Version 2.0 (HEPA 2020)
Denotes <LOR

			Perfluoroalkyl Sulfonic Acids						Perfluoroalkyl Carboxylic Acids										(n:2) Fluorotelomer Sulfonic Acids				Perfluoroalkyl Sulfonamides							PFAS Sums		
Sample ID	Date	Trigger	Perfluorobutanesulfonic acid	Perfluoropentanesulfonic acid	Perfluorohexanesulfonic acid	Perfluoroheptanesulfonic acid	Perfluorooctanesulfonate PFOS	Perfluorodecanesulfonic acid	Perfluorobutanoic acid	Perfluoropentanoic acid	Perfluorohexanoic acid	Perfluoroheptanoic acid	Perfluorooctanoic acid PFOA	Perfluorononanoic acid	Perfluorodecanoic acid	Perfluoroundecanoic acid	Perfluorododecanoic acid	Perfluorotridecanoic acid	Perfluorotetradecanoic acid	4:2 FTSA	6:2 FTSA	8:2 FTSA	10:2 FTSA	Perfluorooctane sulfonamide	N-Methyl perfluorooctane sulfonamide	N-Ethyl perfluorooctanesulfon -amide	N-Me perfluorooctanesulfonamid- oethanol	N-Et perfluorooctanesulfonamid-oethanol	MePerfluorooctanesulf- amid oacetic acid	EtPerfluorooctanesulf- amid oacetic acid	Total Positive PFHxS & PFOS	Total Positive PFOS & PFOA	Total Positive PFAS
			µg/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	µg/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	µg/L	µg/L	µg/L	µg/L
		MWG-99	-	-	-	-	0.00023	-	-	-	-	-	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		MWG-95	-	-	-	-	0.13	-	-	-	-	-	220	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		RWG	-	-	2	-	2	-	-	-	-	-	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-
		LOR	0.0004	0.001	0.0002	0.001	0.0002	0.002	0.002	0.002	0.0004	0.0004	0.0002	0.001	0.002	0.002	0.005	0.01	0.05	0.001	0.0004	0.0004	0.002	0.01	0.005	0.01	0.005	0.05	0.002	0.002	0.0002	0.0002	0.0002
WS5-D	7/10/2020		<0.0004	<0.001	0.0020	<0.001	0.0022	<0.002	<0.002	<0.002	0.0008	<0.0004	0.0005	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.0042	0.0027	0.0055
WS5-D	5/11/2020		0.0006	<0.001	0.0023	<0.001	0.0033	<0.002	<0.002	<0.002	0.002	0.0007	0.0009	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.0056	0.0042	0.0098
WS5-D	3/12/2020		0.0005	<0.001	0.0020	<0.001	0.0047	<0.002	<0.002	<0.002	0.001	0.003	0.0007	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.0067	0.0054	0.012
WS5-D	13/01/2021		<0.0004	<0.001	0.0020	<0.001	0.0022	<0.002	<0.002	<0.002	0.001	0.0005	0.0006	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.0042	0.0028	0.0063
WS5-D	11/02/2021		0.0007	<0.001	0.0020	<0.001	0.0010	<0.002	<0.002	<0.002	0.0009	0.0006	0.0007	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.003	0.002	0.0059
WS5-D	4/03/2021		<0.0004	<0.001	0.0004	<0.001	0.0007	<0.002	<0.002	<0.002	<0.0004	<0.0004	0.0002	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.001	0.0009	0.001

Table F
Surface Water QAQC Results (RPD Assessment): ASS, Cations, Nutrients and Miscellaneous

Definitions:

LOR 1° (Limit of Reporting, Primary Laboratory). --- denotes not tested. # denoted not calculated.

Notes:

All values in mg/L unless specified otherwise

Table uses colour coding for data interpretation, avoid black and white reproduction.

	denotes <LOR (primary laboratory)
	denotes <5x LOR (primary laboratory)
	denotes exceedance of acceptance criteria (30%) where samples <5x LOR
	denotes exceedance of acceptance criteria (30%) where sample(s) >5x LOR

Sample ID	Sample Type	Date	Trigger	Acid Sulfate Soil Parameters									Cations				Nutrients						Miscellaneous		
				Total Acidity (CaCO3)	Total Alkalinity (CaCO3)	TDS	TSS	Turbidity	Sulfide	Sulfate	Chloride	Fluoride	Calcium	Magnesium	Potassium	Sodium	Total P	Reactive P	Total N	TKN	NH_3-N	NO_x-N	Dissolved Organic Carbon (DOC)	Chlorophyll "a"	Phaeophytin "a"
		Units		mg/L	mg/L	mg/L	mg/L	NTU	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
		LOR		1	1	10	5	0.1	0.1	1	1	0.1	1	1	1	1	0.01	0.005	0.1	0.1	0.005	0.005	1	0.0001	0.0002
WS2-S	Primary	7/08/2020		6	120	39,000	9	0.6	0.9	2800	20,000	---	420	1300	370	12000	<0.05	<0.005	0.1	0.1	0.007	<0.005	<1	0.0004	0.0005
WZ1	Duplicate			7	120	39,000	6	0.6	0.8	2800	20,000	---	420	1300	370	11000	<0.05	<0.005	0.1	0.1	0.009	<0.005	<1	0.0005	0.0003
RPD %				15	0	0	**40**	0	12	0	0	#	0	0	0	9	0	0	0	2	25	0	0	22	**50**
WS1-S	Primary	10/09/2020		9	120	36,000	<5	0.5	<0.5	2400	18,000	---	390	1200	360	11000	0.03	0.006	0.2	0.19	0.009	<0.005	2	0.0012	0.0006
WZ1	Duplicate			9	120	36,000	6	0.7	<0.5	2300	18,000	---	400	1300	360	11000	0.03	<0.005	0.2	0.19	0.008	<0.005	2	0.0012	0.0005
RPD %				0	0	0	18	**33**	0	4	0	#	3	8	0	0	0	18	0	1	12	0	0	0	18
WS3-S	Primary	7/10/2020		7	120	37,000	8	1.6	0.8	2400	18,000	<5	420	1300	400	11000	0.05	0.006	0.2	0.18	0.018	0.043	1	0.0019	0.0009
WZ1	Duplicate			7	130	37,000	33	0.9	0.7	2400	18,000	<5	410	1300	390	11000	0.05	0.005	0.1	0.10	<0.005	<0.005	1	0.0011	0.0008
RPD %				0	8	0	**122**	**56**	13	0	0	0	2	0	3	0	0	18	**67**	**63**	**113**	**158**	0	**53**	12
WS2-D	Primary	5/11/2020		6	130	36,000	<5	0.8	<0.5	2700	19,000	<5	330	1100	290	9700	0.02	0.006	0.2	0.19	0.006	0.01	3	0.0016	0.0007
WZ1	Duplicate			7	130	36,000	<5	1	<0.5	2700	19,000	<5	360	1200	320	11000	0.02	0.006	0.2	0.19	0.006	0.01	2	0.0015	0.0006
RPD %				15	0	0	0	22	0	0	0	0	9	9	10	13	0	0	0	0	0	0	**40**	6	15
WS2-S	Primary	3/12/2020		---	130	36,000	<5	0.7	0.6	2700	19,000	<5	400	1300	380	12000	0.02	<0.005	0.8	0.79	<0.005	0.01	3	0.0022	0.0006
WZ1	Duplicate			---	130	36,000	<5	0.9	0.7	2700	19,000	<5	400	1300	380	12000	0.02	<0.005	0.7	0.69	<0.005	0.011	3	0.0018	0.0006
RPD %				---	0	0	0	25	15	0	0	0	0	0	0	0	0	0	13	14	0	10	0	20	0
WS2-S	Primary	13/01/2021		<5	130	38,000	<5	0.5	0.5	2900	21,000	1.3	390	1200	400	11000	0.02	0.005	0.2	0.2	0.006	0.006	1	0.0012	0.0006
WZ1	Duplicate			<5	130	39,000	<5	0.5	0.5	2800	21,000	1.3	390	1200	390	11000	0.03	0.006	0.2	0.2	0.007	<0.005	2	0.0011	0.0005
RPD %				0	0	3	0	0	0	4	0	0	0	0	3	0	**40**	0	0	0	0	18	**67**	9	18
WS3-S	Primary	11/02/2021		<5	130	37,000	38	1.5	<0.5	3000	21,000	<5	370	1200	340	11000	0.03	0.006	0.5	0.5	<0.005	<0.005	3	0.0026	0.001
WZ1	Duplicate			<5	130	37,000	79	2	<0.5	3000	21,000	<5	390	1200	350	12000	0.1	0.006	0.5	0.50	<0.005	<0.005	2	0.003	0.0021
RPD %				0	0	0	0	29	0	0	0	0	5	0	3	9	**108**	0	0	0	0	0	**40**	14	**71**
WS2-D	Primary	4/03/2021		<5	130	34,000	<5	0.7	<0.5	3000	21,000	<5	430	1400	400	12000	0.01	0.006	0.2	0.179	0.021	<0.005	<1	0.0008	0.0003
WZ1	Duplicate			<5	130	38,000	22	0.5	0.9	3000	21,000	<5	470	1500	430	13000	0.01	<0.005	0.2	0.177	0.023	<0.005	<1	0.0007	0.0004
RPD %				0	0	11	**126**	**33**	**57**	0	0	0	9	7	7	8	0	18	0	1	9	0	0	13	29

MAKING COMPLEX EASY

Table G
Surface Water QAQC Results (RPD Assessment): Metals

Definitions:

LOR 1° (Limit of Reporting, Primary Laboratory). --- denotes not tested. # denoted not calculated.

Notes:

All values in mg/L unless specified otherwise

Table uses colour coding for data interpretation, avoid black and white reproduction.

denotes <LOR (primary laboratory)

denotes <5x LOR (primary laboratory)

denotes exceedance of acceptance criteria (30%) where samples <5x LOR

denotes exceedance of acceptance criteria (30%) where sample(s) >5x LOR

Sample ID	Sample Type	Date	Trigger	Dissolved Metals & Metalloids																Total Metals	
				Aluminium	Antimony	Arsenic	Cadmium	Cobalt	Chromium	Copper	Iron	Lead	Mercury	Manganese	Molybdenum	Nickel	Selenium	Silicon	Silver	Zinc	Total Aluminium	Total Iron
			Units	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
			LOR	0.01	0.001	0.001	0.0001	0.002	0.001	0.02	0.05	0.001	0.00005	0.001	0.001	0.001	0.01	0.0002	0.00005	0.001	0.01	0.02
WS2-S	Primary	7/08/2020		<0.02	<0.002	<0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.00005	<0.01	0.012	<0.002	<0.002	---	<0.0001	0.003	<0.02	<0.02
WZ1	Duplicate			<0.02	<0.002	<0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.00005	<0.01	0.013	<0.002	<0.002	---	<0.0001	0.004	0.03	0.02
RPD %				0	0	0	0	0	0	0	0	0	0	0	8	0	0	#	0	29	**40**	0
WS1-S	Primary	10/09/2020		<0.01	<0.001	0.002	<0.0001	<0.001	<0.001	<0.001	<0.01	<0.001	<0.00005	<0.005	0.012	<0.001	<0.001	---	0.00006	0.002	0.02	0.02
WZ1	Duplicate			<0.01	<0.001	0.002	<0.0001	<0.001	<0.001	<0.001	<0.01	<0.001	<0.00005	<0.005	0.013	<0.001	<0.001	---	<0.00005	0.003	0.02	0.03
RPD %				0	0	0	0	0	0	0	0	0	0	0	8	0	0	#	18	**40**	0	**40**
WS3-S	Primary	7/10/2020		<0.01	<0.001	0.002	<0.0001	<0.001	<0.001	<0.001	<0.01	<0.001	<0.00005	<0.005	0.013	<0.001	<0.001	<5	<0.00005	0.003	0.02	0.04
WZ1	Duplicate			<0.01	<0.001	0.002	<0.0001	<0.001	<0.001	0.001	<0.01	<0.001	<0.00005	<0.005	0.012	<0.001	<0.001	<5	<0.00005	0.004	<0.02	0.2
RPD %				0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0	29	0	**133**
WS2-D	Primary	5/11/2020		<0.02	<0.002	<0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.00005	<0.01	0.013	<0.002	<0.002	<0.5	<0.0001	0.007	0.03	0.04
WZ1	Duplicate			<0.02	<0.002	<0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.00005	<0.01	0.013	<0.002	<0.002	<0.5	<0.0001	0.005	0.03	0.04
RPD %				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**33**	0	0
WS2-S	Primary	3/12/2020		0.04	<0.002	<0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.00005	<0.01	0.012	<0.002	<0.002	<1	0.0002	0.0099	0.07	0.02
WZ1	Duplicate			<0.02	<0.002	<0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.00005	<0.01	0.013	<0.002	<0.002	<1	<0.0001	0.005	<0.02	0.02
RPD %				**67**	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0	**66**	**111**	0
WS3-S	Primary	13/01/2021		<0.02	<0.002	0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.00005	<0.01	0.014	<0.002	<0.002	<0.5	0.0001	0.005	0.02	0.03
WZ1	Duplicate			<0.02	<0.002	0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.00005	<0.01	0.016	<0.002	<0.002	0.5	<0.0001	0.005	<0.02	0.02
RPD %				0	0	0	0	0	0	0	0	0	0	0	13	0	0	0	0	0	0	**40**
WS3-S	Primary	11/02/2021		<0.02	<0.002	0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.01	<0.00005	0.014	<0.002	<0.002	<0.5	<0.0001	0.026	0.14	0.24
WZ1	Duplicate			<0.02	<0.002	0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.01	<0.00005	0.013	<0.002	<0.002	<0.5	<0.0001	0.008	0.19	0.29
RPD %				0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	**106**	30	19
WS2-D	Primary	4/03/2021		<0.02	<0.002	<0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.00005	<0.01	0.013	<0.002	<0.002	<1	<0.0001	0.006	0.03	0.02
WZ1	Duplicate			<0.02	<0.002	0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.00005	<0.01	0.013	<0.002	<0.002	<1	<0.0001	0.005	0.05	0.02
RPD %				**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18	**50**	0

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Table H
Surface Water QAQC Results (RPD Assessment): MTBE, BTEX and TRH

Definitions:

LOR 1° (Limit of Reporting, Primary Laboratory). --- denotes not tested. # denoted not calculated.

Notes:

All values in mg/L unless specified otherwise

Table uses colour coding for data interpretation, avoid black and white reproduction.

	denotes <LOR (primary laboratory)
	denotes <5x LOR (primary laboratory)
	denotes exceedance of acceptance criteria (30%) where samples <5x LOR
	denotes exceedance of acceptance criteria (30%) where sample(s) >5x LOR

Sample ID	Sample type	Date	Trigger	MTBE	BTEX					TRH				Polycyclic Aromatic Hydrocarbons														
				MTBE	Benzene	Toluene	Ethylbenzene	m+p-xylene	o-xylene	F1: C6-C10 minus BTEX	F2: C>10-C16 minus N	F3: C>16-C34	F4: C>34-C40	Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo(a)anthracene	Chrysene	Benzo(b,j+k)fluoranthene	Benzo(a)pyrene	Indeno(1,2,3-c,d)pyrene	Dibenzo(a,h)anthracene	Benzo(g,h,i)perylene	Total Carcinogenic PAHs	Total Positive PAHs
				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	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
			LOR	0.001	0.001	0.001	0.001	0.002	0.001	0.01	0.05	0.1	0.1	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002	0.0001	0.0001	0.0001	0.0001	0.0005	0.0001
WS2-S	Primary	7/08/2020		<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WZ1	Duplicate			<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
RPD %				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WS1-S	Primary	10/09/2020		<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WZ1	Duplicate			<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
RPD %				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WS3-S	Primary	7/10/2020		<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WZ1	Duplicate			<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
RPD %				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WS2-D	Primary	5/11/2020		<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WZ1	Duplicate			<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
RPD %				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WS2-S	Primary	3/12/2020		<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WZ1	Duplicate			<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
RPD %				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WS3-S	Primary	13/01/2021		<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WZ1	Duplicate			<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
RPD %				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WS3-S	Primary	11/02/2021		<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WZ1	Duplicate			<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
RPD %				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WS2-D	Primary	4/03/2021		<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WZ1	Duplicate			<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
RPD %				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table I
Surface Water QAQC Results (RPD Assessment): OC/OP Pesticides

Definitions:

LOR 1° (Limit of Reporting, Primary Laboratory). --- denotes not tested. # denoted not calculated.

Notes:

All values in mg/L unless specified otherwise

Table uses colour coding for data interpretation, avoid black and white reproduction.

denotes <LOR (primary laboratory)

denotes <5x LOR (primary laboratory)

denotes exceedance of acceptance criteria (30%) where samples <5x LOR

denotes exceedance of acceptance criteria (30%) where sample(s) >5x LOR

Sample ID	Sample type	Date	Trigger	Organochlorine Pesticides																			
				Aldrin	a-BHC	b-BHC	d-BHC	g-BHC (Lindane)	a-Chlordane	g-Chlordane	DDD	DDE	DDT	DDD + DDE + DDT	Dieldrin	a-Endosulfan	b-Endosulfan	Endosulfan sulphate	Endrin	Heptachlor	Heptachlor epoxide	Hexachlorobenzene	Methoxychlor
				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
			LOR	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.000006	0.00003	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002
WS2-S	Primary	7/08/2020		<0.00001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WZ1	Duplicate			<0.00001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
RPD %				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WS1-S	Primary	10/09/2020		<0.00001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WZ1	Duplicate			<0.00001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
RPD %				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WS3-S	Primary	7/10/2020		<0.00001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WZ1	Duplicate			<0.00001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
RPD %				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WS2-D	Primary	5/11/2020		<0.00001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WZ1	Duplicate			<0.00001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
RPD %				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WS2-S	Primary	3/12/2020		<0.00001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WZ1	Duplicate			<0.00001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
RPD %				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WS2-S	Primary	13/01/2021		<0.00001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WZ1	Duplicate			<0.00001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
RPD %				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WS3-S	Primary	11/02/2021		<0.00001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WZ1	Duplicate			<0.00001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
RPD %				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WS2-D	Primary	4/03/2021		<0.00001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WZ1	Duplicate			<0.00001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
RPD %				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table J
Surface Water QAQC Results (RPD Assessment): Per- and Poly-Fluoroalkyl Substances

Definitions:
LOR 1° (Limit of Reporting, Primary Laboratory). --- denotes not tested. # denoted not calculated.

Notes:
All values in mg/L unless specified otherwise
Table uses colour coding for data interpretation, avoid black and white reproduction.

denotes <LOR (primary laboratory)
denotes <5x LOR (primary laboratory)
denotes exceedance of acceptance criteria (30%) where samples <5x LOR
denotes exceedance of acceptance criteria (30%) where sample(s) >5x LOR

Sample ID	Sample type	Date	Trigger	Perfluoroalkyl Sulfonic Acids						Perfluoroalkyl Carboxylic Acids											(n:2) Fluorotelomer Sulfonic Acids				Perfluoroalkyl Sulfonamides							PFAS Sums		
				Perfluorobutanesulfonic acid	Perfluoropentanesulfonic acid	Perfluorohexanesulfonic acid	Perfluoroheptanesulfonic acid	Perfluorooctanesulfonate PFOS	Perfluorodecanesulfonic acid	Perfluorobutanoic acid	Perfluoropentanoic acid	Perfluorohexanoic acid	Perfluoroheptanoic acid	Perfluorooctanoic acid PFOA	Perfluorononanoic acid	Perfluorodecanoic acid	Perfluoroundecanoic acid	Perfluorododecanoic acid	Perfluorotridecanoic acid	Perfluorotetradecanoic acid	4:2 FTSA	6:2 FTSA	8:2 FTSA	10:2 FTSA	Perfluorooctane sulfonamide	N-Methyl perfluorooctane sulfonamide	N-Ethyl perfluorooctanesulfon-amide	N-Me perfluorooctanesulfonamid-oethanol	N-Et perfluorooctanesulfonamid-oethanol	MePerfluorooctanesulf- amid oacetic acid	EtPerfluorooctanesulf- amid oacetic acid	Total Positive PFHxS & PFOS	Total Positive PFOS & PFOA	Total Positive PFAS
				µg/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	µg/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	µg/L	µg/L	µg/L	µg/L
			LOR	0.0004	0.001	0.0002	0.001	0.0002	0.002	0.002	0.002	0.0004	0.0004	0.0002	0.001	0.002	0.002	0.005	0.01	0.05	0.001	0.0004	0.0004	0.002	0.01	0.005	0.01	0.005	0.05	0.002	0.002	0.0002	0.0002	0.0002
WS2-S	Primary	7/08/2020		<0.0004	<0.001	0.0005	<0.001	0.0005	<0.002	<0.002	<0.002	<0.0004	<0.0004	0.0002	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.001	0.0007	0.001
WZ1	Duplicate			<0.0004	<0.001	0.0004	<0.001	0.0006	<0.002	<0.002	<0.002	<0.0004	<0.0004	0.0002	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.001	0.0008	0.001
RPD %				0	0	22	0	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	0
WS1-S	Primary	10/09/2020		0.0004	<0.001	0.002	<0.001	0.003	<0.002	<0.002	<0.002	0.001	0.0004	0.0006	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.005	0.0036	0.0074
WZ1	Duplicate			<0.0004	<0.001	0.002	<0.001	0.0026	<0.002	<0.002	<0.002	0.001	<0.0004	0.0005	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.0046	0.0031	0.0061
RPD %				0	0	0	0	14	0	0	0	0	0	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	15	19
WS1-S	Primary	7/10/2020		<0.0004	<0.001	0.001	<0.001	0.0021	<0.002	<0.002	<0.002	0.0007	<0.0004	0.0005	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.0031	0.0026	0.0043
WZ1	Duplicate			<0.0004	<0.001	0.002	<0.001	0.0028	<0.002	<0.002	<0.002	0.0009	<0.0004	0.0004	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.0048	0.0032	0.0061
RPD %				0	0	**67**	0	29	0	0	0	25	0	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**43**	21	**35**
WS2-D	Primary	5/11/2020		0.0006	<0.001	0.002	<0.001	0.0035	<0.002	<0.002	<0.002	0.002	0.0007	0.0009	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.0059	0.0044	0.01
WZ1	Duplicate			0.0006	<0.001	0.002	<0.001	0.0031	<0.002	<0.002	<0.002	0.002	0.0007	0.0008	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.0053	0.0039	0.0094
RPD %				0	0	9	0	12	0	0	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	12	6
WS2-S	Primary	3/12/2020		0.0005	<0.001	0.002	<0.001	0.0045	<0.002	<0.002	<0.002	0.001	0.002	0.0008	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.0066	0.0053	0.011
WZ1	Duplicate			0.0005	<0.001	0.002	<0.001	0.0038	<0.002	<0.002	<0.002	0.001	0.003	0.0009	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.006	0.0047	0.011
RPD %				0	0	5	0	17	0	0	0	0	**40**	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	12	0
WS3-S	Primary	13/01/2021		<0.0004	<0.001	0.001	<0.001	0.001	<0.002	<0.002	<0.002	0.0005	<0.0004	0.0005	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.002	0.002	0.0028
WZ1	Duplicate			<0.0004	<0.001	0.001	<0.001	0.001	<0.002	<0.002	<0.002	0.0006	<0.0004	0.0005	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.002	0.002	0.0029
RPD %				0	0	0	0	0	0	0	0	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
WS3-S	Primary	11/02/2021		0.0009	<0.001	0.002	<0.001	0.0024	<0.002	<0.002	<0.002	0.0009	0.0006	0.0005	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.0044	0.0029	0.0073
WZ1	Duplicate			0.0008	<0.001	0.002	<0.001	0.002	<0.002	<0.002	<0.002	0.0009	0.0005	0.0006	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.004	0.0026	0.0068
RPD %				0	0	0	0	18	0	0	0	0	18	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	11	7
WS2-D	Primary	4/03/2021		<0.0004	<0.001	0.0004	<0.001	0.0007	<0.002	<0.002	<0.002	<0.0004	<0.0004	0.0002	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.001	0.0009	0.001
WZ1	Duplicate			<0.0004	<0.001	0.0005	<0.001	0.0009	<0.002	<0.002	<0.002	<0.0004	<0.0004	<0.0002	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	0.001	0.0009	0.001
RPD %				0	0	22	0	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table K
Surface Water QAQC Results (Rinsate, Field Blank and Trip-Blank): Metals and Turbidity

Definitions:

LOR 1° (Limit of Reporting, Primary Laboratory), --- denotes not tested.

Notes:

All values in mg/L unless specified otherwise

Table uses colour coding for data interpretation, avoid black and white reproduction.

denotes <LOR (primary laboratory)

denotes exceedance of acceptance criteria > LOR

Sample ID	Sample Type	Date	Trigger	Dissolved Metals & Metalloids																Total Metals		Turbidity
				Aluminium	Antimony	Arsenic	Cadmium	Cobalt	Chromium	Copper	Iron	Manganese	Mercury	Molybdenum	Nickel	Lead	Selenium	Silicon	Silver	Zinc	Total Aluminium	Total Iron	Turbidity
			Units	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	NTU
			LOR	0.01	0.001	0.001	0.0001	0.001	0.001	0.001	0.01	0.005	0.00005	0.001	0.001	0.001	0.001	0.1	0.00005	0.001	0.01	0.01	0.1
Rinsates																						
WR1	Water	7/08/2020		<0.01	<0.001	<0.001	0.0001	<0.001	<0.001	<0.001	<0.01	<0.005	<0.00005	<0.001	<0.001	<0.001	<0.001	---	<0.00005	<0.001	<0.01	<0.01	0.2
WR1	Water	10/09/2020		<0.01	<0.001	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.01	<0.005	<0.00005	<0.001	<0.001	<0.001	<0.001	---	<0.00005	<0.001	<0.01	<0.01	0.1
WR1	Water	7/10/2020		<0.01	<0.001	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.01	<0.005	<0.00005	<0.001	<0.001	<0.001	<0.001	---	<0.00005	<0.001	<0.01	<0.02	<0.1
WR1	Water	5/11/2020		<0.01	<0.001	<0.001	0.0002	<0.001	<0.001	0.001	<0.01	<0.005	<0.00005	<0.001	<0.001	<0.001	<0.001	0.3	<0.00005	0.005	<0.01	<0.01	0.3
WR1	Water	3/12/2020		<0.01	<0.001	<0.001	<0.0001	<0.001	<0.001	0.008	0.01	<0.005	<0.00005	<0.001	<0.001	0.021	<0.001	---	<0.00005	0.015	<0.01	0.02	0.5
WR1	Water	13/01/2021		<0.01	<0.001	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.01	<0.005	<0.00005	<0.001	<0.001	<0.001	<0.001	0.2	<0.00005	<0.001	<0.01	<0.02	<0.1
WR1	Water	11/02/2021		<0.02	<0.002	<0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.01	<0.00005	<0.002	<0.002	<0.002	<0.002	0.2	<0.0001	0.006	<0.02	0.02	0.2
WR1	Water	4/03/2021		<0.01	<0.001	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.01	<0.005	<0.00005	<0.001	<0.001	<0.001	<0.001	<0.1	<0.00005	0.001	<0.01	<0.01	0.4
Field Blank																						
WB1	Water	7/08/2020		<0.01	<0.001	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.01	<0.005	<0.00005	<0.001	<0.001	<0.001	<0.001	---	<0.00005	<0.001	<0.01	<0.01	0.2
WB1	Water	10/09/2020		<0.01	<0.001	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.01	<0.005	<0.00005	<0.001	<0.001	<0.001	<0.001	---	<0.00005	<0.001	<0.01	<0.01	0.1
WB1	Water	7/10/2020		<0.01	<0.001	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.01	<0.005	<0.00005	<0.001	<0.001	<0.001	<0.001	---	<0.00005	<0.001	<0.01	<0.02	<0.1
WB1	Water	5/11/2020		<0.01	<0.001	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.01	<0.005	<0.00005	<0.001	<0.001	<0.001	<0.001	0.3	<0.00005	<0.001	<0.01	<0.01	0.2
WB1	Water	3/12/2020		<0.01	<0.001	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.01	<0.005	<0.00005	<0.001	<0.001	<0.001	<0.001	<0.1	<0.00005	<0.001	<0.01	<0.01	0.1
WB1	Water	13/01/2021		<0.01	<0.001	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.01	<0.005	<0.00005	<0.001	<0.001	<0.001	<0.001	0.2	<0.00005	<0.001	<0.01	<0.02	<0.1
WB1	Water	11/02/2021		<0.02	<0.002	<0.002	<0.0002	<0.002	<0.002	<0.002	<0.02	<0.01	<0.00005	<0.002	<0.002	<0.002	<0.002	0.2	<0.0001	0.006	<0.02	<0.02	0.2
WB1	Water	4/03/2021		<0.01	<0.001	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.01	<0.005	<0.00005	<0.001	<0.001	<0.001	<0.001	0.2	<0.00005	<0.001	<0.01	<0.01	0.3

MAKING COMPLEX EASY

Table L
Surface Water QAQC Results (Rinsate, Field Blank and Trip-Blank): MTBE, BTEX and TRH

Definitions:

LOR 1° (Limit of Reporting, Primary Laboratory), --- denotes not tested.

Notes:

All values in mg/L unless specified otherwise

Table uses colour coding for data interpretation, avoid black and white reproduction.

denotes <LOR (primary laboratory)

denotes exceedance of acceptance criteria > LOR

Sample ID	Sample type	Date	Trigger	MTBE	BTEX					TRH				Polycyclic Aromatic Hydrocarbons															
				MTBE	Benzene	Toluene	Ethylbenzene	m+p-xylene	o-xylene	F1: C6-C10 minus BTEX	F2: C>10-C16 minus N	F3: C>16-C34	F4: C>34-C40	Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo(a)anthracene	Chrysene	Benzo(b,j+k)fluoranthene	Benzo(a)pyrene	Indeno(1,2,3-c,d)pyrene	Dibenzo(a,h)anthracene	Benzo(g,h,i)perylene	Total Carcinogenic PAHs	Total Positive PAHs
				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	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
			LOR	0.001	0.001	0.001	0.001	0.002	0.001	0.01	0.05	0.1	0.1	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002	0.0001	0.0001	0.0001	0.0001	0.0005	0.0001
Rinsates																													
WR1	Water	7/08/2020		<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WR1	Water	10/09/2020		<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WR1	Water	7/10/2020		<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WR1	Water	5/11/2020		<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WR1	Water	3/12/2020		<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WR1	Water	13/01/2021		<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WR1	Water	11/02/2021		<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WR1	Water	4/03/2021		<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
Field Blank																													
WB1	Water	7/08/2020		<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WB1	Water	10/09/2020		<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WB1	Water	7/10/2020		<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WB1	Water	5/11/2020		<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WB1	Water	3/12/2020		<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WB1	Water	13/01/2021		<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WB1	Water	11/02/2021		<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
WB1	Water	4/03/2021		<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.01	<0.05	<0.1	<0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
Trip-Blank																													
WTB1	Water	7/08/2020		<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
WTB1	Water	10/09/2020		<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
WTB1	Water	7/10/2020		<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
WTB1	Water	5/11/2020		<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
WTB1	Water	3/12/2020		<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
WTB1	Water	13/01/2021		<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
WTB1	Water	11/02/2021		<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
WTB1	Water	4/03/2021		<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Table M
Surface Water QAQC Results (Rinsate, Field Blank and Trip-Blank): OC/OP Pesticides

Definitions:

LOR 1° (Limit of Reporting, Primary Laboratory), --- denotes not tested.

Notes:

All values in mg/L unless specified otherwise

Table uses colour coding for data interpretation, avoid black and white reproduction.

denotes <LOR (primary laboratory)

denotes exceedance of acceptance criteria > LOR

Sample ID	Sample type	Date	Trigger	Organochlorine Pesticides																			
				Aldrin	a-BHC	b-BHC	d-BHC	g-BHC (Lindane)	a-Chlordane	g-Chlordane	DDD	DDE	DDT	DDD + DDE + DDT	Dieldrin	a-Endosulfan	b-Endosulfan	Endosulfan sulphate	Endrin	Heptachlor	Heptachlor epoxide	Hexachlorobenzene	Methoxychlor
				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
			LOR	0.00001	0.00005	0.00005	0.00005	0.00005	0.00001	0.00001	0.00001	0.00001	0.000006	0.00003	0.00001	0.00002	0.00002	0.00002	0.00001	0.00001	0.00001	0.00001	0.00002
Rinsates																							
WR1	Water	7/08/2020		<0.00001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WR1	Water	10/09/2020		<0.00001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WR1	Water	7/10/2020		<0.00001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WR1	Water	5/11/2020		<0.00001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WR1	Water	3/12/2020		<0.00001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WR1	Water	13/01/2021		<0.00001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WR1	Water	11/02/2021		<0.00001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WR1	Water	4/03/2021		<0.00001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
Field Blank																							
WB1	Water	7/08/2020		<0.00001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WB1	Water	10/09/2020		<0.00001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WB1	Water	7/10/2020		<0.00001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WB1	Water	5/11/2020		<0.00001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WB1	Water	3/12/2020		<0.00001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WB1	Water	13/01/2021		<0.00001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WB1	Water	11/02/2021		<0.00001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
WB1	Water	4/03/2021		<0.00001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.000006	<0.00003	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002

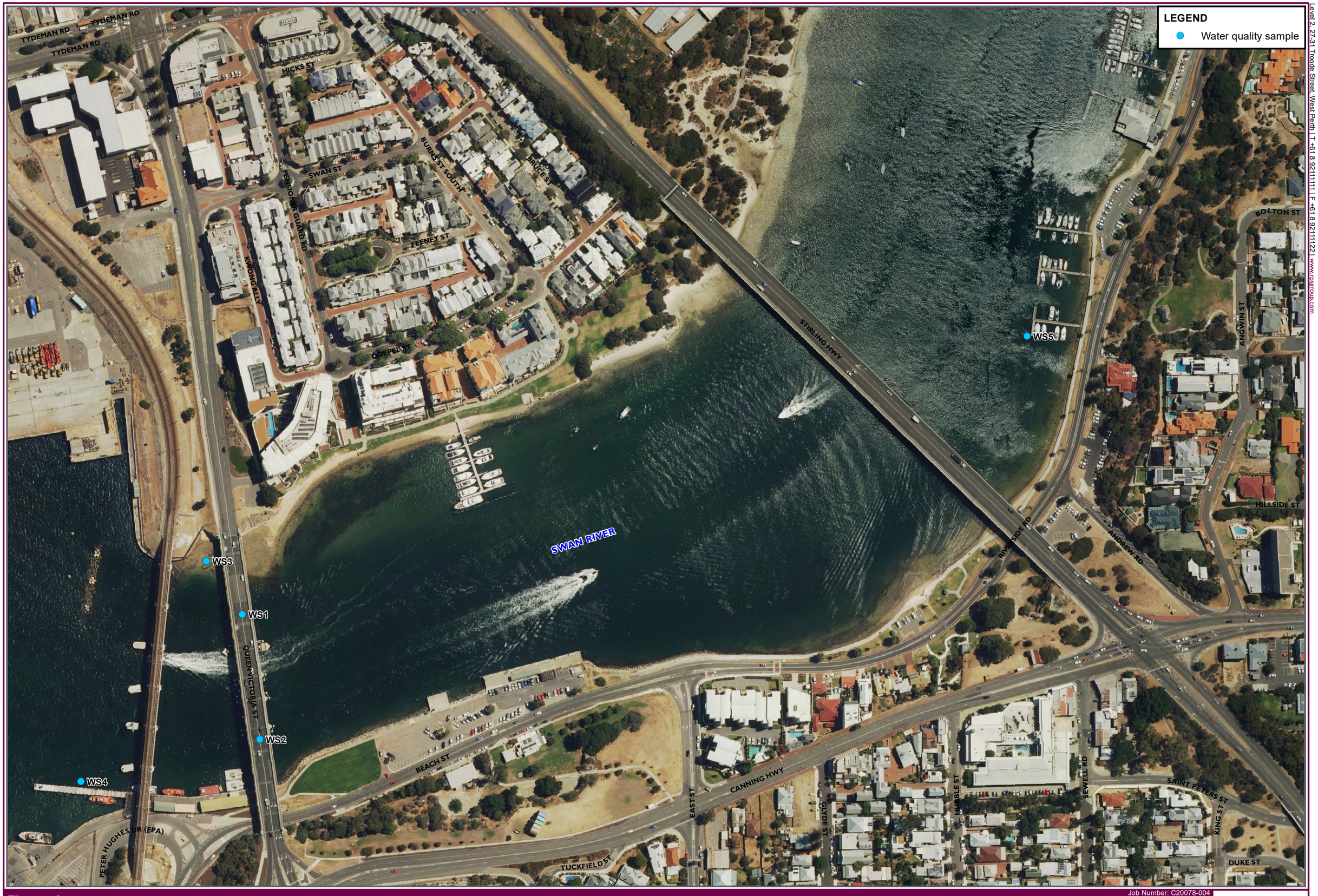
Table N
Surface Water QAQC Results (Rinsate, Field Blank and Trip-Blank): Per- and Poly-Fluoroalkyl Substances

Definitions:
LOR 1° (Limit of Reporting, Primary Laboratory), --- denotes not tested.

Notes:
All values in mg/L unless specified otherwise
Table uses colour coding for data interpretation, avoid black and white reproduction.
denotes <LOR (primary laboratory)
denotes exceedance of acceptance criteria > LOR

				Perfluoroalkyl Sulfonic Acids						Perfluoroalkyl Carboxylic Acids										Perfluoroalkyl Sulfonamides							(n:2) Fluorotelomer Sulfonic Acids				PFAS Sums		
Sample ID	Sample type	Date	Trigger	Perfluorobutanesulfonic acid	Perfluoropentanesulfonic acid	Perfluorohexanesulfonic acid	Perfluoroheptanesulfonic acid	Perfluorooctanesulfonate PFOS	Perfluorodecanesulfonic acid	Perfluorobutanoic acid	Perfluoropentanoic acid	Perfluorohexanoic acid	Perfluoroheptanoic acid	Perfluorooctanoic acid PFOA	Perfluorononanoic acid	Perfluorodecanoic acid	Perfluoroundecanoic acid	Perfluorododecanoic acid	Perfluorotridecanoic acid	Perfluorotetradecanoic acid	Perfluorooctane sulfonamide	N-Methyl perfluorooctane sulfonamide	N-Ethyl perfluorooctanesulfon-amide	N-Me perfluorooctanesulfonamid-oethanol	N-Et perfluorooctanesulfonamid-oethanol	MePerfluorooctanesulf- amid oacetic acid	EtPerfluorooctanesulf- amid oacetic acid	4:2 FTSA	6:2 FTSA	8:2 FTSA	10:2 FTSA	Total Positive PFHxS & PFOS	Total Positive PFOS & PFOA	Total Positive PFAS
				µg/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	µg/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	µg/L	µg/L	µg/L	µg/L	µg/L
			LOR	0.0004	0.001	0.0002	0.001	0.0002	0.002	0.002	0.002	0.0004	0.0004	0.0002	0.001	0.002	0.002	0.005	0.01	0.05	0.01	0.005	0.01	0.005	0.05	0.002	0.002	0.001	0.0004	0.0004	0.002	0.0002	0.0002	0.0002
Rinsates																																	
WR1	Water	7/08/2020		<0.0004	<0.001	<0.0002	<0.001	<0.0002	<0.002	<0.002	<0.002	<0.0004	<0.0004	0.0003	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	<0.001	<0.0004	<0.0004	<0.002	<0.0002	0.0003	0.0003
WR1	Water	10/09/2020		<0.0004	<0.001	<0.0002	<0.001	<0.0002	<0.002	<0.002	<0.002	<0.0004	<0.0004	<0.0002	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	<0.001	<0.0004	<0.0004	<0.002	<0.0002	<0.0002	<0.0002
WR1	Water	7/10/2020		<0.0004	<0.001	<0.0002	<0.001	<0.0002	<0.002	<0.002	<0.002	<0.0004	<0.0004	<0.0002	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	<0.001	<0.0004	<0.0004	<0.002	<0.0002	<0.0002	<0.0002
WR1	Water	5/11/2020		<0.0004	<0.001	<0.0002	<0.001	<0.0002	<0.002	<0.002	<0.002	<0.0004	<0.0004	<0.0002	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	<0.001	<0.0004	<0.0004	<0.002	<0.0002	<0.0002	<0.0002
WR1	Water	5/11/2020		0.0008	<0.001	0.0046	<0.001	0.016	<0.002	<0.002	<0.002	0.0009	0.0004	0.0008	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	<0.001	0.0006	<0.0004	<0.002	0.021	0.017	0.024
WR1	Water	13/01/2021		<0.0004	<0.001	<0.0002	<0.001	<0.0002	<0.002	<0.002	<0.002	<0.0004	<0.0004	0.0002	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	<0.0002	0.0002	0.0002
WR1	Water	11/02/2021		<0.0004	<0.001	<0.0002	<0.001	<0.0002	<0.002	<0.002	<0.002	<0.0004	<0.0004	<0.0002	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	<0.0002	<0.0002	<0.0002
WR1	Water	4/03/2021		<0.0004	<0.001	<0.0002	<0.001	<0.0002	<0.002	<0.002	<0.002	<0.0004	<0.0004	<0.0002	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	<0.0002	<0.0002	<0.0002
Field Blank																																	
WB1	Water	7/08/2020		<0.0004	<0.001	<0.0002	<0.001	<0.0002	<0.002	<0.002	<0.002	<0.0004	<0.0004	<0.0002	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	<0.001	<0.0004	<0.0004	<0.002	<0.0002	<0.0002	<0.0002
WB1	Water	10/09/2020		<0.0004	<0.001	<0.0002	<0.001	<0.0002	<0.002	<0.002	<0.002	<0.0004	<0.0004	<0.0002	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	<0.001	<0.0004	<0.0004	<0.002	<0.0002	<0.0002	<0.0002
WB1	Water	7/10/2020		<0.0004	<0.001	<0.0002	<0.001	<0.0002	<0.002	<0.002	<0.002	<0.0004	<0.0004	<0.0002	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	<0.001	<0.0004	<0.0004	<0.002	<0.0002	<0.0002	<0.0002
WB1	Water	5/11/2020		<0.0004	<0.001	<0.0002	<0.001	<0.0002	<0.002	<0.002	<0.002	<0.0004	<0.0004	<0.0002	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	<0.001	<0.0004	<0.0004	<0.002	<0.0002	<0.0002	<0.0002
WB1	Water	13/01/2021		<0.0004	<0.001	<0.0002	<0.001	<0.0002	<0.002	<0.002	<0.002	<0.0004	<0.0004	<0.0002	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	<0.0002	<0.0002	<0.0002
WB1	Water	11/02/2021		<0.0004	<0.001	<0.0002	<0.001	<0.0002	<0.002	<0.002	<0.002	<0.0004	<0.0004	<0.0002	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	<0.0002	<0.0002	<0.0002
WB1	Water	4/03/2021		<0.0004	<0.001	<0.0002	<0.001	<0.0002	<0.002	<0.002	<0.002	<0.0004	<0.0004	<0.0002	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	<0.0002	<0.0002	<0.0002
Trip-Blank																																	
WTB1	Water	7/08/2020		<0.0004	<0.001	<0.0002	<0.001	<0.0002	<0.002	<0.002	<0.002	<0.0004	<0.0004	<0.0002	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	<0.001	<0.0004	<0.0004	<0.002	<0.0002	<0.0002	<0.0002
WTB1	Water	10/09/2020		<0.0004	<0.001	<0.0002	<0.001	<0.0002	<0.002	<0.002	<0.002	<0.0004	<0.0004	<0.0002	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	<0.001	<0.0004	<0.0004	<0.002	<0.0002	<0.0002	<0.0002
WTB1	Water	7/10/2020		<0.0004	<0.001	<0.0002	<0.001	<0.0002	<0.002	<0.002	<0.002	<0.0004	<0.0004	<0.0002	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	<0.001	<0.0004	<0.0004	<0.002	<0.0002	<0.0002	<0.0002
WTB1	Water	7/10/2020		<0.0004	<0.001	<0.0002	<0.001	<0.0002	<0.002	<0.002	<0.002	<0.0004	<0.0004	<0.0002	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	<0.001	<0.0004	<0.0004	<0.002	<0.0002	<0.0002	<0.0002
WTB1	Water	3/12/2020		<0.0004	<0.001	<0.0002	<0.001	<0.0002	<0.002	<0.002	<0.002	<0.0004	<0.0004	<0.0002	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	<0.001	<0.0004	<0.0004	<0.002	<0.0002	<0.0002	<0.0002
WTB1	Water	13/01/2021		<0.0004	<0.001	<0.0002	<0.001	<0.0002	<0.002	<0.002	<0.002	<0.0004	<0.0004	<0.0002	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	<0.0002	<0.0002	<0.0002
WTB1	Water	11/02/2021		<0.0004	<0.001	<0.0002	<0.001	<0.0002	<0.002	<0.002	<0.002	<0.0004	<0.0004	<0.0002	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	<0.0002	<0.0002	<0.0002
WTB1	Water	4/03/2021		<0.0004	<0.001	<0.0002	<0.001	<0.0002	<0.002	<0.002	<0.002	<0.0004	<0.0004	<0.0002	<0.001	<0.002	<0.002	<0.005	<0.01	<0.05	<0.001	<0.0004	<0.0004	<0.002	<0.01	<0.005	<0.01	<0.005	<0.05	<0.002	<0.002	<0.0002	<0.0002	<0.0002

FIGURE



Level 2, 27-31 Troode Street, West Perth | T +61 8 92111111 | F +61 8 92111122 | www.rpsgroup.com

Figure A
Swan River crossing
Water quality sampling locations

GDA 1994 MGA Zone 50

0 25 50 100 m

Job Number: C20078-004
Doc Number: 001
Date: 29.06.20
Scale: 1:2,500 @ A3
Created by: MA
Source: Orthophoto - Landgate, Jan 2020

Document Path: G:\Jobs\C_Jobs\C20078 - MRWA SR Bridge\Figures C20078-004\C20078-004_G_001_Fig A Proposed WQ Sampling_200629.mxd

MEMO

Date: 24 March 2021
Regarding: Surface Water Quality – Event #8 summary

Appendix A
DBCA Approval

Department of Biodiversity, Conservation and Attractions
SWAN CANNING RIVERPARK

Rivers and Estuaries Branch
Ph: 9219 9000
Email: rivers.planning@dbca.wa.gov.au

2020/1928
PERMIT P12652

Pursuant to Part 4 (Regulation 29) of the Swan and Canning Rivers Management Regulations 2007, this is to certify that a permit is issued to the person(s) or organisation described hereunder as permit holder and that person(s) or organisation is permitted to carry out the authorised works, acts or activities for the duration specified, subject to the conditions listed below.

Permit holder:	Main Roads Western Australia (John Braid)
Authorised works, acts or activities:	Swan River Crossings Project – In-river scientific investigations – sampling suite includes contaminants, water quality, benthic habitat and sediment analysis
Location of works, acts or activities:	Swan River between Fremantle Traffic Bridge and Stirling Bridge, Fremantle; and Lot 2010 on Plan 18598 and Lot 1941 on Plan 213981
Approval date:	2 October 2020
Expiry date:	31 December 2021

CONDITIONS

1. The applicant shall notify the Department of Biodiversity, Conservation and Attractions in writing not less than three (3) days prior to the commencement of works (see **Advice Note 1**).

2. The applicant shall ensure that all contractors and personnel involved in the investigations approved by the Department of Biodiversity, Conservation and Attractions are familiar with the conditions and requirements of this approval at all times.

3. The works shall take place in accordance with the methodologies provided in the *Swan River Crossings Project-Environmental (in-river) Surveys September 2020 V6.0*, unless modified by a condition of this approval.

4. The results of the benthic habitat surveys, once collated, shall be provided to the Department of Biodiversity, Conservation and Attractions (see **Advice Note 1**).

5. Further to **Condition 4**, the applicant shall undertake any necessary additional sampling and/or modify the scientific investigation methodologies as required by the Department of Biodiversity, Conservation and Attractions on review of the results of the benthic habitat surveys and deduced potential impacts to known benthic habitat and communities.

6. The applicant shall ensure that all equipment is visually inspected for any traces of aquatic organisms and shall remove the organisms prior to the equipment entering the Swan Canning Development Control Area.

7. The applicant shall monitor all works and ensure that appropriate measures are implemented to contain turbidity and prevent sediment plumes spreading and shall have a silt curtain readily available to deploy in order to contain any turbidity and sediment plumes that are uncontrolled or move beyond the immediate area of works (see **Advice Note 2**).

8. Water-based activities shall cease if a dolphin comes within 50 metres of any water vessel involved in the approved activities and shall not recommence until any dolphin has moved away more than 200 metres or has not been observed for 20 minutes.

9. Any refuelling shall take place outside of the Swan Canning Development Control Area or at a licensed refuelling facility.

Rivers and Estuaries Branch
Ph: 9219 9000
Email: rivers.planning@dbca.wa.gov.au

10. A spill kit shall be maintained on all vessels and shall be utilised to contain and clean up any spills that occur.

11. The applicant shall take all precautions to ensure no damage to the foreshore, riverbank or waterway (including infrastructure and vegetation) occurs as a result of the works. Should any inadvertent damage occur, the applicant is required to notify the Department of Biodiversity, Conservation and Attractions within 48 hours of that damage occurring (see **Advice Note 2**).

12. The applicant shall rectify at its expense any damage to the foreshore, riverbank or waterway (including infrastructure and vegetation) that occurs as a result of the works.

13. Within 24 hours of the completion of the activities, the applicant shall remove all waste materials, equipment and machinery.

14. An electronic copy of the report, addressing the findings of the scientific investigations approved under this permit shall be forwarded to the Department of Biodiversity, Conservation and Attractions prior to the expiration of this permit (see **Advice Note 1**).

ADVICE TO APPLICANT

1. Notifications and information can be emailed to rivers.planning@dbca.wa.gov.au.

2. In the event of spills, waste materials impacting the river or turbidity or sediment plumes, the Department of Biodiversity, Conservation and Attractions' Duty Officer (Riverpark) can be contacted on 9278 0981 (24 hrs) or Pollution Response Officer (Marine) on 9480 9924 (24 hrs).

3. The Department of Transport (DoT) Navigational Safety advises the applicant that:
   - Main Roads Western Australia (MRWA) and/or its contractors are to develop a communication plan with Commercial Ferry Operators and are to consult with commercial operators to gain comment and support for the Vessel Management Plan [Regarding 4.2 Legislative and Other Provisions (page 13 of the Vessel Management Plan): Should also include the '*Western Australian Marine Act 1982*' and the '*Marine Safety (Domestic Commercial Vessel) National Law Act 2012*'];
   - MRWA and/or its contractors are to monitor VHF Channel 16 during operating hours;
   - The works area and any hazards should be marked with yellow special marker buoys, approximately 1 metre in height equipped with flashing yellow lights;
   - All vessels taking part in the works must display shapes and lights in accordance with the Prevention of Collisions at Sea Regulations 1983 at all times;
   - Should diving operations be conducted between the Fremantle Rail Bridge and Fremantle Traffic Bridge, a closure of the respective navigation span will be required;
   - Navigational channels are to remain open wherever possible and only one navigation span is to be impeded at any one time;
   - Any anchor points which encroach the channel should be marked;
   - A Temporary Notice to Mariners (TNTM) must be issued by DoT outlining the scope of the works, the works area, navigational marking (lighting) and dates of the works, prior to commencement. MRWA and/or its contractors are to provide notification of the works to DoT a minimum of 21 days prior to the works commencing to enable a TNTM to be published, by email to: navigational.safety@transport.wa.gov.au;
   - MRWA and/or its contractors are to provide sufficient notification of any ad hoc day closures of navigational channels so that a TNTM can be published to alert mariners; and

Rivers and Estuaries Branch
Ph: 9219 9000
Email: rivers.planning@dbca.wa.gov.au

2020/1928
PERMIT P12652

- MRWA and/or its contractors are to seek approval from Fremantle Ports Authority for any works to the west of the Fremantle Traffic and Rail Bridges.

4. The applicant is advised that the proposed works are located in a high to moderate and moderate to low acid sulphate soils risk area. The Acid Sulfate Soils Guideline Series for guidance on the identification, assessment and management of acid sulphate soils in Western Australia is available from the Department of Water and Environmental Regulation website at www.dwer.wa.gov.au. If any acid sulfate soils are exposed during the works the Department of Water and Environmental Regulation should be contacted for further advice.

5. The applicant is advised that this approval does not negate the need to obtain any other approval from relevant agencies, or from the Department of Biodiversity, Conservation and Attractions.

PERMIT APPROVED

Signed:_____ Date: 02/10/20

Jacey Mills
Manager, Statutory Assessments
As delegate of CEO
Under Section 38 of the SCRM Act 2006

MEMO

Date: 24 March 2021
Regarding: Surface Water Quality – Event #8 summary

Appendix B
Laboratory reports

CHAIN OF CUSTODY

rps MAKING COMPLEX EASY

Level 2, 27-31 Troode Street
West Perth WA 6005
Tel: (618) 9211 1111
Fax: (618) 9211 1122

Site: Fremantle
Project reference: EE[illegible]C20078.009
Scientist(s): ZL + SMW
Sample type(s): Water
Report to: Alan F, Zak L, Shane MW
Invoice to: west.accountspayable@rpsgroup.com

Page number: 1
Turnaround time: Standard
Quote number: 20P194v2

	Sample I.D.	Date collected	Number of jars / bottles / bags	Month;y water suite	Metals, turbitity, THR/MBTEXN, PAH, OCP, PFAS	BTEX, TRH (C6-9), PFAS	Si	F	Remarks
1	WS1-S	4/03/21	As per quote	X			X	X	
2	WS1-D	4/03/21	"	X			X	X	
3	WS2-S	4/03/21	"	X			X	X	
4	WS2-D	4/03/21	"	X			X	X	
5	WS3-S	4/03/21	"	X			X	X	
6	WS4-S	4/03/21	"	X			X	X	
7	WS4-D	4/03/21	"	X			X	X	
8	WS5-S	4/03/21	"	X			X	X	
9	WS5-D	4/03/21	"	X			X	X	
10	WZ1	4/03/21	"	X			X	X	
11	WR1	4/03/21	"		X		X		
12	WB1	4/03/21	"		X		X		
13	WTB1	4/03/21	"			X			
	Total number of bottles/bags/jars								

mpl Laboratories — ENVIROLAB GROUP
Job No.- 258103
Date Rec- 4/3/21
Time Rec- 14'40
Rec By- Gm
TAT Req - SAME 1 / 2 / 3 / STD
Temp - cool / ambient
Cooling - Ice / Ice pack / None
Security Seal - Yes / No

Primary destination: MPL	Received by: Gm	Secondary destination:	Received by:
Relinquished by: Zak L	Organisation: MPL	Relinquished by:	Organisation:
Organisation: RPS	Date: 4/3/21	Organisation:	Date:
Date: 4/03/21	Time: 14:40	Date:	Time:
Time: 2:40		Time:	

Envirolab Services (WA) Pty Ltd trading as MPL Laboratories
ABN 53 140 099 207
16-18 Hayden Court Myaree WA 6154
ph 08 9317 2505 fax 08 9317 4163
lab@mpl.com.au
www.mpl.com.au

CERTIFICATE OF ANALYSIS 258103

Client Details

Client	RPS Australia West Pty Ltd
Attention	Alan Foley
Address	Level 2, 27-31 Troode St, WEST PERTH, WA, 6005

Sample Details

Your Reference	**EEC20078.004 - Fremantle Traffic Bridge**
Number of Samples	13 Water
Date samples received	04/03/2021
Date completed instructions received	04/03/2021

Analysis Details

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

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

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

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

Report Details

Date results requested by	18/03/2021
Date of Issue	23/03/2021
Reissue Details	This report replaces R00 created on 18/03/2021 due to: Correction in Result Data - Perfluoroheptanoic acid samples #1-5

NATA Accreditation Number 2901. This document shall not be reproduced except in full.

Accredited for compliance with ISO/IEC 17025 - Testing. **Tests not covered by NATA are denoted with ***

Results Approved By
Heram Halim, Operations Manager
Michael Kubiak, Laboratory Manager
Travis Carey, Organics - Team Leader

Authorised By

Michael Kubiak, Laboratory Manager

Miscellaneous Inorganics							
Our Reference			258103-1	258103-2	258103-3	258103-4	258103-5
Your Reference	UNITS	PQL	WS1-S	WS1-D	WS2-S	WS2-D	WS3-S
Date Sampled			04/03/2021	04/03/2021	04/03/2021	04/03/2021	04/03/2021
Type of sample			Water	Water	Water	Water	Water
Date prepared	-		04/03/2021	04/03/2021	04/03/2021	04/03/2021	04/03/2021
Date analysed	-		04/03/2021	04/03/2021	04/03/2021	04/03/2021	04/03/2021
Total Dissolved Solids (grav)	mg/L	5	37,000	34,000	31,000	34,000	38,000
Total Suspended Solids	mg/L	5	<5	23	21	<5	10
Turbidity	NTU	0.1	0.3	0.8	0.6	0.7	0.4
Dissolved Organic Carbon	mg/L	1	<1	<1	<1	<1	<1
Acidity as $CaCO_3$	mg/L	5	<5	<5	<5	<5	<5
Sulphide in water*	mg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoride	mg/L	0.1	<5	<5	<5	<5	<5

Miscellaneous Inorganics							
Our Reference			258103-6	258103-7	258103-8	258103-9	258103-10
Your Reference	UNITS	PQL	WS4-S	WS4-D	WS5-S	WS5-D	WZ1
Date Sampled			04/03/2021	04/03/2021	04/03/2021	04/03/2021	04/03/2021
Type of sample			Water	Water	Water	Water	Water
Date prepared	-		04/03/2021	04/03/2021	04/03/2021	04/03/2021	04/03/2021
Date analysed	-		04/03/2021	04/03/2021	04/03/2021	04/03/2021	04/03/2021
Total Dissolved Solids (grav)	mg/L	5	35,000	32,000	30,000	35,000	38,000
Total Suspended Solids	mg/L	5	8	<5	7	21	22
Turbidity	NTU	0.1	0.4	0.4	0.4	0.5	0.5
Dissolved Organic Carbon	mg/L	1	<1	<1	<1	<1	<1
Acidity as $CaCO_3$	mg/L	5	<5	<5	<5	<5	<5
Sulphide in water*	mg/L	0.5	0.6	0.6	0.7	0.6	0.9
Fluoride	mg/L	0.1	<5	<5	<5	<5	<5

Miscellaneous Inorganics				
Our Reference			258103-11	258103-12
Your Reference	UNITS	PQL	WR1	WB1
Date Sampled			04/03/2021	04/03/2021
Type of sample			Water	Water
Date prepared	-		04/03/2021	04/03/2021
Date analysed	-		04/03/2021	04/03/2021
Turbidity	NTU	0.1	0.4	0.3

Ionic Balance							
Our Reference			258103-1	258103-2	258103-3	258103-4	258103-5
Your Reference	UNITS	PQL	WS1-S	WS1-D	WS2-S	WS2-D	WS3-S
Date Sampled			04/03/2021	04/03/2021	04/03/2021	04/03/2021	04/03/2021
Type of sample			Water	Water	Water	Water	Water
Date prepared	-		04/03/2021	04/03/2021	04/03/2021	04/03/2021	04/03/2021
Date analysed	-		04/03/2021	04/03/2021	04/03/2021	04/03/2021	04/03/2021
Calcium - Dissolved	mg/L	0.5	430	430	440	430	460
Potassium - Dissolved	mg/L	0.5	410	410	420	400	430
Magnesium - Dissolved	mg/L	0.5	1,400	1,400	1,400	1,400	1,500
Sodium - Dissolved	mg/L	0.5	12,000	12,000	13,000	12,000	13,000
Bicarbonate HCO_3 as $CaCO_3$	mg/L	5	120	130	130	130	130
Carbonate CO_3^{2-} as $CaCO_3$	mg/L	5	<5	<5	<5	<5	<5
Hydroxide OH^- as $CaCO_3$	mg/L	5	<5	<5	<5	<5	<5
Total Alkalinity as $CaCO_3$	mg/L	5	120	130	130	130	130
Chloride	mg/L	1	21,000	21,000	21,000	21,000	21,000
Sulphate	mg/L	1	3,100	3,000	3,000	3,000	3,000
Ionic Balance	%		0.85	1.4	3.4	1.3	4.9
Hardness as $CaCO_3$	mg/L	3	6,700	6,700	6,900	6,700	7,300

Ionic Balance							
Our Reference			258103-6	258103-7	258103-8	258103-9	258103-10
Your Reference	UNITS	PQL	WS4-S	WS4-D	WS5-S	WS5-D	WZ1
Date Sampled			04/03/2021	04/03/2021	04/03/2021	04/03/2021	04/03/2021
Type of sample			Water	Water	Water	Water	Water
Date prepared	-		04/03/2021	04/03/2021	04/03/2021	04/03/2021	04/03/2021
Date analysed	-		04/03/2021	04/03/2021	04/03/2021	04/03/2021	04/03/2021
Calcium - Dissolved	mg/L	0.5	470	460	490	510	470
Potassium - Dissolved	mg/L	0.5	440	430	440	450	430
Magnesium - Dissolved	mg/L	0.5	1,500	1,500	1,600	1,700	1,500
Sodium - Dissolved	mg/L	0.5	13,000	13,000	13,000	13,000	13,000
Bicarbonate HCO_3 as $CaCO_3$	mg/L	5	120	130	130	130	130
Carbonate CO_3^{2-} as $CaCO_3$	mg/L	5	<5	<5	<5	<5	<5
Hydroxide OH^- as $CaCO_3$	mg/L	5	<5	<5	<5	<5	<5
Total Alkalinity as $CaCO_3$	mg/L	5	120	130	130	130	130
Chloride	mg/L	1	21,000	21,000	21,000	21,000	21,000
Sulphate	mg/L	1	3,000	3,000	3,000	3,000	3,000
Ionic Balance	%		5.1	4.7	6.3	7.5	3.6
Hardness as $CaCO_3$	mg/L	3	7,400	7,300	7,800	8,100	7,300

Nutrients in Water							
Our Reference			258103-1	258103-2	258103-3	258103-4	258103-5
Your Reference	UNITS	PQL	WS1-S	WS1-D	WS2-S	WS2-D	WS3-S
Date Sampled			04/03/2021	04/03/2021	04/03/2021	04/03/2021	04/03/2021
Type of sample			Water	Water	Water	Water	Water
Date prepared	-		04/03/2021	04/03/2021	04/03/2021	04/03/2021	04/03/2021
Date analysed	-		04/03/2021	04/03/2021	04/03/2021	04/03/2021	04/03/2021
Total Nitrogen	mg/L	0.1	0.2	0.2	0.2	0.2	0.2
NOx as N	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Ammonia as N	mg/L	0.005	0.011	0.019	0.027	0.021	0.013
Total Phosphorus	mg/L	0.01	<0.01	<0.01	0.01	0.01	0.01
Phosphate as P	mg/L	0.005	<0.005	0.006	0.005	0.006	<0.005

Nutrients in Water							
Our Reference			258103-6	258103-7	258103-8	258103-9	258103-10
Your Reference	UNITS	PQL	WS4-S	WS4-D	WS5-S	WS5-D	WZ1
Date Sampled			04/03/2021	04/03/2021	04/03/2021	04/03/2021	04/03/2021
Type of sample			Water	Water	Water	Water	Water
Date prepared	-		04/03/2021	04/03/2021	04/03/2021	04/03/2021	04/03/2021
Date analysed	-		04/03/2021	04/03/2021	04/03/2021	04/03/2021	04/03/2021
Total Nitrogen	mg/L	0.1	0.2	0.2	0.2	0.2	0.2
NOx as N	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Ammonia as N	mg/L	0.005	0.024	0.023	0.019	0.020	0.023
Total Phosphorus	mg/L	0.01	0.01	0.01	0.01	0.01	0.01
Phosphate as P	mg/L	0.005	0.005	0.005	<0.005	<0.005	<0.005

Total Metals in water							
Our Reference			258103-1	258103-2	258103-3	258103-4	258103-5
Your Reference	UNITS	PQL	WS1-S	WS1-D	WS2-S	WS2-D	WS3-S
Date Sampled			04/03/2021	04/03/2021	04/03/2021	04/03/2021	04/03/2021
Type of sample			Water	Water	Water	Water	Water
Date digested	-		10/03/2021	10/03/2021	10/03/2021	10/03/2021	10/03/2021
Date analysed	-		10/03/2021	10/03/2021	10/03/2021	10/03/2021	10/03/2021
Aluminium-Total	mg/L	0.01	0.02	<0.02	<0.02	0.03	<0.02
Iron-Total	mg/L	0.01	<0.02	0.03	<0.02	0.02	<0.02

Total Metals in water							
Our Reference			258103-6	258103-7	258103-8	258103-9	258103-10
Your Reference	UNITS	PQL	WS4-S	WS4-D	WS5-S	WS5-D	WZ1
Date Sampled			04/03/2021	04/03/2021	04/03/2021	04/03/2021	04/03/2021
Type of sample			Water	Water	Water	Water	Water
Date digested	-		10/03/2021	10/03/2021	10/03/2021	10/03/2021	10/03/2021
Date analysed	-		10/03/2021	10/03/2021	10/03/2021	10/03/2021	10/03/2021
Aluminium-Total	mg/L	0.01	<0.02	<0.02	0.02	0.04	0.05
Iron-Total	mg/L	0.01	<0.02	<0.02	<0.02	0.02	0.02

Total Metals in water				
Our Reference			258103-11	258103-12
Your Reference	UNITS	PQL	WR1	WB1
Date Sampled			04/03/2021	04/03/2021
Type of sample			Water	Water
Date digested	-		10/03/2021	10/03/2021
Date analysed	-		10/03/2021	10/03/2021
Aluminium-Total	mg/L	0.01	<0.01	<0.01
Iron-Total	mg/L	0.01	<0.01	<0.01

Dissolved Metals in Water							
Our Reference	UNITS	PQL	258103-1	258103-2	258103-3	258103-4	258103-5
Your Reference			WS1-S	WS1-D	WS2-S	WS2-D	WS3-S
Date Sampled			04/03/2021	04/03/2021	04/03/2021	04/03/2021	04/03/2021
Type of sample			Water	Water	Water	Water	Water
Date prepared	-		10/03/2021	10/03/2021	10/03/2021	10/03/2021	10/03/2021
Date analysed	-		10/03/2021	10/03/2021	10/03/2021	10/03/2021	10/03/2021
Silicon - Dissolved	mg/L	0.1	<1	<1	<1	<1	<1
Silver-Dissolved Ultra Low	mg/L	0.00005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Aluminium-Dissolved	mg/L	0.01	<0.02	<0.02	<0.02	<0.02	<0.02
Arsenic-Dissolved	mg/L	0.001	<0.002	<0.002	0.002	<0.002	<0.002
Cadmium-Dissolved	mg/L	0.0001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Cobalt-Dissolved	mg/L	0.001	<0.002	<0.002	<0.002	<0.002	<0.002
Chromium-Dissolved	mg/L	0.001	<0.002	<0.002	<0.002	<0.002	<0.002
Copper-Dissolved	mg/L	0.001	<0.002	<0.002	<0.002	<0.002	<0.002
Iron-Dissolved	mg/L	0.01	<0.02	<0.02	<0.02	<0.02	<0.02
Mercury-Dissolved	mg/L	0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Manganese-Dissolved	mg/L	0.005	<0.01	<0.01	<0.01	<0.01	<0.01
Molybdenum-Dissolved	mg/L	0.001	0.013	0.013	0.013	0.013	0.013
Nickel-Dissolved	mg/L	0.001	<0.002	<0.002	<0.002	<0.002	<0.002
Lead-Dissolved	mg/L	0.001	<0.002	<0.002	<0.002	<0.002	<0.002
Antimony-Dissolved	mg/L	0.001	<0.002	<0.002	<0.002	<0.002	<0.002
Selenium-Dissolved	mg/L	0.001	<0.002	<0.002	<0.002	<0.002	<0.002
Zinc-Dissolved	mg/L	0.001	0.006	0.006	0.007	0.006	0.004

Dissolved Metals in Water							
Our Reference			258103-6	258103-7	258103-8	258103-9	258103-10
Your Reference	UNITS	PQL	WS4-S	WS4-D	WS5-S	WS5-D	WZ1
Date Sampled			04/03/2021	04/03/2021	04/03/2021	04/03/2021	04/03/2021
Type of sample			Water	Water	Water	Water	Water
Date prepared	-		10/03/2021	10/03/2021	10/03/2021	10/03/2021	10/03/2021
Date analysed	-		10/03/2021	10/03/2021	10/03/2021	10/03/2021	10/03/2021
Silicon - Dissolved	mg/L	0.1	<1	<1	<1	<1	<1
Silver-Dissolved Ultra Low	mg/L	0.00005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Aluminium-Dissolved	mg/L	0.01	<0.02	<0.02	<0.02	<0.02	<0.02
Arsenic-Dissolved	mg/L	0.001	<0.002	<0.002	<0.002	<0.002	0.002
Cadmium-Dissolved	mg/L	0.0001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Cobalt-Dissolved	mg/L	0.001	<0.002	<0.002	<0.002	<0.002	<0.002
Chromium-Dissolved	mg/L	0.001	<0.002	<0.002	0.006	<0.002	<0.002
Copper-Dissolved	mg/L	0.001	<0.002	<0.002	<0.002	<0.002	<0.002
Iron-Dissolved	mg/L	0.01	<0.02	<0.02	0.04	<0.02	<0.02
Mercury-Dissolved	mg/L	0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Manganese-Dissolved	mg/L	0.005	<0.01	<0.01	<0.01	<0.01	<0.01
Molybdenum-Dissolved	mg/L	0.001	0.013	0.013	0.013	0.013	0.013
Nickel-Dissolved	mg/L	0.001	<0.002	<0.002	<0.002	<0.002	<0.002
Lead-Dissolved	mg/L	0.001	<0.002	<0.002	<0.002	<0.002	<0.002
Antimony-Dissolved	mg/L	0.001	<0.002	<0.002	<0.002	<0.002	<0.002
Selenium-Dissolved	mg/L	0.001	<0.002	<0.002	<0.002	<0.002	<0.002
Zinc-Dissolved	mg/L	0.001	0.005	0.008	0.006	0.006	0.005

Dissolved Metals in Water				
Our Reference	UNITS	PQL	258103-11	258103-12
Your Reference			WR1	WB1
Date Sampled			04/03/2021	04/03/2021
Type of sample			Water	Water
Date prepared	-		10/03/2021	10/03/2021
Date analysed	-		10/03/2021	10/03/2021
Silicon - Dissolved	mg/L	0.1	<0.1	0.2
Silver-Dissolved Ultra Low	mg/L	0.00005	<0.00005	<0.00005
Aluminium-Dissolved	mg/L	0.01	<0.01	<0.01
Arsenic-Dissolved	mg/L	0.001	<0.001	<0.001
Cadmium-Dissolved	mg/L	0.0001	<0.0001	<0.0001
Cobalt-Dissolved	mg/L	0.001	<0.001	<0.001
Chromium-Dissolved	mg/L	0.001	<0.001	<0.001
Copper-Dissolved	mg/L	0.001	<0.001	<0.001
Iron-Dissolved	mg/L	0.01	<0.01	<0.01
Mercury-Dissolved	mg/L	0.00005	<0.00005	<0.00005
Manganese-Dissolved	mg/L	0.005	<0.005	<0.005
Molybdenum-Dissolved	mg/L	0.001	<0.001	<0.001
Nickel-Dissolved	mg/L	0.001	<0.001	<0.001
Lead-Dissolved	mg/L	0.001	<0.001	<0.001
Antimony-Dissolved	mg/L	0.001	<0.001	<0.001
Selenium-Dissolved	mg/L	0.001	<0.001	<0.001
Zinc-Dissolved	mg/L	0.001	0.001	<0.001

vTRH(C6-C10)/MBTEXN in water							
Our Reference			258103-1	258103-2	258103-3	258103-4	258103-5
Your Reference	UNITS	PQL	WS1-S	WS1-D	WS2-S	WS2-D	WS3-S
Date Sampled			04/03/2021	04/03/2021	04/03/2021	04/03/2021	04/03/2021
Type of sample			Water	Water	Water	Water	Water
Date analysed	-		05/03/2021	05/03/2021	05/03/2021	05/03/2021	05/03/2021
TRH C_6 - C_9	µg/L	10	<50	<50	<50	<50	<50
TRH C_6 - C_{10}	µg/L	10	<50	<50	<50	<50	<50
TRH C_6-C_{10} less BTEX (F1)	µg/L	10	<50	<50	<50	<50	<50
MTBE	µg/L	1	<5	<5	<5	<5	<5
Benzene	µg/L	1	<5	<5	<5	<5	<5
Toluene	µg/L	1	<5	<5	<5	<5	<5
Ethylbenzene	µg/L	1	<5	<5	<5	<5	<5
m+p-xylene	µg/L	2	<10	<10	<10	<10	<10
o-xylene	µg/L	1	<5	<5	<5	<5	<5
Naphthalene	µg/L	1	<5	<5	<5	<5	<5
Surrogate Dibromofluoromethane	%		108	107	106	107	106
Surrogate toluene-d8	%		104	104	105	104	106
Surrogate 4-BFB	%		95	95	94	97	94

vTRH(C6-C10)/MBTEXN in water							
Our Reference			258103-6	258103-7	258103-8	258103-9	258103-10
Your Reference	UNITS	PQL	WS4-S	WS4-D	WS5-S	WS5-D	WZ1
Date Sampled			04/03/2021	04/03/2021	04/03/2021	04/03/2021	04/03/2021
Type of sample			Water	Water	Water	Water	Water
Date analysed	-		05/03/2021	05/03/2021	05/03/2021	05/03/2021	05/03/2021
TRH C_6 - C_9	µg/L	10	<50	<50	<50	<50	<50
TRH C_6 - C_{10}	µg/L	10	<50	<50	<50	<50	<50
TRH C_6-C_{10} less BTEX (F1)	µg/L	10	<50	<50	<50	<50	<50
MTBE	µg/L	1	<5	<5	<5	<5	<5
Benzene	µg/L	1	<5	<5	<5	<5	<5
Toluene	µg/L	1	<5	<5	<5	<5	<5
Ethylbenzene	µg/L	1	<5	<5	<5	<5	<5
m+p-xylene	µg/L	2	<10	<10	<10	<10	<10
o-xylene	µg/L	1	<5	<5	<5	<5	<5
Naphthalene	µg/L	1	<5	<5	<5	<5	<5
Surrogate Dibromofluoromethane	%		106	108	108	107	108
Surrogate toluene-d8	%		105	104	104	102	105
Surrogate 4-BFB	%		94	98	96	96	94

vTRH(C6-C10)/MBTEXN in water					
Our Reference	UNITS	PQL	258103-11	258103-12	258103-13
Your Reference			WR1	WB1	WTB1
Date Sampled			04/03/2021	04/03/2021	04/03/2021
Type of sample			Water	Water	Water
Date analysed	-		05/03/2021	05/03/2021	05/03/2021
TRH C_6 - C_9	µg/L	10	<10	<10	<10
TRH C_6 - C_{10}	µg/L	10	<10	<10	<10
TRH C_6-C_{10} less BTEX (F1)	µg/L	10	<10	<10	<10
MTBE	µg/L	1	<1	<1	<1
Benzene	µg/L	1	<1	<1	<1
Toluene	µg/L	1	<1	<1	<1
Ethylbenzene	µg/L	1	<1	<1	<1
m+p-xylene	µg/L	2	<2	<2	<2
o-xylene	µg/L	1	<1	<1	<1
Naphthalene	µg/L	1	<1	<1	<1
Surrogate Dibromofluoromethane	%		103	105	102
Surrogate toluene-d8	%		104	104	104
Surrogate 4-BFB	%		93	91	92

svTRH(C10-C40) in water							
Our Reference			258103-1	258103-2	258103-3	258103-4	258103-5
Your Reference	UNITS	PQL	WS1-S	WS1-D	WS2-S	WS2-D	WS3-S
Date Sampled			04/03/2021	04/03/2021	04/03/2021	04/03/2021	04/03/2021
Type of sample			Water	Water	Water	Water	Water
Date extracted	-		5/03/2021	5/03/2021	5/03/2021	5/03/2021	5/03/2021
Date analysed	-		05/03/2021	05/03/2021	05/03/2021	05/03/2021	05/03/2021
TRH C_{10} - C_{14}	µg/L	50	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	µg/L	100	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	µg/L	100	<100	<100	<100	<100	<100
TRH >C_{10} - C_{16}	µg/L	50	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less N (F2)	µg/L	50	<50	<50	<50	<50	<50
TRH >C_{16} - C_{34}	µg/L	100	<100	<100	<100	<100	<100
TRH >C_{34} - C_{40}	µg/L	100	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%		74	79	84	71	86

svTRH(C10-C40) in water							
Our Reference			258103-6	258103-7	258103-8	258103-9	258103-10
Your Reference	UNITS	PQL	WS4-S	WS4-D	WS5-S	WS5-D	WZ1
Date Sampled			04/03/2021	04/03/2021	04/03/2021	04/03/2021	04/03/2021
Type of sample			Water	Water	Water	Water	Water
Date extracted	-		5/03/2021	5/03/2021	5/03/2021	5/03/2021	5/03/2021
Date analysed	-		05/03/2021	05/03/2021	05/03/2021	05/03/2021	05/03/2021
TRH C_{10} - C_{14}	µg/L	50	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	µg/L	100	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	µg/L	100	<100	<100	<100	<100	<100
TRH >C_{10} - C_{16}	µg/L	50	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less N (F2)	µg/L	50	<50	<50	<50	<50	<50
TRH >C_{16} - C_{34}	µg/L	100	<100	<100	<100	<100	<100
TRH >C_{34} - C_{40}	µg/L	100	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%		87	76	81	79	88

svTRH(C10-C40) in water				
Our Reference	UNITS	PQL	258103-11	258103-12
Your Reference			WR1	WB1
Date Sampled			04/03/2021	04/03/2021
Type of sample			Water	Water
Date extracted	-		5/03/2021	5/03/2021
Date analysed	-		05/03/2021	05/03/2021
TRH C_{10} - C_{14}	µg/L	50	<50	<50
TRH C_{15} - C_{28}	µg/L	100	<100	<100
TRH C_{29} - C_{36}	µg/L	100	<100	<100
TRH >C_{10} - C_{16}	µg/L	50	<50	<50
TRH >C_{10} -C_{16} less N (F2)	µg/L	50	<50	<50
TRH >C_{16} - C_{34}	µg/L	100	<100	<100
TRH >C_{34} - C_{40}	µg/L	100	<100	<100
Surrogate o-Terphenyl	%		90	95

PAHs in Water							
Our Reference	UNITS	PQL	258103-1	258103-2	258103-3	258103-4	258103-5
Your Reference			WS1-S	WS1-D	WS2-S	WS2-D	WS3-S
Date Sampled			04/03/2021	04/03/2021	04/03/2021	04/03/2021	04/03/2021
Type of sample			Water	Water	Water	Water	Water
Date extracted	-		05/03/2021	05/03/2021	05/03/2021	05/03/2021	05/03/2021
Date analysed	-		11/03/2021	11/03/2021	11/03/2021	11/03/2021	11/03/2021
Naphthalene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	µg/L	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate p-Terphenyl-D_{14}	%		88	88	91	97	88

PAHs in Water							
Our Reference	UNITS	PQL	258103-6	258103-7	258103-8	258103-9	258103-10
Your Reference			WS4-S	WS4-D	WS5-S	WS5-D	WZ1
Date Sampled			04/03/2021	04/03/2021	04/03/2021	04/03/2021	04/03/2021
Type of sample			Water	Water	Water	Water	Water
Date extracted	-		05/03/2021	05/03/2021	05/03/2021	05/03/2021	05/03/2021
Date analysed	-		11/03/2021	11/03/2021	11/03/2021	11/03/2021	11/03/2021
Naphthalene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	µg/L	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate p-Terphenyl-D_{14}	%		92	96	98	87	87

PAHs in Water				
Our Reference	UNITS	PQL	258103-11	258103-12
Your Reference			WR1	WB1
Date Sampled			04/03/2021	04/03/2021
Type of sample			Water	Water
Date extracted	-		05/03/2021	05/03/2021
Date analysed	-		11/03/2021	11/03/2021
Naphthalene	µg/L	0.1	<0.1	<0.1
Acenaphthylene	µg/L	0.1	<0.1	<0.1
Acenaphthene	µg/L	0.1	<0.1	<0.1
Fluorene	µg/L	0.1	<0.1	<0.1
Phenanthrene	µg/L	0.1	<0.1	<0.1
Anthracene	µg/L	0.1	<0.1	<0.1
Fluoranthene	µg/L	0.1	<0.1	<0.1
Pyrene	µg/L	0.1	<0.1	<0.1
Benzo(a)anthracene	µg/L	0.1	<0.1	<0.1
Chrysene	µg/L	0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	µg/L	0.2	<0.2	<0.2
Benzo(a)pyrene	µg/L	0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	µg/L	0.1	<0.1	<0.1
Benzo(g,h,i)perylene	µg/L	0.1	<0.1	<0.1
Benzo(a)pyrene TEQ	µg/L	0.5	<0.5	<0.5
Total +ve PAH's	µg/L	0.1	<0.1	<0.1
Surrogate p-Terphenyl-D_{14}	%		90	89

Low Level OCP in water							
Our Reference	UNITS	PQL	258103-1	258103-2	258103-3	258103-4	258103-5
Your Reference			WS1-S	WS1-D	WS2-S	WS2-D	WS3-S
Date Sampled			04/03/2021	04/03/2021	04/03/2021	04/03/2021	04/03/2021
Type of sample			Water	Water	Water	Water	Water
Date extracted	-		05/03/2021	05/03/2021	05/03/2021	05/03/2021	05/03/2021
Date analysed	-		11/03/2021	11/03/2021	11/03/2021	11/03/2021	11/03/2021
Hexachlorobenzene (HCB)	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
a-BHC	µg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lindane (g-BHC)	µg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
b-BHC	µg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
d-BHC	µg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Heptachlor Epoxide	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
g-Chlordane	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
a-Chlordane	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
a-Endosulfan	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02
pp-DDE	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Dieldrin	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Endrin	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
pp-DDD	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
b-Endosulfan	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02
pp-DDT	µg/L	0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Endosulfan Sulphate	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Methoxychlor	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Surrogate 2-chlorophenol-d4	%		93	89	91	96	88

Low Level OCP in water							
Our Reference			258103-6	258103-7	258103-8	258103-9	258103-10
Your Reference	UNITS	PQL	WS4-S	WS4-D	WS5-S	WS5-D	WZ1
Date Sampled			04/03/2021	04/03/2021	04/03/2021	04/03/2021	04/03/2021
Type of sample			Water	Water	Water	Water	Water
Date extracted	-		05/03/2021	05/03/2021	05/03/2021	05/03/2021	05/03/2021
Date analysed	-		11/03/2021	11/03/2021	11/03/2021	11/03/2021	11/03/2021
Hexachlorobenzene (HCB)	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
a-BHC	µg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lindane (g-BHC)	µg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
b-BHC	µg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
d-BHC	µg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Heptachlor Epoxide	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
g-Chlordane	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
a-Chlordane	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
a-Endosulfan	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02
pp-DDE	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Dieldrin	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Endrin	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
pp-DDD	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
b-Endosulfan	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02
pp-DDT	µg/L	0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Endosulfan Sulphate	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Methoxychlor	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Surrogate 2-chlorophenol-d4	%		93	96	101	92	88

Low Level OCP in water				
Our Reference	UNITS	PQL	258103-11	258103-12
Your Reference			WR1	WB1
Date Sampled			04/03/2021	04/03/2021
Type of sample			Water	Water
Date extracted	-		05/03/2021	05/03/2021
Date analysed	-		11/03/2021	11/03/2021
Hexachlorobenzene (HCB)	µg/L	0.01	<0.01	<0.01
a-BHC	µg/L	0.05	<0.05	<0.05
Lindane (g-BHC)	µg/L	0.05	<0.05	<0.05
b-BHC	µg/L	0.05	<0.05	<0.05
Heptachlor	µg/L	0.01	<0.01	<0.01
d-BHC	µg/L	0.05	<0.05	<0.05
Aldrin	µg/L	0.01	<0.01	<0.01
Heptachlor Epoxide	µg/L	0.01	<0.01	<0.01
g-Chlordane	µg/L	0.01	<0.01	<0.01
a-Chlordane	µg/L	0.01	<0.01	<0.01
a-Endosulfan	µg/L	0.02	<0.02	<0.02
pp-DDE	µg/L	0.01	<0.01	<0.01
Dieldrin	µg/L	0.01	<0.01	<0.01
Endrin	µg/L	0.01	<0.01	<0.01
pp-DDD	µg/L	0.01	<0.01	<0.01
b-Endosulfan	µg/L	0.02	<0.02	<0.02
pp-DDT	µg/L	0.006	<0.006	<0.006
Endosulfan Sulphate	µg/L	0.02	<0.02	<0.02
Methoxychlor	µg/L	0.02	<0.02	<0.02
Surrogate 2-chlorophenol-d4	%		87	87

PFAS in water TRACE Extended							
Our Reference			258103-1	258103-2	258103-3	258103-4	258103-5
Your Reference	UNITS	PQL	WS1-S	WS1-D	WS2-S	WS2-D	WS3-S
Date Sampled			04/03/2021	04/03/2021	04/03/2021	04/03/2021	04/03/2021
Type of sample			Water	Water	Water	Water	Water
Date prepared	-		16/03/2021	16/03/2021	16/03/2021	16/03/2021	16/03/2021
Date analysed	-		16/03/2021	16/03/2021	16/03/2021	16/03/2021	16/03/2021
Perfluorobutanesulfonic acid	µg/L	0.0004	<0.0004	0.0004	<0.0004	<0.0004	<0.0004
Perfluoropentanesulfonic acid	µg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Perfluorohexanesulfonic acid	µg/L	0.0002	0.0002	0.0003	0.0005	0.0004	0.0002
Perfluoroheptanesulfonic acid	µg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Perfluorooctanesulfonate PFOS	µg/L	0.0002	0.0004	0.0006	0.0007	0.0007	0.0004
Perfluorodecanesulfonic acid	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorobutanoic acid	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluoropentanoic acid	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorohexanoic acid	µg/L	0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
Perfluoroheptanoic acid	µg/L	0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
Perfluorooctanoic acid PFOA	µg/L	0.0002	<0.0002	0.0002	<0.0002	0.0002	<0.0002
Perfluorononanoic acid	µg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Perfluorodecanoic acid	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluoroundecanoic acid	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorododecanoic acid	µg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Perfluorotridecanoic acid	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorotetradecanoic acid	µg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
4:2 FTS	µg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
6:2 FTS	µg/L	0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
8:2 FTS	µg/L	0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
10:2 FTS	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorooctane sulfonamide	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
N-Methyl perfluorooctane sulfonamide	µg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
N-Ethyl perfluorooctanesulfon -amide	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
N-Me perfluorooctanesulfonamid -oethanol	µg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
N-Et perfluorooctanesulfonamid -oethanol	µg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MePerfluorooctanesulf- amid oacetic acid	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
EtPerfluorooctanesulf- amid oacetic acid	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Surrogate $^{13}C_8$ PFOS	%		100	99	101	105	96
Surrogate $^{13}C_2$ PFOA	%		102	107	109	103	110
Extracted ISTD $^{13}C_3$ *PFBS*	%		85	88	79	81	81
Extracted ISTD $^{18}O_2$ *PFHxS*	%		101	109	97	100	106
Extracted ISTD $^{13}C_4$ *PFOS*	%		109	113	99	97	107
Extracted ISTD $^{13}C_4$ *PFBA*	%		61	68	60	62	70

PFAS in water TRACE Extended							
Our Reference	UNITS	PQL	258103-1	258103-2	258103-3	258103-4	258103-5
Your Reference			WS1-S	WS1-D	WS2-S	WS2-D	WS3-S
Date Sampled			04/03/2021	04/03/2021	04/03/2021	04/03/2021	04/03/2021
Type of sample			Water	Water	Water	Water	Water
Extracted ISTD $^{13}C_3$ *PFPeA*	%		72	80	72	72	76
Extracted ISTD $^{13}C_2$ *PFHxA*	%		104	111	105	103	109
Extracted ISTD $^{13}C_4$ *PFHpA*	%		89	97	90	84	92
Extracted ISTD $^{13}C_4$ *PFOA*	%		98	105	95	93	98
Extracted ISTD $^{13}C_5$ *PFNA*	%		94	102	95	90	100
Extracted ISTD $^{13}C_2$ *PFDA*	%		106	107	100	95	103
Extracted ISTD $^{13}C_2$ *PFUnDA*	%		96	90	85	81	92
Extracted ISTD $^{13}C_2$ *PFDoDA*	%		95	103	83	78	89
Extracted ISTD $^{13}C_2$ *PFTeDA*	%		93	90	71	78	83
Extracted ISTD $^{13}C_2$ *4:2FTS*	%		100	103	95	94	106
Extracted ISTD $^{13}C_2$ *6:2FTS*	%		108	121	111	104	113
Extracted ISTD $^{13}C_2$ *8:2FTS*	%		110	107	99	85	85
Extracted ISTD $^{13}C_8$ *FOSA*	%		57	58	49	48	55
Extracted ISTD d_3 *N MeFOSA*	%		29	28	20	23	22
Extracted ISTD d_5 *N EtFOSA*	%		25	26	20	20	22
Extracted ISTD d_7 *N MeFOSE*	%		54	54	43	45	51
Extracted ISTD d_9 *N EtFOSE*	%		46	48	40	42	48
Extracted ISTD d_3 *N MeFOSAA*	%		114	98	88	87	88
Extracted ISTD d_5 *N EtFOSAA*	%		113	103	89	84	94
Total Positive PFHxS & PFOS	µg/L	0.0002	0.0006	0.0009	0.001	0.001	0.0006
Total Positive PFOS & PFOA	µg/L	0.0002	0.0004	0.0008	0.0007	0.0009	0.0004
Total Positive PFAS	µg/L	0.0002	0.0006	0.002	0.001	0.001	0.0006

PFAS in water TRACE Extended							
Our Reference			258103-6	258103-7	258103-8	258103-9	258103-10
Your Reference	UNITS	PQL	WS4-S	WS4-D	WS5-S	WS5-D	WZ1
Date Sampled			04/03/2021	04/03/2021	04/03/2021	04/03/2021	04/03/2021
Type of sample			Water	Water	Water	Water	Water
Date prepared	-		16/03/2021	16/03/2021	16/03/2021	16/03/2021	16/03/2021
Date analysed	-		16/03/2021	16/03/2021	16/03/2021	16/03/2021	16/03/2021
Perfluorobutanesulfonic acid	µg/L	0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
Perfluoropentanesulfonic acid	µg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Perfluorohexanesulfonic acid	µg/L	0.0002	0.0005	0.0004	0.0005	0.0004	0.0005
Perfluoroheptanesulfonic acid	µg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Perfluorooctanesulfonate PFOS	µg/L	0.0002	0.0008	0.0008	0.0007	0.0007	0.0009
Perfluorodecanesulfonic acid	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorobutanoic acid	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluoropentanoic acid	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorohexanoic acid	µg/L	0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
Perfluoroheptanoic acid	µg/L	0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
Perfluorooctanoic acid PFOA	µg/L	0.0002	<0.0002	0.0002	0.0002	0.0002	<0.0002
Perfluorononanoic acid	µg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Perfluorodecanoic acid	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluoroundecanoic acid	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorododecanoic acid	µg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Perfluorotridecanoic acid	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorotetradecanoic acid	µg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
4:2 FTS	µg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
6:2 FTS	µg/L	0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
8:2 FTS	µg/L	0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
10:2 FTS	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorooctane sulfonamide	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
N-Methyl perfluorooctane sulfonamide	µg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
N-Ethyl perfluorooctanesulfon -amide	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
N-Me perfluorooctanesulfonamid -oethanol	µg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
N-Et perfluorooctanesulfonamid -oethanol	µg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MePerfluorooctanesulf- amid oacetic acid	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
EtPerfluorooctanesulf- amid oacetic acid	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Surrogate $^{13}C_8$ PFOS	%		99	100	93	106	100
Surrogate $^{13}C_2$ PFOA	%		103	103	104	105	98
Extracted ISTD $^{13}C_3$ *PFBS*	%		80	83	78	77	90
Extracted ISTD $^{18}O_2$ *PFHxS*	%		94	93	91	93	91
Extracted ISTD $^{13}C_4$ *PFOS*	%		92	91	97	83	89
Extracted ISTD $^{13}C_4$ *PFBA*	%		66	63	65	64	66

PFAS in water TRACE Extended							
Our Reference	UNITS	PQL	258103-6	258103-7	258103-8	258103-9	258103-10
Your Reference			WS4-S	WS4-D	WS5-S	WS5-D	WZ1
Date Sampled			04/03/2021	04/03/2021	04/03/2021	04/03/2021	04/03/2021
Type of sample			Water	Water	Water	Water	Water
Extracted ISTD $^{13}C_3$ *PFPeA*	%		80	76	74	80	73
Extracted ISTD $^{13}C_2$ *PFHxA*	%		94	97	102	104	100
Extracted ISTD $^{13}C_4$ *PFHpA*	%		81	84	82	86	85
Extracted ISTD $^{13}C_4$ *PFOA*	%		91	93	92	88	95
Extracted ISTD $^{13}C_5$ *PFNA*	%		96	91	92	86	93
Extracted ISTD $^{13}C_2$ *PFDA*	%		96	93	100	89	90
Extracted ISTD $^{13}C_2$ *PFUnDA*	%		117	104	130	119	107
Extracted ISTD $^{13}C_2$ *PFDoDA*	%		103	75	103	98	84
Extracted ISTD $^{13}C_2$ *PFTeDA*	%		63	88	97	88	78
Extracted ISTD $^{13}C_2$ *4:2FTS*	%		87	86	86	87	92
Extracted ISTD $^{13}C_2$ *6:2FTS*	%		102	95	104	102	112
Extracted ISTD $^{13}C_2$ *8:2FTS*	%		126	101	128	107	122
Extracted ISTD $^{13}C_8$ *FOSA*	%		56	51	62	51	52
Extracted ISTD d_3 *N MeFOSA*	%		20	22	22	23	#
Extracted ISTD d_5 *N EtFOSA*	%		#	20	20	22	#
Extracted ISTD d_7 *N MeFOSE*	%		37	31	50	40	34
Extracted ISTD d_9 *N EtFOSE*	%		34	28	39	34	31
Extracted ISTD d_3 *N MeFOSAA*	%		121	101	115	106	115
Extracted ISTD d_5 *N EtFOSAA*	%		99	77	91	78	84
Total Positive PFHxS & PFOS	µg/L	0.0002	0.001	0.001	0.001	0.001	0.001
Total Positive PFOS & PFOA	µg/L	0.0002	0.0008	0.001	0.0009	0.0009	0.0009
Total Positive PFAS	µg/L	0.0002	0.001	0.001	0.001	0.001	0.001

PFAS in water TRACE Extended					
Our Reference	UNITS	PQL	258103-11	258103-12	258103-13
Your Reference			WR1	WB1	WTB1
Date Sampled			04/03/2021	04/03/2021	04/03/2021
Type of sample			Water	Water	Water
Date prepared	-		16/03/2021	16/03/2021	16/03/2021
Date analysed	-		16/03/2021	16/03/2021	16/03/2021
Perfluorobutanesulfonic acid	µg/L	0.0004	<0.0004	<0.0004	<0.0004
Perfluoropentanesulfonic acid	µg/L	0.001	<0.001	<0.001	<0.001
Perfluorohexanesulfonic acid	µg/L	0.0002	<0.0002	<0.0002	<0.0002
Perfluoroheptanesulfonic acid	µg/L	0.001	<0.001	<0.001	<0.001
Perfluorooctanesulfonate PFOS	µg/L	0.0002	<0.0002	<0.0002	<0.0002
Perfluorodecanesulfonic acid	µg/L	0.002	<0.002	<0.002	<0.002
Perfluorobutanoic acid	µg/L	0.002	<0.002	<0.002	<0.002
Perfluoropentanoic acid	µg/L	0.002	<0.002	<0.002	<0.002
Perfluorohexanoic acid	µg/L	0.0004	<0.0004	<0.0004	<0.0004
Perfluoroheptanoic acid	µg/L	0.0004	<0.0004	<0.0004	<0.0004
Perfluorooctanoic acid PFOA	µg/L	0.0002	<0.0002	<0.0002	<0.0002
Perfluorononanoic acid	µg/L	0.001	<0.001	<0.001	<0.001
Perfluorodecanoic acid	µg/L	0.002	<0.002	<0.002	<0.002
Perfluoroundecanoic acid	µg/L	0.002	<0.002	<0.002	<0.002
Perfluorododecanoic acid	µg/L	0.005	<0.005	<0.005	<0.005
Perfluorotridecanoic acid	µg/L	0.01	<0.01	<0.01	<0.01
Perfluorotetradecanoic acid	µg/L	0.05	<0.05	<0.05	<0.05
4:2 FTS	µg/L	0.001	<0.001	<0.001	<0.001
6:2 FTS	µg/L	0.0004	<0.0004	<0.0004	<0.0004
8:2 FTS	µg/L	0.0004	<0.0004	<0.0004	<0.0004
10:2 FTS	µg/L	0.002	<0.002	<0.002	<0.002
Perfluorooctane sulfonamide	µg/L	0.01	<0.01	<0.01	<0.01
N-Methyl perfluorooctane sulfonamide	µg/L	0.005	<0.005	<0.005	<0.005
N-Ethyl perfluorooctanesulfon -amide	µg/L	0.01	<0.01	<0.01	<0.01
N-Me perfluorooctanesulfonamid -oethanol	µg/L	0.005	<0.005	<0.005	<0.005
N-Et perfluorooctanesulfonamid -oethanol	µg/L	0.05	<0.05	<0.05	<0.05
MePerfluorooctanesulf- amid oacetic acid	µg/L	0.002	<0.002	<0.002	<0.002
EtPerfluorooctanesulf- amid oacetic acid	µg/L	0.002	<0.002	<0.002	<0.002
Surrogate $^{13}C_8$ PFOS	%		99	90	103
Surrogate $^{13}C_2$ PFOA	%		100	98	100
Extracted ISTD $^{13}C_3$ *PFBS*	%		81	77	83
Extracted ISTD $^{18}O_2$ *PFHxS*	%		91	91	89
Extracted ISTD $^{13}C_4$ *PFOS*	%		87	89	81
Extracted ISTD $^{13}C_4$ *PFBA*	%		98	100	102

PFAS in water TRACE Extended					
Our Reference	UNITS	PQL	258103-11	258103-12	258103-13
Your Reference			WR1	WB1	WTB1
Date Sampled			04/03/2021	04/03/2021	04/03/2021
Type of sample			Water	Water	Water
Extracted ISTD $^{13}C_3$ *PFPeA*	%		82	85	86
Extracted ISTD $^{13}C_2$ *PFHxA*	%		99	100	95
Extracted ISTD $^{13}C_4$ *PFHpA*	%		90	89	87
Extracted ISTD $^{13}C_4$ *PFOA*	%		92	90	91
Extracted ISTD $^{13}C_5$ *PFNA*	%		91	90	91
Extracted ISTD $^{13}C_2$ *PFDA*	%		89	84	90
Extracted ISTD $^{13}C_2$ *PFUnDA*	%		112	95	94
Extracted ISTD $^{13}C_2$ *PFDoDA*	%		99	69	77
Extracted ISTD $^{13}C_2$ *PFTeDA*	%		88	72	66
Extracted ISTD $^{13}C_2$ *4:2FTS*	%		87	92	94
Extracted ISTD $^{13}C_2$ *6:2FTS*	%		109	104	111
Extracted ISTD $^{13}C_2$ *8:2FTS*	%		130	105	125
Extracted ISTD $^{13}C_8$ *FOSA*	%		67	57	60
Extracted ISTD d_3 *N MeFOSA*	%		29	20	21
Extracted ISTD d_5 *N EtFOSA*	%		26	20	20
Extracted ISTD d_7 *N MeFOSE*	%		45	34	35
Extracted ISTD d_9 *N EtFOSE*	%		37	30	26
Extracted ISTD d_3 *N MeFOSAA*	%		121	92	104
Extracted ISTD d_5 *N EtFOSAA*	%		99	74	75
Total Positive PFHxS & PFOS	µg/L	0.0002	<0.0002	<0.0002	<0.0002
Total Positive PFOS & PFOA	µg/L	0.0002	<0.0002	<0.0002	<0.0002
Total Positive PFAS	µg/L	0.0002	<0.0002	<0.0002	<0.0002

Chlorophyll a & Phaeophytin a							
Our Reference			258103-1	258103-2	258103-3	258103-4	258103-5
Your Reference	UNITS	PQL	WS1-S	WS1-D	WS2-S	WS2-D	WS3-S
Date Sampled			04/03/2021	04/03/2021	04/03/2021	04/03/2021	04/03/2021
Type of sample			Water	Water	Water	Water	Water
Chlorophyll a	µg/L	0.1	0.8	1.1	0.9	0.8	0.7
Phaeophytin a	µg/L	0.2	0.2	<0.2	0.3	0.3	0.3

Chlorophyll a & Phaeophytin a							
Our Reference			258103-6	258103-7	258103-8	258103-9	258103-10
Your Reference	UNITS	PQL	WS4-S	WS4-D	WS5-S	WS5-D	WZ1
Date Sampled			04/03/2021	04/03/2021	04/03/2021	04/03/2021	04/03/2021
Type of sample			Water	Water	Water	Water	Water
Chlorophyll a	µg/L	0.1	0.6	0.6	0.9	1.1	0.7
Phaeophytin a	µg/L	0.2	0.3	0.4	0.4	<0.2	0.4

Method ID	Methodology Summary
Ext-058	Analysed by The Marine and Freshwater Research Laboratory, accreditation number 10603
INORG-005	Acidity - determined by titration based on APHA latest edition, Method 2310 B. Soils reported from a 1:5 water extract unless otherwise specified.
INORG-006	Alkalinity - determined titrimetrically based on APHA latest edition, Method 2320-B. Soils reported from a 1:5 water extract unless otherwise specified.
INORG-018	Total Dissolved Solids - determined gravimetrically. The solids are dried at 180±10°C
INORG-019	Suspended Solids - determined gravimetrically by filtration of the sample. The solids are dried at 104±5°C
INORG-022	Turbidity - measured nephelometrically using a turbidimeter, in accordance with APHA latest edition, 2130 B.
INORG-040	Ion Balance Calculation: Cations in water by ICP-OES; Anions in water by IC; Alkalinity in water by Titration using APHA methods.
INORG-051	Determination of sulphide by titration and/or colourimetric determination. Note, the Sulphide is termed as Total Sulphide given any Sulphide contained in any sediment present may also included in the determination.
INORG-055	NOx - determined colourimetrically. Soils are analysed from a water extract.
INORG-057	Ammonia by colourimetric analysis based on APHA latest edition 4500-NH3 F.
INORG-060	Phosphate- determined colourimetrically. Soils are analysed from a water extract.
INORG-060	Total Phosphorus by colourimetric analysis based on APHA latest edition 4500-P J.
INORG-081	Anions - a range of anions are determined by Ion Chromatography based on APHA latest edition Method 4110-B. Soils and other sample types reported from a water extract unless otherwise specified (standard soil extract ratio 1:5).
INORG-110	Total Nitrogen by high temperature catalytic combustion with chemiluminescence detection. Dissolved/Total Carbon and Dissolved/Total Organic and Inorganic Carbon by high temperature catalytic combustion with NDIR
METALS-008	Hardness calculated from Calcium and Magnesium as per APHA latest edition 2340B.
METALS-020	Determination of various metals by ICP-AES.
METALS-021	Determination of Mercury by Cold Vapour AAS. For urine samples total Mercury is determined, however, mercury in urine is almost entirely in the inorganic form (CDC).
METALS-022	Determination of various metals by ICP-MS.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.

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

QUALITY CONTROL: Miscellaneous Inorganics					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			04/03/2021	1	04/03/2021	04/03/2021		04/03/2021	[NT]
Date analysed	-			04/03/2021	1	04/03/2021	04/03/2021		04/03/2021	[NT]
Total Dissolved Solids (grav)	mg/L	5	INORG-018	<5	1	37000	39000	5	102	[NT]
Total Suspended Solids	mg/L	5	INORG-019	<5	1	<5	[NT]		93	[NT]
Turbidity	NTU	0.1	INORG-022	<0.1	1	0.3	[NT]		105	[NT]
Dissolved Organic Carbon	mg/L	1	INORG-110	<1	1	<1	<1	0	99	[NT]
Acidity as $CaCO_3$	mg/L	5	INORG-005	[NT]	1	<5	<5	0	103	[NT]
Sulphide in water*	mg/L	0.5	INORG-051	<0.5	1	<0.5	[NT]		82	[NT]
Fluoride	mg/L	0.1	INORG-081	<0.1	1	<5	<5	0	102	[NT]

QUALITY CONTROL: Miscellaneous Inorganics					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	8	04/03/2021	04/03/2021		[NT]	[NT]
Date analysed	-			[NT]	8	04/03/2021	04/03/2021		[NT]	[NT]
Total Dissolved Solids (grav)	mg/L	5	INORG-018	[NT]	8	30000	[NT]		[NT]	[NT]
Total Suspended Solids	mg/L	5	INORG-019	[NT]	8	7	[NT]		[NT]	[NT]
Turbidity	NTU	0.1	INORG-022	[NT]	8	0.4	0.4	0	[NT]	[NT]
Dissolved Organic Carbon	mg/L	1	INORG-110	[NT]	8	<1	[NT]		[NT]	[NT]
Acidity as $CaCO_3$	mg/L	5	INORG-005	[NT]	8	<5	[NT]		[NT]	[NT]
Sulphide in water*	mg/L	0.5	INORG-051	[NT]	8	0.7	[NT]		[NT]	[NT]
Fluoride	mg/L	0.1	INORG-081	[NT]	8	<5	[NT]		[NT]	[NT]

QUALITY CONTROL: Ionic Balance						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			04/03/2021	1	04/03/2021	04/03/2021		04/03/2021	[NT]
Date analysed	-			04/03/2021	1	04/03/2021	04/03/2021		04/03/2021	[NT]
Calcium - Dissolved	mg/L	0.5	METALS-020	<0.5	1	430	430	0	98	[NT]
Potassium - Dissolved	mg/L	0.5	METALS-020	<0.5	1	410	410	0	102	[NT]
Magnesium - Dissolved	mg/L	0.5	METALS-020	<0.5	1	1400	1400	0	99	[NT]
Sodium - Dissolved	mg/L	0.5	METALS-020	<0.5	1	12000	12000	0	98	[NT]
Bicarbonate HCO_3 as $CaCO_3$	mg/L	5	INORG-006	<5	1	120	130	8	101	[NT]
Carbonate CO_3^{2-} as $CaCO_3$	mg/L	5	INORG-006	<5	1	<5	<5	0	101	[NT]
Total Alkalinity as $CaCO_3$	mg/L	5	INORG-006	<5	1	120	130	8	101	[NT]
Chloride	mg/L	1	INORG-081	<1	1	21000	21000	0	96	[NT]
Sulphate	mg/L	1	INORG-081	<1	1	3100	3000	3	100	[NT]
Hardness as $CaCO_3$	mg/L	3	METALS-008	<3	1	6700	6700	0	[NT]	[NT]

QUALITY CONTROL: Nutrients in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	258103-2
Date prepared	-			04/03/2021	1	04/03/2021	04/03/2021		04/03/2021	04/03/2021
Date analysed	-			04/03/2021	1	04/03/2021	04/03/2021		04/03/2021	04/03/2021
Total Nitrogen	mg/L	0.1	INORG-110	<0.1	1	0.2	0.2	0	105	97
NOx as N	mg/L	0.005	INORG-055	<0.005	1	<0.005	<0.005	0	98	102
Ammonia as N	mg/L	0.005	INORG-057	<0.005	1	0.011	0.012	9	107	109
Total Phosphorus	mg/L	0.01	INORG-060	<0.01	1	<0.01	<0.01	0	110	105
Phosphate as P	mg/L	0.005	INORG-060	<0.005	1	<0.005	<0.005	0	111	98

QUALITY CONTROL: Total Metals in water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	258103-2
Date digested	-			10/03/2021	1	10/03/2021	10/03/2021		10/03/2021	10/03/2021
Date analysed	-			10/03/2021	1	10/03/2021	10/03/2021		10/03/2021	10/03/2021
Aluminium-Total	mg/L	0.01	METALS-022	<0.01	1	0.02	0.03	40	105	108
Iron-Total	mg/L	0.01	METALS-022	<0.01	1	<0.02	<0.02	0	114	93

QUALITY CONTROL: Dissolved Metals in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	258103-2
Date prepared	-			10/03/2021	1	10/03/2021	10/03/2021		10/03/2021	10/03/2021
Date analysed	-			10/03/2021	1	10/03/2021	10/03/2021		10/03/2021	10/03/2021
Silicon - Dissolved	mg/L	0.1	METALS-020	<0.1	1	<1	<1	0	106	[NT]
Silver-Dissolved Ultra Low	mg/L	0.00005	METALS-022	<0.00005	1	<0.0001	<0.0001	0	104	95
Aluminium-Dissolved	mg/L	0.01	METALS-022	<0.01	1	<0.02	<0.02	0	103	99
Arsenic-Dissolved	mg/L	0.001	METALS-022	<0.001	1	<0.002	<0.002	0	103	105
Cadmium-Dissolved	mg/L	0.0001	METALS-022	<0.0001	1	<0.0002	<0.0002	0	100	100
Cobalt-Dissolved	mg/L	0.001	METALS-022	<0.001	1	<0.002	<0.002	0	111	96
Chromium-Dissolved	mg/L	0.001	METALS-022	<0.001	1	<0.002	<0.002	0	101	98
Copper-Dissolved	mg/L	0.001	METALS-022	<0.001	1	<0.002	<0.002	0	106	91
Iron-Dissolved	mg/L	0.01	METALS-022	<0.01	1	<0.02	<0.02	0	113	116
Mercury-Dissolved	mg/L	0.00005	METALS-021	<0.00005	1	<0.00005	[NT]		108	[NT]
Manganese-Dissolved	mg/L	0.005	METALS-022	<0.005	1	<0.01	<0.01	0	101	98
Molybdenum-Dissolved	mg/L	0.001	METALS-022	<0.001	1	0.013	0.013	0	100	112
Nickel-Dissolved	mg/L	0.001	METALS-022	<0.001	1	<0.002	<0.002	0	106	94
Lead-Dissolved	mg/L	0.001	METALS-022	<0.001	1	<0.002	<0.002	0	105	86
Antimony-Dissolved	mg/L	0.001	METALS-022	<0.001	1	<0.002	<0.002	0	102	85
Selenium-Dissolved	mg/L	0.001	METALS-022	<0.001	1	<0.002	<0.002	0	106	104
Zinc-Dissolved	mg/L	0.001	METALS-022	<0.001	1	0.006	0.007	15	104	93

QUALITY CONTROL: Dissolved Metals in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	6	10/03/2021	10/03/2021		[NT]	[NT]
Date analysed	-			[NT]	6	10/03/2021	10/03/2021		[NT]	[NT]
Silicon - Dissolved	mg/L	0.1	METALS-020	[NT]	6	<1	[NT]		[NT]	[NT]
Silver-Dissolved Ultra Low	mg/L	0.00005	METALS-022	[NT]	6	<0.0001	[NT]		[NT]	[NT]
Aluminium-Dissolved	mg/L	0.01	METALS-022	[NT]	6	<0.02	[NT]		[NT]	[NT]
Arsenic-Dissolved	mg/L	0.001	METALS-022	[NT]	6	<0.002	[NT]		[NT]	[NT]
Cadmium-Dissolved	mg/L	0.0001	METALS-022	[NT]	6	<0.0002	[NT]		[NT]	[NT]
Cobalt-Dissolved	mg/L	0.001	METALS-022	[NT]	6	<0.002	[NT]		[NT]	[NT]
Chromium-Dissolved	mg/L	0.001	METALS-022	[NT]	6	<0.002	[NT]		[NT]	[NT]
Copper-Dissolved	mg/L	0.001	METALS-022	[NT]	6	<0.002	[NT]		[NT]	[NT]
Iron-Dissolved	mg/L	0.01	METALS-022	[NT]	6	<0.02	[NT]		[NT]	[NT]
Mercury-Dissolved	mg/L	0.00005	METALS-021	[NT]	6	<0.00005	<0.00005	0	[NT]	[NT]
Manganese-Dissolved	mg/L	0.005	METALS-022	[NT]	6	<0.01	[NT]		[NT]	[NT]
Molybdenum-Dissolved	mg/L	0.001	METALS-022	[NT]	6	0.013	[NT]		[NT]	[NT]
Nickel-Dissolved	mg/L	0.001	METALS-022	[NT]	6	<0.002	[NT]		[NT]	[NT]
Lead-Dissolved	mg/L	0.001	METALS-022	[NT]	6	<0.002	[NT]		[NT]	[NT]
Antimony-Dissolved	mg/L	0.001	METALS-022	[NT]	6	<0.002	[NT]		[NT]	[NT]
Selenium-Dissolved	mg/L	0.001	METALS-022	[NT]	6	<0.002	[NT]		[NT]	[NT]
Zinc-Dissolved	mg/L	0.001	METALS-022	[NT]	6	0.005	[NT]		[NT]	[NT]

QUALITY CONTROL: Dissolved Metals in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	11	10/03/2021	10/03/2021		[NT]	[NT]
Date analysed	-			[NT]	11	10/03/2021	10/03/2021		[NT]	[NT]
Silicon - Dissolved	mg/L	0.1	METALS-020	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Silver-Dissolved Ultra Low	mg/L	0.00005	METALS-022	[NT]	11	<0.00005	<0.00005	0	[NT]	[NT]
Aluminium-Dissolved	mg/L	0.01	METALS-022	[NT]	11	<0.01	<0.01	0	[NT]	[NT]
Arsenic-Dissolved	mg/L	0.001	METALS-022	[NT]	11	<0.001	<0.001	0	[NT]	[NT]
Cadmium-Dissolved	mg/L	0.0001	METALS-022	[NT]	11	<0.0001	<0.0001	0	[NT]	[NT]
Cobalt-Dissolved	mg/L	0.001	METALS-022	[NT]	11	<0.001	<0.001	0	[NT]	[NT]
Chromium-Dissolved	mg/L	0.001	METALS-022	[NT]	11	<0.001	<0.001	0	[NT]	[NT]
Copper-Dissolved	mg/L	0.001	METALS-022	[NT]	11	<0.001	<0.001	0	[NT]	[NT]
Iron-Dissolved	mg/L	0.01	METALS-022	[NT]	11	<0.01	<0.01	0	[NT]	[NT]
Mercury-Dissolved	mg/L	0.00005	METALS-021	[NT]	11	<0.00005	[NT]		[NT]	[NT]
Manganese-Dissolved	mg/L	0.005	METALS-022	[NT]	11	<0.005	<0.005	0	[NT]	[NT]
Molybdenum-Dissolved	mg/L	0.001	METALS-022	[NT]	11	<0.001	<0.001	0	[NT]	[NT]
Nickel-Dissolved	mg/L	0.001	METALS-022	[NT]	11	<0.001	<0.001	0	[NT]	[NT]
Lead-Dissolved	mg/L	0.001	METALS-022	[NT]	11	<0.001	<0.001	0	[NT]	[NT]
Antimony-Dissolved	mg/L	0.001	METALS-022	[NT]	11	<0.001	<0.001	0	[NT]	[NT]
Selenium-Dissolved	mg/L	0.001	METALS-022	[NT]	11	<0.001	<0.001	0	[NT]	[NT]
Zinc-Dissolved	mg/L	0.001	METALS-022	[NT]	11	0.001	0.001	0	[NT]	[NT]

QUALITY CONTROL: vTRH(C6-C10)/MBTEXN in water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date analysed	-			05/03/2021	[NT]	[NT]	[NT]	[NT]	05/03/2021	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	97	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	97	[NT]
MTBE	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	105	[NT]
Toluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	111	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	89	[NT]
m+p-xylene	µg/L	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	90	[NT]
o-xylene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	90	[NT]
Naphthalene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	104	[NT]	[NT]	[NT]	[NT]	107	[NT]
Surrogate toluene-d8	%		Org-023	103	[NT]	[NT]	[NT]	[NT]	106	[NT]
Surrogate 4-BFB	%		Org-023	93	[NT]	[NT]	[NT]	[NT]	99	[NT]

QUALITY CONTROL: svTRH(C10-C40) in water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	258103-1
Date extracted	-			05/03/2021	10	5/03/2021	5/03/2021		05/03/2021	5/03/2021
Date analysed	-			05/03/2021	10	05/03/2021	05/03/2021		05/03/2021	05/03/2021
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	10	<50	<50	0	93	82
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	10	<100	<100	0	94	86
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	10	<100	<100	0	92	78
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	10	<50	<50	0	93	83
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	10	<100	<100	0	94	86
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	10	<100	<100	0	92	81
Surrogate o-Terphenyl	%		Org-020	89	10	88	87	1	92	74

QUALITY CONTROL: PAHs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	258103-6
Date extracted	-			05/03/2021	5	05/03/2021	05/03/2021		05/03/2021	05/03/2021
Date analysed	-			11/03/2021	5	11/03/2021	11/03/2021		11/03/2021	11/03/2021
Naphthalene	µg/L	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	95	81
Acenaphthylene	µg/L	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	µg/L	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
Fluorene	µg/L	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	92	81
Phenanthrene	µg/L	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	90	77
Anthracene	µg/L	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	µg/L	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	88	76
Pyrene	µg/L	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	84	73
Benzo(a)anthracene	µg/L	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
Chrysene	µg/L	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	110	86
Benzo(b,j+k)fluoranthene	µg/L	0.2	Org-022/025	<0.2	5	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	µg/L	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	91	72
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-D_{14}	%		Org-022/025	88	5	88	93	6	95	86

QUALITY CONTROL: Low Level OCP in water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	258103-6
Date extracted	-			05/03/2021	5	05/03/2021	05/03/2021		05/03/2021	05/03/2021
Date analysed	-			11/03/2021	5	11/03/2021	11/03/2021		11/03/2021	11/03/2021
Hexachlorobenzene (HCB)	µg/L	0.01	Org-022/025	<0.01	5	<0.01	<0.01	0	[NT]	[NT]
a-BHC	µg/L	0.05	Org-022/025	<0.05	5	<0.05	<0.05	0	95	87
Lindane (g-BHC)	µg/L	0.05	Org-022/025	<0.05	5	<0.05	<0.05	0	[NT]	[NT]
b-BHC	µg/L	0.05	Org-022/025	<0.05	5	<0.05	<0.05	0	100	82
Heptachlor	µg/L	0.01	Org-022/025	<0.01	5	<0.01	<0.01	0	117	104
d-BHC	µg/L	0.05	Org-022/025	<0.05	5	<0.05	<0.05	0	[NT]	[NT]
Aldrin	µg/L	0.01	Org-022/025	<0.01	5	<0.01	<0.01	0	87	71
Heptachlor Epoxide	µg/L	0.01	Org-022/025	<0.01	5	<0.01	<0.01	0	99	85
g-Chlordane	µg/L	0.01	Org-022/025	<0.01	5	<0.01	<0.01	0	[NT]	[NT]
a-Chlordane	µg/L	0.01	Org-022/025	<0.01	5	<0.01	<0.01	0	[NT]	[NT]
a-Endosulfan	µg/L	0.02	Org-022/025	<0.02	5	<0.02	<0.02	0	[NT]	[NT]
pp-DDE	µg/L	0.01	Org-022/025	<0.01	5	<0.01	<0.01	0	91	85
Dieldrin	µg/L	0.01	Org-022/025	<0.01	5	<0.01	<0.01	0	94	85
Endrin	µg/L	0.01	Org-022/025	<0.01	5	<0.01	<0.01	0	[NT]	[NT]
pp-DDD	µg/L	0.01	Org-022/025	<0.01	5	<0.01	<0.01	0	82	78
b-Endosulfan	µg/L	0.02	Org-022/025	<0.02	5	<0.02	<0.02	0	[NT]	[NT]
pp-DDT	µg/L	0.006	Org-022/025	<0.006	5	<0.006	<0.006	0	[NT]	[NT]
Endosulfan Sulphate	µg/L	0.02	Org-022/025	<0.02	5	<0.02	<0.02	0	94	80
Methoxychlor	µg/L	0.02	Org-022/025	<0.02	5	<0.02	<0.02	0	[NT]	[NT]
Surrogate 2-chlorophenol-d4	%		Org-022/025	74	5	88	91	3	77	87

QUALITY CONTROL: PFAS in water TRACE Extended						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	258103-2
Date prepared	-			16/03/2021	1	16/03/2021	16/03/2021		16/03/2021	16/03/2021
Date analysed	-			16/03/2021	1	16/03/2021	16/03/2021		16/03/2021	16/03/2021
Perfluorobutanesulfonic acid	µg/L	0.0004	Org-029	<0.0004	1	<0.0004	<0.0004	0	98	75
Perfluoropentanesulfonic acid	µg/L	0.001	Org-029	<0.001	1	<0.001	<0.001	0	100	73
Perfluorohexanesulfonic acid	µg/L	0.0002	Org-029	<0.0002	1	0.0002	0.0002	0	100	74
Perfluoroheptanesulfonic acid	µg/L	0.001	Org-029	<0.001	1	<0.001	<0.001	0	92	70
Perfluorooctanesulfonate PFOS	µg/L	0.0002	Org-029	<0.0002	1	0.0004	0.0004	0	101	74
Perfluorodecanesulfonic acid	µg/L	0.002	Org-029	<0.002	1	<0.002	<0.002	0	79	71
Perfluorobutanoic acid	µg/L	0.002	Org-029	<0.002	1	<0.002	<0.002	0	102	79
Perfluoropentanoic acid	µg/L	0.002	Org-029	<0.002	1	<0.002	<0.002	0	106	89
Perfluorohexanoic acid	µg/L	0.0004	Org-029	<0.0004	1	<0.0004	<0.0004	0	84	60
Perfluoroheptanoic acid	µg/L	0.0004	Org-029	<0.0004	1	<0.0004	<0.0004	0	109	103
Perfluorooctanoic acid PFOA	µg/L	0.0002	Org-029	<0.0002	1	<0.0002	<0.0002	0	102	73
Perfluorononanoic acid	µg/L	0.001	Org-029	<0.001	1	<0.001	<0.001	0	87	68
Perfluorodecanoic acid	µg/L	0.002	Org-029	<0.002	1	<0.002	<0.002	0	99	79
Perfluoroundecanoic acid	µg/L	0.002	Org-029	<0.002	1	<0.002	<0.002	0	90	63
Perfluorododecanoic acid	µg/L	0.005	Org-029	<0.005	1	<0.005	<0.005	0	94	79
Perfluorotridecanoic acid	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	60	72
Perfluorotetradecanoic acid	µg/L	0.05	Org-029	<0.05	1	<0.05	<0.05	0	122	83
4:2 FTS	µg/L	0.001	Org-029	<0.001	1	<0.001	<0.001	0	111	84
6:2 FTS	µg/L	0.0004	Org-029	<0.0004	1	<0.0004	<0.0004	0	102	76
8:2 FTS	µg/L	0.0004	Org-029	<0.0004	1	<0.0004	<0.0004	0	94	80
10:2 FTS	µg/L	0.002	Org-029	<0.002	1	<0.002	<0.002	0	90	99
Perfluorooctane sulfonamide	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	104	83
N-Methyl perfluorooctane sulfonamide	µg/L	0.005	Org-029	<0.005	1	<0.005	<0.005	0	94	77
N-Ethyl perfluorooctanesulfon -amide	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	90	83
N-Me perfluorooctanesulfonamid -oethanol	µg/L	0.005	Org-029	<0.005	1	<0.005	<0.005	0	94	81
N-Et perfluorooctanesulfonamid -oethanol	µg/L	0.05	Org-029	<0.05	1	<0.05	<0.05	0	112	94
MePerfluorooctanesulf- amid oacetic acid	µg/L	0.002	Org-029	<0.002	1	<0.002	<0.002	0	100	78
EtPerfluorooctanesulf- amid oacetic acid	µg/L	0.002	Org-029	<0.002	1	<0.002	<0.002	0	102	98
Surrogate $^{13}C_8$ PFOS	%		Org-029	100	1	100	104	4	108	113
Surrogate $^{13}C_2$ PFOA	%		Org-029	106	1	102	103	1	107	105
Extracted ISTD $^{13}C_3$ *PFBS*	%		Org-029	80	1	85	81	5	93	90

QUALITY CONTROL: PFAS in water TRACE Extended						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	258103-2
Extracted ISTD $^{18}O_2$ *PFHxS*	%		Org-029	96	1	101	97	4	101	105
Extracted ISTD $^{13}C_4$ *PFOS*	%		Org-029	99	1	109	101	8	103	109
Extracted ISTD $^{13}C_4$ *PFBA*	%		Org-029	99	1	61	67	9	106	64
Extracted ISTD $^{13}C_3$ *PFPeA*	%		Org-029	83	1	72	75	4	91	75
Extracted ISTD $^{13}C_2$ *PFHxA*	%		Org-029	106	1	104	104	0	111	109
Extracted ISTD $^{13}C_4$ *PFHpA*	%		Org-029	87	1	89	88	1	97	92
Extracted ISTD $^{13}C_4$ *PFOA*	%		Org-029	93	1	98	97	1	98	102
Extracted ISTD $^{13}C_5$ *PFNA*	%		Org-029	93	1	94	92	2	101	99
Extracted ISTD $^{13}C_2$ *PFDA*	%		Org-029	101	1	106	98	8	109	104
Extracted ISTD $^{13}C_2$ *PFUnDA*	%		Org-029	101	1	96	87	10	105	103
Extracted ISTD $^{13}C_2$ *PFDoDA*	%		Org-029	105	1	95	86	10	100	111
Extracted ISTD $^{13}C_2$ *PFTeDA*	%		Org-029	78	1	93	95	2	62	70
Extracted ISTD $^{13}C_2$ *4:2FTS*	%		Org-029	106	1	100	99	1	109	105
Extracted ISTD $^{13}C_2$ *6:2FTS*	%		Org-029	114	1	108	111	3	120	120
Extracted ISTD $^{13}C_2$ *8:2FTS*	%		Org-029	136	1	110	86	24	137	95
Extracted ISTD $^{13}C_8$ *FOSA*	%		Org-029	68	1	57	50	13	69	56
Extracted ISTD d_3 *N MeFOSA*	%		Org-029	33	1	29	29	0	30	33
Extracted ISTD d_5 *N EtFOSA*	%		Org-029	31	1	25	24	4	26	27
Extracted ISTD d_7 *N MeFOSE*	%		Org-029	59	1	54	47	14	54	54
Extracted ISTD d_9 *N EtFOSE*	%		Org-029	51	1	46	42	9	46	52

QUALITY CONTROL: PFAS in water TRACE Extended						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	258103-2
Extracted ISTD d_3 *N MeFOSAA*	%		Org-029	123	1	114	88	26	135	100
Extracted ISTD d_5 *N EtFOSAA*	%		Org-029	80	1	113	62	58	93	94

QUALITY CONTROL: PFAS in water TRACE Extended					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	10	16/03/2021	16/03/2021		[NT]	[NT]
Date analysed	-			[NT]	10	16/03/2021	16/03/2021		[NT]	[NT]
Perfluorobutanesulfonic acid	µg/L	0.0004	Org-029	[NT]	10	<0.0004	<0.0004	0	[NT]	[NT]
Perfluoropentanesulfonic acid	µg/L	0.001	Org-029	[NT]	10	<0.001	<0.001	0	[NT]	[NT]
Perfluorohexanesulfonic acid	µg/L	0.0002	Org-029	[NT]	10	0.0005	0.0006	18	[NT]	[NT]
Perfluoroheptanesulfonic acid	µg/L	0.001	Org-029	[NT]	10	<0.001	<0.001	0	[NT]	[NT]
Perfluorooctanesulfonate PFOS	µg/L	0.0002	Org-029	[NT]	10	0.0009	0.0007	25	[NT]	[NT]
Perfluorodecanesulfonic acid	µg/L	0.002	Org-029	[NT]	10	<0.002	<0.002	0	[NT]	[NT]
Perfluorobutanoic acid	µg/L	0.002	Org-029	[NT]	10	<0.002	<0.002	0	[NT]	[NT]
Perfluoropentanoic acid	µg/L	0.002	Org-029	[NT]	10	<0.002	<0.002	0	[NT]	[NT]
Perfluorohexanoic acid	µg/L	0.0004	Org-029	[NT]	10	<0.0004	<0.0004	0	[NT]	[NT]
Perfluoroheptanoic acid	µg/L	0.0004	Org-029	[NT]	10	<0.0004	<0.0004	0	[NT]	[NT]
Perfluorooctanoic acid PFOA	µg/L	0.0002	Org-029	[NT]	10	<0.0002	<0.0002	0	[NT]	[NT]
Perfluorononanoic acid	µg/L	0.001	Org-029	[NT]	10	<0.001	<0.001	0	[NT]	[NT]
Perfluorodecanoic acid	µg/L	0.002	Org-029	[NT]	10	<0.002	<0.002	0	[NT]	[NT]
Perfluoroundecanoic acid	µg/L	0.002	Org-029	[NT]	10	<0.002	<0.002	0	[NT]	[NT]
Perfluorododecanoic acid	µg/L	0.005	Org-029	[NT]	10	<0.005	<0.005	0	[NT]	[NT]
Perfluorotridecanoic acid	µg/L	0.01	Org-029	[NT]	10	<0.01	<0.01	0	[NT]	[NT]
Perfluorotetradecanoic acid	µg/L	0.05	Org-029	[NT]	10	<0.05	<0.05	0	[NT]	[NT]
4:2 FTS	µg/L	0.001	Org-029	[NT]	10	<0.001	<0.001	0	[NT]	[NT]
6:2 FTS	µg/L	0.0004	Org-029	[NT]	10	<0.0004	<0.0004	0	[NT]	[NT]
8:2 FTS	µg/L	0.0004	Org-029	[NT]	10	<0.0004	<0.0004	0	[NT]	[NT]
10:2 FTS	µg/L	0.002	Org-029	[NT]	10	<0.002	<0.002	0	[NT]	[NT]
Perfluorooctane sulfonamide	µg/L	0.01	Org-029	[NT]	10	<0.01	<0.01	0	[NT]	[NT]
N-Methyl perfluorooctane sulfonamide	µg/L	0.005	Org-029	[NT]	10	<0.005	<0.005	0	[NT]	[NT]
N-Ethyl perfluorooctanesulfon -amide	µg/L	0.01	Org-029	[NT]	10	<0.01	<0.01	0	[NT]	[NT]
N-Me perfluorooctanesulfonamid -oethanol	µg/L	0.005	Org-029	[NT]	10	<0.005	<0.005	0	[NT]	[NT]
N-Et perfluorooctanesulfonamid -oethanol	µg/L	0.05	Org-029	[NT]	10	<0.05	<0.05	0	[NT]	[NT]
MePerfluorooctanesulf- amid oacetic acid	µg/L	0.002	Org-029	[NT]	10	<0.002	<0.002	0	[NT]	[NT]
EtPerfluorooctanesulf- amid oacetic acid	µg/L	0.002	Org-029	[NT]	10	<0.002	<0.002	0	[NT]	[NT]
Surrogate $^{13}C_8$ PFOS	%		Org-029	[NT]	10	100	97	3	[NT]	[NT]
Surrogate $^{13}C_2$ PFOA	%		Org-029	[NT]	10	98	101	3	[NT]	[NT]
Extracted ISTD $^{13}C_3$ *PFBS*	%		Org-029	[NT]	10	90	82	9	[NT]	[NT]

QUALITY CONTROL: PFAS in water TRACE Extended						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Extracted ISTD $^{18}O_2$ PFHxS	%		Org-029	[NT]	10	91	97	6	[NT]	[NT]
Extracted ISTD $^{13}C_4$ PFOS	%		Org-029	[NT]	10	89	92	3	[NT]	[NT]
Extracted ISTD $^{13}C_4$ PFBA	%		Org-029	[NT]	10	66	64	3	[NT]	[NT]
Extracted ISTD $^{13}C_3$ PFPeA	%		Org-029	[NT]	10	73	74	1	[NT]	[NT]
Extracted ISTD $^{13}C_2$ PFHxA	%		Org-029	[NT]	10	100	99	1	[NT]	[NT]
Extracted ISTD $^{13}C_4$ PFHpA	%		Org-029	[NT]	10	85	81	5	[NT]	[NT]
Extracted ISTD $^{13}C_4$ PFOA	%		Org-029	[NT]	10	95	92	3	[NT]	[NT]
Extracted ISTD $^{13}C_5$ PFNA	%		Org-029	[NT]	10	93	90	3	[NT]	[NT]
Extracted ISTD $^{13}C_2$ PFDA	%		Org-029	[NT]	10	90	89	1	[NT]	[NT]
Extracted ISTD $^{13}C_2$ PFUnDA	%		Org-029	[NT]	10	107	109	2	[NT]	[NT]
Extracted ISTD $^{13}C_2$ PFDoDA	%		Org-029	[NT]	10	84	79	6	[NT]	[NT]
Extracted ISTD $^{13}C_2$ PFTeDA	%		Org-029	[NT]	10	78	106	30	[NT]	[NT]
Extracted ISTD $^{13}C_2$ 4:2FTS	%		Org-029	[NT]	10	92	86	7	[NT]	[NT]
Extracted ISTD $^{13}C_2$ 6:2FTS	%		Org-029	[NT]	10	112	106	6	[NT]	[NT]
Extracted ISTD $^{13}C_2$ 8:2FTS	%		Org-029	[NT]	10	122	116	5	[NT]	[NT]
Extracted ISTD $^{13}C_8$ FOSA	%		Org-029	[NT]	10	52	53	2	[NT]	[NT]
Extracted ISTD d_3 N MeFOSA	%		Org-029	[NT]	10	#	20		[NT]	[NT]
Extracted ISTD d_5 N EtFOSA	%		Org-029	[NT]	10	#	20		[NT]	[NT]
Extracted ISTD d_7 N MeFOSE	%		Org-029	[NT]	10	34	36	6	[NT]	[NT]
Extracted ISTD d_9 N EtFOSE	%		Org-029	[NT]	10	31	31	0	[NT]	[NT]

QUALITY CONTROL: PFAS in water TRACE Extended						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Extracted ISTD d_3 *N MeFOSAA*	%		Org-029	[NT]	10	115	99	15	[NT]	[NT]
Extracted ISTD d_5 *N EtFOSAA*	%		Org-029	[NT]	10	84	67	23	[NT]	[NT]

Result Definitions

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

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

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

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

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

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

Measurement Uncertainty estimates are available for most tests upon request.

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

Report Comments

#1-10 TRHC6-C10/BTEX: PQL has been raised as the sample/s were foamy and required dilution.

PQL has been raised due to the high concentration of analytes in the sample/s, resulting in the sample/s requiring dilution.

Chlorophyll a and Phaeophytin a analysis conducted by Marine and Freshwater Research Laboratory. Report MPL21-8.

PFAS analysis conducted by Envirolab Services. Report 263750.
PFAS in water TRACE Extended - MeFOSA and EtFOSA Extracted Internal Standard is outside of global acceptance criteria (50-150%) for (LCS and/or MB) but within analyte specific acceptance criteria.
For PFAS Extracted Internal Standards denoted with # or outside the 50-150% acceptance range, the respective target analyte results may be unaffected, in other circumstances the PQL has been raised to accommodate the outlier(s).

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DATA QUALITY ASSESSMENT SUMMARY

Report Details

Envirolab Report Reference	**258103**
Client ID	RPS Australia West Pty Ltd
Project Reference	EEC20078.004 - Fremantle Traffic Bridge
Date Issued	23/03/2021

QC DATA

All laboratory QC data was within the Envirolab Group's specifications.

HOLDING TIME COMPLIANCE EVALUATION

All preservation / holding times (based on AS/ASPHA/ISO/NEPM/USEPA reference documents and standards) are compliant except:

Holding Time Exceedances

Analysis	Sample No	Date Sampled	Date Extracted	Date Analysed	Accepted
Chlorophyll a & Phaeophytin a					
Chlorophyll a	258103-1	04/03/2021			##
Phaeophytin a	258103-1	04/03/2021			##
Chlorophyll a	258103-2	04/03/2021			##
Phaeophytin a	258103-2	04/03/2021			##
Chlorophyll a	258103-3	04/03/2021			##
Phaeophytin a	258103-3	04/03/2021			##
Chlorophyll a	258103-4	04/03/2021			##
Phaeophytin a	258103-4	04/03/2021			##
Chlorophyll a	258103-5	04/03/2021			##
Phaeophytin a	258103-5	04/03/2021			##
Chlorophyll a	258103-6	04/03/2021			##
Phaeophytin a	258103-6	04/03/2021			##
Chlorophyll a	258103-7	04/03/2021			##
Phaeophytin a	258103-7	04/03/2021			##
Chlorophyll a	258103-8	04/03/2021			##
Phaeophytin a	258103-8	04/03/2021			##
Chlorophyll a	258103-9	04/03/2021			##
Phaeophytin a	258103-9	04/03/2021			##
Chlorophyll a	258103-10	04/03/2021			##
Phaeophytin a	258103-10	04/03/2021			##

Holding Table Comments

No Extract or Analysed Dates were provided. Holding Times cannot be calculated.

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Certain analyses have had their recommended technical holding times elongated by filtering and/or freezing on receipt at the laboratory (e.g. BOD, chlorophyll/Pheophytin, nutrients and acid sulphate soil tests).

COMPLIANCE TO QC FREQUENCY (NEPM)

Internal laboratory QC rate complies with NEPM requirements (LCS/MB/MS 1 in 20, Duplicates 1 in 10 samples). Note, samples are batched together with other sample consignments in order to assign QC sample frequency.

QC Evaluation	
Duplicate(s) was performed as per NEPM frequency	✓
Laboratory Control Sample(s) were analysed with the samples received	✓
A Method Blank was performed with the samples received	✓
Matrix spike(s) was performed as per NEPM frequency (Not Applicable for Air samples)	✓

Refer to Certificate of Analysis for all Quality Control data.

MEMO

Date: 24 March 2021
Regarding: Surface Water Quality – Event #8 summary

Appendix C
Surface water sampling logs

MULTI-PARAMETER METER CALIBRATION RECORD

Project number: EEC20078.004

Site location: Fremantle Ports

Date	pH 7		pH 4		EC buffer µs/cm		Temp. °C		D.O. ppm		Redox		Scientist
	Pre-cal	Post-cal	Pre-cal	Post-cal	Pre-cal	Post-cal	Pre-cal	Post-cal	Zero	Air	Temp. °C	Measurement	
11/02/2021	6.95	7.00	4.08	4.00	1,365	1,413	27.0	27.3	-2.90	0	27	184	Zak L

Multi-parameter meter details		Solution	Batch / lot	Batch date	Zobell B solution, for Ag/AgCl saturated KCl electrode				Calibration notes:
Manufacturer:	YSI	pH 4 buffer	355385	Apr-20	T °C	mV	T °C	mV	
Model number:		pH 7 buffer	348422	Jan-20	5	273	20	240	
Serial number:		EC buffer	355593	Jul-20	10	262	25	229	
		Zobell B	20/0410	Oct-20	15	251	30	218	

SURFACE WATER SAMPLING LOG

Project number:	EEC20078.004	**Sampling method:**	Nisken Flask
Site name:	Fremantle Ports - Surface Water	**0.45 micron filter used (Y/N):**	Yes
Sampling area:	Fremantle Railway Bridge	**Sample preservation (ice/esky):**	Yes
Sampling location:	WS1	**QAQC samples:**	---
Scientist:	Zak Langtry	**Tide (High/Low):**	Low
Date:	04/03/2021	**Tide Height (m):**	0.62 - 0.94
Weather:	Fine / Overcast	**Water Colomn (m):**	4.5

Sample I.D.	E/N	Depth (m)	Time	Odour (Y/N):	Staining (Y/N):	Sheen (Y/N):	Appearance	Colour	Temp. (°C)	pH	E.C. (µS/cm)	Redox. (mV)	D.O. (ppm)	D.O. (% sat)
---	382,404 / 6,454,360	0.0	12:46:00	No	No	No	Clear	Colourless	23.2	8.15	56,870	160	5.81	85
---	382,404 / 6,454,360	0.5	12:47:00	No	No	No	Clear	Colourless	23.2	8.15	56,881	156	5.86	86
WS1-S	382,404 / 6,454,360	1.0	12:48:00	No	No	No	Clear	Colourless	23.2	8.15	56,880	154	5.80	84
---	382,404 / 6,454,360	1.5	12:49:00	No	No	No	Clear	Colourless	23.2	8.15	56,865	152	5.79	84
---	382,404 / 6,454,360	2.0	12:49:00	No	No	No	Clear	Colourless	23.2	8.15	56,871	152	5.59	82
---	382,404 / 6,454,360	2.5	12:50:00	No	No	No	Clear	Colourless	23.2	8.15	56,875	152	5.60	82
---	382,404 / 6,454,360	3.0	12:51:00	No	No	No	Clear	Colourless	23.2	8.16	56,876	152	5.82	85
WS1-D	382,404 / 6,454,360	3.5	12:52:00	No	No	No	Clear	Colourless	23.2	8.16	56,866	152	5.91	86
---	382,404 / 6,454,360	4.0	12:53:00	No	No	No	Clear	Colourless	23.2	8.16	56,877	152	5.56	81
---	382,404 / 6,454,360	4.5	12:55:00	No	No	No	Clear	Colourless	2.2	8.16	56,871	153	5.33	77.7

Additional details / comments:

Other: **Low general boat traffic / incoming tide**

SURFACE WATER SAMPLING LOG

Project number:	EEC20078.004	**Sampling method:**	Nisken Flask
Site name:	Fremantle Ports - Surface Water	**0.45 micron filter used (Y/N):**	Yes
Sampling area:	Fremantle Railway Bridge	**Sample preservation (ice/esky):**	Yes
Sampling location:	WS2	**QAQC samples:**	Duplicate WSZ sampled at WS2-D
Scientist:	Zak Langtry	**Tide (High/Low):**	Low
Date:	04/03/2021	**Tide Height (m):**	0.62 - 0.94
Weather:	Fine / Overcast	**Water Colomn (m):**	5.5

Sample I.D.	E/N	Depth (m)	Time	Odour (Y/N):	Staining (Y/N):	Sheen (Y/N):	Appearance	Colour	Temp. (°C)	pH	E.C. (µS/cm)	Redox. (mV)	D.O. (ppm)	D.O. (% sat)
---	382,418 / 6,454,259	0.0	9:24:00	Yes	No	No	Clear	Colourless	23.2	8.14	56,889	165	5.73	82
---	382,418 / 6,454,259	0.5	9:25:00	Yes	No	No	Clear	Colourless	23.2	8.14	56,876	163	5.74	83
WS2-S	382,418 / 6,454,259	1.0	9:26:00	Yes	No	No	Clear	Colourless	23.2	8.14	56,887	163	5.79	84
---	382,418 / 6,454,259	1.5	9:27:00	Yes	No	No	Clear	Colourless	23.2	8.14	56,884	162	5.76	84
---	382,418 / 6,454,259	2.0	9:28:00	Yes	No	No	Clear	Colourless	23.2	8.14	56,888	162	5.71	83
---	382,418 / 6,454,259	2.5	9:29:00	Yes	No	No	Clear	Colourless	23.2	8.14	56,896	162	5.83	85
---	382,418 / 6,454,259	3.0	9:30:00	Yes	No	No	Clear	Colourless	23.2	8.14	56,883	162	5.80	84
---	382,418 / 6,454,259	3.5	9:31:00	Yes	No	No	Clear	Colourless	23.2	8.14	56,896	162	5.71	83
---	382,418 / 6,454,259	4.0	9:32:00	Yes	No	No	Clear	Colourless	23.2	8.14	56,909	161	5.61	82
WS2-D	382,418 / 6,454,259	4.5	9:33:00	Yes	No	No	Clear	Colourless	23.2	8.14	56,886	162	5.64	82
---	382,418 / 6,454,259	5.0	9:33:00	Yes	No	No	Clear	Colourless	23.2	8.14	56,863	162	5.64	82
---	382,418 / 6,454,259	5.5	9:36:00	Yes	No	No	Clear	Colourless	23.2	8.14	56,877	161	5.61	81.4

Additional details / comments:

Other: **Low general boat traffic / incoming tide**

SURFACE WATER SAMPLING LOG

Project number:	EEC20078.004	**Sampling method:**	Nisken Flask
Site name:	Fremantle Ports - Surface Water	**0.45 micron filter used (Y/N):**	Yes
Sampling area:	Fremantle Railway Bridge	**Sample preservation (ice/esky):**	Yes
Sampling location:	WS3	**QAQC samples:**	---
Scientist:	Zak Langtry	**Tide (High/Low):**	Low
Date:	04/03/2021	**Tide Height (m):**	0.62 - 0.94
Weather:	Fine / Overcast	**Water Colomn (m):**	0.6

Sample I.D.	E/N	Depth (m)	Time	Odour (Y/N):	Staining (Y/N):	Sheen (Y/N):	Appearance	Colour	Temp. (°C)	pH	E.C. (µS/cm)	Redox. (mV)	D.O. (ppm)	D.O. (% sat)
WS3-S	382,376 / 6,454,398	0.30	13:58:00	No	No	No	Clear	Colourless	23.6	8.16	56,731	132	5.60	81

Additional details / comments:

Other: **Low general boat traffic / incoming tide**

SURFACE WATER SAMPLING LOG

Project number:	EEC20078.004	**Sampling method:**	Nisken Flask
Site name:	Fremantle Ports - Surface Water	**0.45 micron filter used (Y/N):**	Yes
Sampling area:	Fremantle Port - Jetty	**Sample preservation (ice/esky):**	Yes
Sampling location:	WS4	**QAQC samples:**	---
Scientist:	Zak Langtry	**Tide (High/Low):**	Low
Date:	04/03/2021	**Tide Height (m):**	0.62 - 0.94
Weather:	Fine / Overcast	**Water Colomn (m):**	4.8

Sample I.D.	E/N	Depth (m)	Time	Odour (Y/N):	Staining (Y/N):	Sheen (Y/N):	Appearance	Colour	Temp. (°C)	pH	E.C. (µS/cm)	Redox. (mV)	D.O. (ppm)	D.O. (% sat)
---	382,269 / 6,454,227	0.0	8:12:00	No	No	No	Clear	Colourless	23.2	8.07	56,863	160	6.23	91
---	382,269 / 6,454,227	0.5	8:13:00	No	No	No	Clear	Colourless	23.1	8.05	56,842	152	6.31	90
WS4-S	382,269 / 6,454,227	1.0	8:13:00	No	No	No	Clear	Colourless	23.1	8.07	56,909	150	5.56	82
---	382,269 / 6,454,227	1.5	8:14:00	No	No	No	Clear	Colourless	23.1	8.08	56,885	148	5.61	80
---	382,269 / 6,454,227	2.0	8:14:00	No	No	No	Clear	Colourless	23.1	8.09	56,904	146	5.69	83
---	382,269 / 6,454,227	2.5	8:15:00	No	No	No	Clear	Colourless	23.1	8.09	56,913	145	5.50	82
---	382,269 / 6,454,227	3.0	8:15:00	No	No	No	Clear	Colourless	23.1	8.09	56,896	145	5.43	81
---	382,269 / 6,454,227	3.5	8:16:00	No	No	No	Clear	Colourless	23.1	8.10	56,911	144	5.24	77
WS4-D	382,269 / 6,454,227	4.0	8:16:00	No	No	No	Clear	Colourless	23.1	8.10	56,910	143	5.57	81
---	382,269 / 6,454,227	4.5	8:18:00	No	No	No	Clear	Colourless	23.1	8.11	56,891	142	5.27	75
---	382,269 / 6,454,227	4.8	8:23:00	No	No	No	Clear	Colourless	23.1	8.11	56,903	141	4.9	72.3

Additional details / comments:

Other: **One tugboat on jetty. Three ships being loaded. Low general boat traffic.**

SURFACE WATER SAMPLING LOG

Project number:	EEC20078.004	**Sampling method:**	Nisken Flask
Site name:	Fremantle Ports - Surface Water	**0.45 micron filter used (Y/N):**	Yes
Sampling area:	Fremantle Port - Jetty	**Sample preservation (ice/esky):**	Yes
Sampling location:	WS5	**QAQC samples:**	---
Scientist:	Zak Langtry	**Tide (High/Low):**	Low
Date:	04/03/2021	**Tide Height (m):**	0.62 - 0.94
Weather:	Fine / Overcast	**Water Colomn (m):**	7.8

Sample I.D.	E/N	Depth (m)	Time	Odour (Y/N):	Staining (Y/N):	Sheen (Y/N):	Appearance	Colour	Temp. (°C)	pH	E.C. (µS/cm)	Redox. (mV)	D.O. (ppm)	D.O. (% sat)
---	382,269 / 6,454,227	0.0	10:39:00	No	No	No	Clear	Colourless	23.3	8.15	56,874	157	6.07	88
---	382,269 / 6,454,227	0.5	10:41:00	No	No	No	Clear	Colourless	23.3	8.15	56,868	159	6.05	88
WS5-S	382,269 / 6,454,227	1.0	10:48:00	No	No	No	Clear	Colourless	23.3	8.15	56,880	159	6.08	89
---	382,269 / 6,454,227	1.5	10:49:00	No	No	No	Clear	Colourless	23.3	8.16	56,880	160	6.10	89
---	382,269 / 6,454,227	2.0	10:50:00	No	No	No	Clear	Colourless	23.3	8.16	56,874	161	6.11	88
---	382,269 / 6,454,227	2.5	10:50:00	No	No	No	Clear	Colourless	23.3	8.16	56,877	161	6.25	90
---	382,269 / 6,454,227	3.0	10:51:00	No	No	No	Clear	Colourless	23.3	8.16	56,883	162	6.15	90
---	382,269 / 6,454,227	3.5	10:52:00	No	No	No	Clear	Colourless	23.3	8.16	56,882	162	6.00	87
---	382,269 / 6,454,227	4.0	10:53:00	No	No	No	Clear	Colourless	23.3	8.16	56,820	163	5.98	86
---	382,269 / 6,454,227	4.5	10:54:00	No	No	No	Clear	Colourless	23.3	8.16	56,878	163	6.24	90
---	382,269 / 6,454,228	5.0	10:55:00	No	No	No	Clear	Colourless	23.3	8.16	56,878	164	6.21	89.7
---	382,269 / 6,454,229	5.5	10:56:00	No	No	No	Clear	Colourless	23.3	8.16	56,880	164	6.21	90.3
---	382,269 / 6,454,230	6.0	10:57:00	No	No	No	Clear	Colourless	23.3	8.16	56,873	164	6.23	90.9
WS5-D	382,269 / 6,454,231	6.5	10:58:00	No	No	No	Clear	Colourless	23.3	8.16	56,874	165	6.35	92.7
---	382,269 / 6,454,232	7.0	10:59:00	No	No	No	Clear	Colourless	23.3	8.16	56,881	165	5.63	79.9
---	382,269 / 6,454,233	7.5	11:00:00	No	No	No	Clear	Colourless	23.3	8.16	56,880	165	5.86	84.2

Additional details / comments:

Other: **Low harbour traffic, 7 boats moored on either side of jetty.**