AECOM Imagine it. Delivered.

AECOM Services Pty Ltd
Level 8
540 Wickham Street
PO Box 1307
Fortitude Valley QLD 4006
Australia
www.aecom.com

+61 7 3553 2000 tel
+61 7 3553 2050 fax
ABN 46 000 691 690

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RTA Weipa Pty Ltd
123 Albert Street
Brisbane, Queensland
4000

Dear Shalika

Interim Risk Assessment

1.0 Introduction

AECOM Australia Pty Ltd (AECOM) was engaged by RTA Weipa Pty Ltd (RTAW) to deliver an Interim Risk Assessment (RA), specifically targeting per- and poly- fluoroalkyl substances (PFAS) in the Weipa and Andoom mining areas on Western Cape York Peninsula in Queensland (the 'site'). Historical environmental investigations at the site have identified the presence of PFAS in water and soil at some locations at and around the site (Golder, 2018a).

1.1 Objective

AECOM understands that RTAW's overall objective is to understand the nature and extent of the identified PFAS impact and to address Requirement 6 of the Department of Environment and Science (DES) *Notice to conduct or commission an environmental evaluation*, dated 7 September 2018 (the 'Notice') Reference 101/0008738, CR84931, STAT1304, which is:

"Using the findings and results of the PSI and Biota Assessment completed in requirements 3 and 4 respectively, by 30 November 2018, prepare and submit to the department an Interim Risk Assessment that assesses the risk to environmental values and details interim management measures to protect the relevant environmental values."

The Notice provides a list of the environmental values from the Environmental Protection (Water) Policy 2009 (EPP Water) that require assessment. These are:

- For slightly disturbed waters – the biological integrity of an aquatic ecosystem that has effectively unmodified biological indicators, but slightly modified physical, chemical or other indicators;
- For waters that may be used for producing aquatic foods for human consumption – the suitability of the water for producing the foods for human consumption;
- For waters that may be used for recreation or aesthetic purposes, the suitability of the water for:
  - Primary recreational use; or
  - Secondary recreational use; or
  - Visual recreational use.
- For waters that may be used for drinking water – the suitability of the water for supply as drinking water;
- For waters that may be used for industrial purposes – the suitability of the water for industrial use;
- The cultural and spiritual values of the water.

1.2 Scope of Work

The scope of work for this Interim RA included the following:

- Review and incorporation of the findings and results from the following two historical reports:
  - *Golder Associates Pty Ltd (2018a), Final Preliminary Site Investigation, Project Sam*
  - *Golder Associates Pty Ltd (2018b), Final Biota and Receiving Environment Sampling and Assessment, Weipa.*

- An assessment of measured PFAS concentrations against relevant Tier 1 screening guidelines for human health and ecological risk;
- Conceptual site model update; and
- Inclusion of interim management measures to protect the relevant environmental values.

The information contained in this Interim RA aligns with Requirement 6 of DES *Notice to conduct or commission an environmental evaluation*. Should a quantitative (Tier 2) human health or ecological risk assessment be required, additional information would be needed.

1.3 Guidance and regulatory documents

This Interim RA has been developed in general accordance with the following regulatory and guidance documents:

- Notice to conduct or commission an environmental evaluation (DES, 7 September 2018);
- *Environmental Health Risk Assessment, Guidelines for Assessing Human Health Risks from Environmental Hazards*. Department of Health and Aging, 2012 Update (enHealth, 2012)
- *National Environment Protection (Assessment of Site Contamination) Measure 1999* (as amended 2013) [ASC NEPM 2013], specifically:
  - Schedule B4 Guideline on Site-Specific Health Risk Assessment Methodology
  - Schedule B7 Guideline on Derivation of Health-Based Investigation Levels
- PFAS *National Environmental Management Plan (NEMP)*, January 2018, Heads of Environmental Protection Agencies (HEPA), Australia and New Zealand.

1.4 Project Background

RTAW owns and operates the Weipa bauxite mine on Western Cape York Peninsula in Queensland. Since 1961, RTAW has extracted bauxite from mining lease ML 7024 on the Weipa Peninsula and lease ML 7031 north of Weipa. Detailed environmental setting information has been previously reported (Golder, 2018a) and is therefore not repeated here.

RTAW's activities comprise a range of mining and associated activities including minerals processing, ore haulage (by road and rail) and product shipping. These activities are supported by a range of infrastructure including, power generation, transport facilities including an airport and, water supply and other municipal services. Groundwater is the source for drinking water supply for the mining area and the township of Weipa and is the responsibility of RTAW. It was reported in Golder (2018a) that PFAS concentrations in water samples from potable wells were below the adopted drinking water screening guidelines.

RTAW has been investigating the source of the PFAS in groundwater. In 2018, a Preliminary Site Investigation (PSI) was completed (Golder, 2018a). The PSI identified primary, secondary and potential source areas and developed a preliminary conceptual site model. The source of the PFAS impacts was considered to be the historical use of aqueous film forming foam (AFFF) products as part of fire suppression systems installed at one location within the Mission River catchment (Andoom Heavy Equipment Workshop) and five locations within the Embley River catchment (Weipa Operations – Evans Landing Industrial Precinct, Railway Workshop, Fire and Rescue (F&R) at Lorim Point, Weipa Airport and East Weipa Heavy Equipment Workshop). Collectively, these six areas are referred to as the 'investigation area'. The location and extent of the investigation area is shown in the Figure 2 in **Attachment A**.

2.0 General Site Overview

2.1 Location

The investigation area is located on the western side of the Cape York Peninsula. The investigation area is spilt into two key areas – Andoom and East Weipa operations area, which are located north and south of the Mission River respectively. The site location is presented in **Figure 1**, **Attachment A**.

2.1.1 Surrounding land use

Land uses in the surrounding areas are provided in **Table 1**.

Table 1 Surrounding Land Use

Direction	Land Use
North / northwest	Undeveloped land of the Mission River and Wenlock River catchments. The residential community of Mapoon is located on the northern banks of the Embley River, an estuarine inlet of the Wenlock River 36 km north of the Investigation Area.
South	Embley River and undeveloped land of the Embley River catchment. Development activities have commenced south of the Embley River for bauxite mining as part of the Amrun Project.
East	Royal Australian Air Force (RAAF) Base Scherger is located on the northern side of the Peninsula Development Road, to the east of the Weipa mining area. The Base covers approximately 5,500 ha and has been present since 1998. The facility is identified as a non-operational “bare base”, staffed by limited personnel but with capacity to accommodate up to 1,400 personnel.
West	Albatross Bay and the Gulf of Carpentaria

2.2 Environmental Setting

2.2.1 Climate

The climate of the Weipa area is described as typical of tropical monsoon conditions with distinct wet (during summer and early autumn) and dry seasons (late autumn to spring). The average annual rainfall is reported as 1918 mm (Bureau of Meteorology, 2018 for Weipa Aero Station No 027045).

2.2.2 Topography and Surface Water Drainage

The Andoom and Weipa investigation areas are located on the western side of the Cape York Peninsula. The area is characterised by flat coastal plains with a series of freshwater and estuarine creeks and two major Rivers, namely the Mission River and Embley River to the south and Mission River to the north of Weipa Township. The major rivers in the Andoom area include Andoom Creek on the western side of the Andoom Area and the Pine River to the north. The northern end of the Great Dividing Range is located to east and includes hills up to 800 m above sea level (Golder, 2018b).

2.2.3 Geology and Soils

The investigation area is underlain by:

- Quaternary age mud, silt and sand along the coastal flats associated with the Embley River, Mission River, Pine River and Andoom Creek;
- Late Tertiary to Quaternary aluminous laterite, including bauxite with sandy “A” horizon and deeply weathered Aurukun surface over the majority of the Andoom and Weipa mining areas. This is the predominant geological unit across the investigation area; and
- Eocene age Bulimba Formation including sandstone, pebble conglomerate and sandy claystone along incised sections of Pappan Creek and Mission River Creek to the east of the Weipa mining area and to the west and east of the Andoom mining area (Golder, 2018b).

The predominant soil description across the investigation area is Red Massive Earths described as gently undulating plains with only occasional very shallow drainage depressions comprising gradational red massive soil with aluminous concretions, A2 horizon nonbleached, neutral massive earth with limited suitability for agriculture (QLD Globe, 2018).

2.2.4 Hydrogeology

The Weipa and Andoom areas which form the investigation area are located within the Mesozoic Carpentaria Basin with the rocks of the Normanton Formation (in the Rolling Downs Group) being representative of the regional aquifer. The deep regional aquifer is overlain by younger rocks of the Karumba Basin and Bulimba Formation (Golder, 2018b).

Previous hydrogeological investigations divide the shallow subsurface into a superficial Kaolinite Unit and a shallow sandstone aquifer of the Bulimba Formation. Studies of the unconfined Kaolinite Unit have indicated that the formation is mainly unsaturated and discontinuous (Golder, 2018b).

Previous hydrochemical studies of groundwater in the regional aquifer system suggest a vertical connection between the Karumba Basin and the underlying aquifer, however, vertical connectivity between these units has not been assessed on a local scale. Conceptually the connectivity between the Karumba Basin and underlying formations suggest the aquifers and partial aquifers of the Karumba basin directly overly aquifers of the Carpentaria Sequence, however vertical interaction of groundwater between these different layers is not well understood (Golder, 2018b).

The sandstone of the Bulimba Formation generally represents a high yielding shallow aquifer, which is an important groundwater resource over the Weipa Peninsula. The potentiometric surface of the shallow aquifer generally follows surface topography and groundwater flow is predominantly east to west, although at the margins of the Weipa Peninsula flow is radially outward towards the surrounding bays. Recharge to the sandstone of the Bulimba Formation occurs via rainfall infiltration and by leakage from overlying surficial aquifers. Groundwater quality in the shallow aquifer is relatively fresh due to the high annual rainfall and recharge to the Karumba Basin (Golder, 2018b).

Drinking water for the township of Weipa and surrounding areas is sourced from the potable water supply bores. RTAW supplies drinking water to the Weipa airport and Andoom and Weipa mining areas. The Weipa Town Authority operates the drinking water supply scheme for the Weipa township, Evans Landing and Lorim Point. All residential areas (including supporting functions such as recreational areas, schools and accommodation facilities) are connected to these domestic water supplies (Golder, 2018b).

Some unregistered groundwater bores are known to be in operation on the Weipa Peninsula for non-potable uses such as garden watering and filling swimming pools (Golder, 2018b).

3.0 Identification of PFAS Source Areas, Exposure Pathways and Receptors

3.1 Source Areas

A draft PSI was prepared by Golder in 2018 to assess potential PFAS contamination within and surrounding the Weipa and Andoom mining areas. The PSI identified the following six primary source areas for PFAS at the site:

1. Andoom Heavy Equipment Workshop (AHEQ)
2. Evans Landing (EVL)
3. Railway Workshop (RWW)
4. Lorim Point (including Fire and Rescue, F&R)
5. Weipa Airport
6. East Weipa Heavy Equipment Workshop (EWHEQ)

In addition, eight secondary source areas and six potential source areas were also identified during the PSI (refer to Golder 2018a for more detail).

The field investigations for the PSI included the following analyses:

- 51 soil samples from AHEQ, EWHEQ, F&R and the Airport were tested for 28 PFAS compounds. This included analysis of 5 soil samples for total oxidisable precursor assay (TOPA) and leachable testing using with deionised water using the Australian Standard Leaching Procedure (ASLP) on five samples.

- 17 groundwater monitoring wells in October/November 2017 and 66 wells in June/July 2018 from across the investigation area and including repeat sampling of 4 wells. Samples were tested for 28 PFAS compounds.
- A total of 24 potable water supply wells and accumulation points were sampled in October and November 2017 respectively. In addition, 21 potable water supply wells and 3 accumulation points were sampled in April and July 2018, and 6 wells and 1 accumulation point were resampled in July 2018 to confirm laboratory results. Samples were tested for 28 PFAS compounds.
- 24 surface water locations were sampled in April 2018 and 10 surface water locations were sampled in July 2018. Samples were tested for 28 PFAS compounds.

The analytical result tables, sourced from the PSI (Golder 2018a) are included in **Attachment B**.

3.2 Biota Assessment

An assessment of aquatic biota was undertaken by Golder (2018b), as requested by DES in May 2018, and with input into the methodology from DES and the Department of Agriculture. The objectives of the sampling and analysis were to undertake a Tier 1 Human Health Risk (HHRA) and Ecological Risk Assessment (ERA), and compare the co-located sediment PFAS concentrations from background sites to potentially impacted downstream areas. Fishing within the large mangrove, tidal creek and mudflat systems in Albatross Bay is considered an important subsistence, economic and recreational activity in the Weipa region. Human consumption of potential PFAS impacted aquatic biota represents a potentially complete exposure pathway.

Aquatic biota, sediment and surface samples were collected from 11 sites across the investigation area at Weipa. The biota samples included aquatic species commonly consumed in the area from a range of ecological groups with varied mobility from pelagic fish to sessile invertebrates.

The biota sampling investigation area included targeting the receiving areas from four identified primary PFAS source areas (East Weipa Heavy Equipment Workshop, Weipa Airport, Weipa Fire and Rescue and Andoom Heavy Equipment Workshop):

- Andoom Creek as the receiving environment associated with the Andoom Heavy Equipment Workshop;
- The tidal creeks, foreshore, mangrove and mudflats of the Mission River including Trundling Creek prior to it entering Albatross Bay as the potential receiving environment associated with the East Weipa Heavy Equipment Workshop (EWHEQ), and the north Weipa Peninsular;
- The lower Embley River in the Weipa Channel downstream of the confluence between the Hey and Embley Rivers and Beening Creek as the potential receiving environment for the Weipa Airport and Weipa Fire and Rescue; and
- The background/reference sites included upstream or where biota are unlikely to be exposed to PFAS from identified PFAS source areas.

A total of 257 fish (32 species), 136 crustaceans (5 species), 48 molluscs (3 species) and 32 gastropods (1 species) were caught during the survey conducted from 16 to 25 July 2018. Of all the 473 individuals across all taxa caught, 193 were retained for laboratory analysis. The biota samples were processed to extract the edible portions of the whole-body samples provided to the laboratory.

The aquatic biota species that were retained for analysis are presented in **Table 2**.

Table 2 Aquatic Biota Species Retained for Analysis

Finfish	Crustaceans	Bivalve and Gastropods
Northwest black bream	Mud crab	Mud whelk
Yellowtail grunter	Endeavour prawn	Pacific oyster
Milkfish	Brown tiger prawn	Pipi
Blue threadfin		Blood cockle

Finfish	Crustaceans	Bivalve and Gastropods
Hawaiin gian herring		
Goldenspotted rockcod		
Blackspotted rockcod		
Longtain catfish		
Common silverbiddy		
Diamonscale mullet		
Striped snapper		
Moses snapper		
Sea mullet		
Blue catfish		
Fourline stiped grunter		
Spotted javelinfish		
Blue swimmer crab		
Milk shark		
Striped cat		

The analytical result tables are included in **Attachment B**.

3.3 Summary of Potential Source-Pathway-Receptor Linkages

Based on the environmental setting and the locations of the PFAS source areas, the following are potential exposure pathways and receptors for PFAS at the site:

- Ingestion of PFAS in drinking water by workers and residents;
- Incidental ingestion of PFAS during recreational swimming;
- Incidental ingestion of PFAS in soil by workers in an industrial setting;
- Ingestion of PFAS in aquatic biota by residents;
- Exposure of terrestrial ecological receptors to PFAS in soil;
- Exposure of aquatic ecological receptors to PFAS in surface water; and
- Exposure of higher order ecological receptors such as predatory birds and mammals to PFAS in food items (e.g., aquatic and terrestrial biota).

Potential risks to the identified receptors have been assessed by comparing measured concentrations of PFAS in soil, soil leachate, groundwater, potable water, surface water and biota with guideline values for perfluorooctane sulfonic acid + perfluorohexane sulfonic acid (PFOS+PFHxS), PFOS and PFOA. This is discussed in Section **4.0**.

4.0 Tier 1 Risk Assessment

4.1 Tier 1 Screening Guidelines

Tier 1 Human Health and Ecological Screening Guidelines for PFAS have been sourced from NEMP (2018) and FSANZ (2017), and are shown in **Table 3**. Measured concentrations of PFAS in soil, water and biota have been compared to these Tier 1 guidelines in order to assess potential risks.

Table 3 Adopted Screening Guidelines for PFAS

Media	PFAS	Human Health	Ecological
Soil (Industrial/commercial land use)	PFOS	-	0.140 mg/kg[A] (NEMP 2018)
	PFOA	50 mg/kg (NEMP 2018)	-
	Sum of PFHxS and PFOS	20 mg/kg (NEMP 2018)	-
Leachate	PFOS	-	-
	PFOA	0.56 µg/L* (NEMP 2018)	-
	Sum of PFHxS and PFOS	0.07 µg/L * (NEMP 2018)	-
Recreational Water - Surface Water	PFOS	-	
	PFOA	5.6 µg/L (NEMP 2018)	
	Sum of PFHxS and PFOS	0.7 µg/L (NEMP 2018)	-
Aquatic Ecosystems – Surface Water	PFOS	-	Laboratory LOR or 0.13 µg/L[C] (NEMP 2018)
	PFOA	-	19 µg/L[B] or 220[C] (NEMP 2018)
Drinking Water - Groundwater	PFOS	-	-
	PFOA	0.56 µg/L (NEMP 2018)	-
	Sum of PFHxS and PFOS	0.07 µg/L (NEMP 2018)	-
Crustaceans	Sum of PFHxS and PFOS	65 µg/kg (FSANZ 2017)[D]	-
	PFOA	520 µg/kg (FSANZ 2017)[D]	-
Finfish	Sum of PFHxS and PFOS	5.2 µg/kg (FSANZ 2017)[E]	-
	PFOA	41 µg/kg (FSANZ 2017)[E]	-
Aquatic biota (mammalian diet)	PFOS	-	4.6 µg/kg (NEMP 2018)
Aquatic biota (avian diet)	PFOS	-	8.2 µg/kg NEMP 2018)

Notes

A - Interim soil – ecological indirect exposure
B - 99% species protection, High conservation/ecological value systems
C - 95% species protection, Slightly to moderately disturbed ecosystems
D- Derivation-Children 2-6 years, median consumption
E- Derivation - Children 2-6 years P90 consumption

* It is noted that the comparison of leachate results to the adopted human health guideline for drinking water is a conservative approach which does not take into account the significant dilution that is expected to occur when leachate discharges into the groundwater.

The PFAS NEMP (2018) does not provide sediment guideline values for PFOS or PFOA, however, ANZECC and ARMCANZ (2000) provide an approach for screening sediment toxicants in the absence of guideline values. In these instances, the concentration of a toxicant in background/reference sites can be multiplied by a factor of 2 as a screening measure of potential impact. This approach was adopted herein. The background sites selected were the North Eastern Pine River Bay, upstream areas of known AFFF use in Mission River and the Southern branch of the Hey River.

4.2 Tier 1 Assessment for Soil, Soil Leachate, Surface Water and Groundwater

A summary of the Human Health and Ecological Tier 1 Screening Assessment for each of the three drainage catchments (Pine River, Mission River and Embley River) undertaken during the PSI is presented in **Table 4** to **Table 17**.

4.2.1 Pine River Catchment

The Pine River Catchment forms the north western portion of both the Investigation area and the Andoom mining area. No primary source areas have been identified within the catchment. Two surface water samples have been collected from the catchment. Neither sample was reported to contain concentrations of PFAS above the laboratory LOR or adopted guideline values for human health or the environment. A summary of the surface water results for Pine River Catchment is provided in **Table 4.**

Table 4 Tier 1 Assessment of Surface Water for Pine River Catchment

Analyte	Number of samples analysed	Number of detections	Maximum concentration (µg/L)	No. of exceedances Human Health	No. of exceedances Ecological
PFOS	2	0	<0.0003	0	0
PFHxS	2	0	<0.0005	0	0
PFOA	2	0	<0.0005	0	0
PFHxA	2	0	<0.0005	0	0

4.2.2 Mission River Catchment

The Mission River Catchment forms the central section of the Site and includes the south eastern portion of the Andoom mining area and the northern portion of the Weipa Peninsula. One primary source area, four secondary source areas and three potential source areas or source types are identified within the catchment. Samples collected within the Mission River Catchment and results that exceed the adopted guideline values are summarised in **Table 5** to **Table 9**.

For the AHEQ, PFAS has been detected in soil samples collected from locations adjacent to the workshop, vehicle wash pad and downstream of the discharge point. No sample concentrations exceed the human health and ecological guideline values for industrial/commercial land use. However, one soil leachate sample recorded concentrations of PFHxS+PFOS that exceed the human health guideline value for drinking water. It is noted that the comparison of leachate results to the adopted human health guideline for drinking water is a conservative approach which does not take into account the significant dilution that is expected to occur when leachate discharges into the groundwater. This leachate sample also recorded a PFOS concentration that exceeded the adopted ecological guideline value for water (noting that this comparison is also conservative).

Laboratory analysis of a surface water sample from Tee Tree Swamp did not detect PFAS above the LOR. Surface water samples were collected from two locations downstream of the AHEQ discharge point. One sample, located closest to the discharge point contained a PFOS concentration that

exceeded the aquatic ecosystem guideline value. The second sample approximately 100m downstream did not detect PFAS above the LOR.

Groundwater level measurements in the area indicate that groundwater occurs in a shallow sand aquifer and generally flows towards the south-southwest towards the Mission River. Potable water for the AHEQ is supplied from wells located approximately 3.5 km east.

Four monitoring rounds from these wells recorded PFOS+PFHxS concentrations consistently below the human health guideline values for drinking water, with detections close to the laboratory LOR. Groundwater from six monitoring wells (non-potable) around the AHEQ recorded elevated concentrations of PFAS. Two groundwater samples from these non-potable wells to the south of the area recorded PFHxS+PFOS concentrations in excess of the human health guideline value for drinking water. All groundwater samples recorded PFOS concentrations that exceed the aquatic ecosystem guideline value. Results for the AHEQ Workshop are shown in **Table 5**

Table 5 Tier 1 Assessment for AHEQ (Primary Source Area)

Analyte	Number of samples analysed	Number of detections	Maximum concentration	No. of exceedances Human Health	No. of exceedances Ecological
Soil (mg/kg)					
PFOS+PFHxS	5	5	0.0072	0	0
PFOS	5	5	0.0054		
PFOA	5	5	0.0006		
Soil leachate (µg/L)					
PFOS+PFHxS	1	1	0.096	1 (drinking water)	1
PFOS	1	1	0.093		
PFOA	1	1	0.008		
Groundwater (µg/L)*					
PFOS+PFHxS	8	8	0.099	2 (drinking water)	8
PFOS	8	8	0.069		
PFOA	8	8	0.004		
Surface water (µg/L)					
PFOS+PFHxS	2	1	0.0094	0	1
PFOS	2	2	0.03		
PFOA	2	2	0.0044		

Note: * Samples collected from non-potable groundwater wells

For the Andoom Mine area, surface water samples from six locations across the mining area predominantly identified relatively low concentrations of PFAS. However, an elevated PFAS concentration in surface water, relative to other locations, was recorded during one monitoring round at the boat ramp on Andoom Creek. Subsequent monitoring at this location identified a low concentration of PFAS. All samples have reported PFAS concentrations below human health guideline values. Three surface water samples recorded PFOS concentrations that exceed the aquatic ecosystem guideline value. Six groundwater samples from six locations collected from near the Andoom Service Bay reported elevated concentrations of PFAS which were above the adopted ecological guidelines but below the human health guidelines. Ten potable water samples from three wells and two samples from the accumulation point reported low concentrations of PFAS which were

below the adopted human health guidelines. One potable water sample was above the adopted aquatic ecosystem guideline. Results are shown in **Table 6**.

Table 6 Tier 1 Assessment for Andoom Mine Area (Secondary Source Area)

Analyte	Number of samples analysed	Number of detections	Maximum concentration (µg/L)	No. of exceedances Human Health	No. of exceedances Ecological
Groundwater*					
PFOS+PFHxS	6	6	0.0026	0	6
PFOS	6	6	0.0019		
PFOA	6	0	<0.0005		
Surface water					
PFOS+PFHxS	7	7	0.0316	0	3
PFOS	7	7	0.0217		
PFOA	7	7	0.005		
Potable water					
PFOS+PFHxS	12	12	0.006	0	1
PFOS	12	12	0.002		
PFOA	12	0	<0.0005		

Note: * Samples collected from non-potable groundwater wells

All surface water, groundwater and potable water samples from Weipa Township and the Northern Weipa Peninsula recorded concentration of PFAS below human health guideline values. All but one sample contained PFAS concentrations above the aquatic ecosystem guideline values. Results are shown in

Table 7.

Table 7 Tier 1 Assessment for North Weipa Peninsula (Secondary Source Area)

Analyte	Number of samples analysed	Number of detections	Maximum concentration (µg/L)	No. of exceedances Human Health	No. of exceedances Ecological
Groundwater*					
PFOS+PFHxS	2	2	0.007	0	1
PFOS	2	2	0.003		
PFOA	2	0	<0.0005		
Surface water					
PFOS+PFHxS	1	1	0.0015	0	1
PFOS	1	1	0.0006		
PFOA	1	0	<0.0005		
Potable Water					
PFOS+PFHxS	39	13	0.032	0	13

Analyte	Number of samples analysed	Number of detections	Maximum concentration (µg/L)	No. of exceedances Human Health	No. of exceedances Ecological
PFOS	39	13	0.019		
PFOA	39	0	<0.0005		

Note: * Samples collected from non-potable groundwater wells

Four groundwater samples from locations around the Herring Oil Slot area recorded relatively low concentrations of PFAS. None of the samples exceed human health guideline values and two of the samples recorded PFOS concentrations that exceed the aquatic ecosystem guideline value. Results are shown in **Table 8**.

Table 8 Tier 1 Assessment for Herring Oil Slot (Secondary Source Area)

Analyte	Number of samples analysed	Number of detections	Maximum concentration (µg/L)	No. of exceedances Human Health	No. of exceedances Ecological
Groundwater*					
PFOS+PFHxS	4	4	0.0239	0	2
PFOS	4	4	0.0149		
PFOA	4	4	0.0009		

Note: * Samples collected from non-potable groundwater wells

Six surface water samples were collected from five river locations in the Northern East Weipa Mine area and analysed for PFAS. All six samples reported PFAS concentrations below the human health guidelines, and five samples reported exceedances of the aquatic ecosystem guideline. Results are shown in **Table 9**.

Table 9 Tier 1 Assessment for Northern East Weipa Mine Area (Secondary Source Area)

Analyte	Number of samples analysed	Number of detections	Maximum concentration (µg/L)	No. of exceedances Human Health	No. of exceedances Ecological
Surface Water					
PFOS+PFHxS	6	6	0.0032	0	5
PFOS	6	6	0.0015		
PFOA	6	0	<0.0005		

4.2.3 Embley River Catchment

The Embley River Catchment forms the southern portion of the Investigation area and includes the southern area of the Weipa Peninsula. Five primary source areas, five secondary source areas and three potential source areas or source types are identified within the catchment. Samples collected within the Embley River Catchment and results that exceed the adopted guideline values are summarised in **Table 10** to **Table 17**.

Surface water samples were collected from the EVL jetty, 300m east and 300m west of this point (i.e. along 600 m of shoreline). PFAS was detected at concentrations of 0.0011 µg/L and 0.0008 µg/L near the EVL jetty and approximately 300m west, respectively. These concentrations are below the human health guideline values but exceed the guideline value for aquatic ecosystems. The third sample from 300 m east of EVL did not contain detectable concentrations of PFAS.

Groundwater from 12 monitoring wells (non-potable) recorded elevated concentrations of PFAS. One sample to the south of the Evans Landing North (ELN) area and six samples from Evans Landing South (ELS) recorded PFHxS+PFOS concentrations that exceed the human health guideline value for drinking water. In addition, one sample from ELS exceeded the human health guideline value for recreational water. Three groundwater samples from ELN and all groundwater samples from ELS recorded PFOS concentrations that exceed the aquatic ecosystem guideline value. Results for the Evans Landing North and South are shown in **Table 10**.

Table 10 Tier 1 Assessment for Evans Landing North and South (Primary Source)

Analyte	Number of samples analysed	Number of detections	Maximum concentration (µg/L)	No. of exceedances Human Health	No. of exceedances Ecological
Groundwater*					
PFOS+PFHxS	12	9	0.71	7 (drinking water; 1 sample above recreational water)	9
PFOS	12	9	0.453		
PFOA	12	9	0.0178		
Surface Water					
PFOS+PFHxS	3	2	0.023	0	2
PFOS	3	2	0.0011		
PFOA	3	0	<0.0005		

Note: * Samples collected from non-potable groundwater wells

The RWW has been operational since 1972 and locomotives with fire suppression systems containing AFFF have been serviced at the workshop every six months with AFFF discharged to ground prior to 2015. Potable water for the RWW, EVL and Lorim Point is supplied from wells located to the south west and the east of the RWW. Four monitoring rounds from these potable bores recorded PFAS concentrations consistently below the human health guideline values for drinking water. Groundwater from five monitoring wells (non-potable) around the RWW recorded elevated concentrations of PFAS. One sample to the south west of the RWW recorded PFHxS+PFOS concentrations that exceed the human health guideline values for drinking water. All groundwater samples recorded PFOS concentrations that exceed the aquatic ecosystem guideline value. Results are shown in **Table 11**.

Table 11 Tier 1 Assessment for Railway workshop (Primary Source)

Analyte	Number of samples analysed	Number of detections	Maximum concentration (µg/L)	No. of exceedances Human Health	No. of exceedances Ecological
Groundwater*					
PFOS+PFHxS	7	7	0.278	1 (drinking water)	7
PFOS	7	7	0.152		
PFOA	7	7	0.0157		
Potable Water					
PFOS+PFHxS	4	4	0.015	0	3
PFOS	4	4	0.009		
PFOA	4	0	<0.002		

Note: * Samples collected from non-potable groundwater wells

Soil investigations at Lorim Point identified detectable concentrations of PFAS. None of the recorded concentrations in soil were found to exceed the human health guideline value for industrial/commercial land use. Two soil leachate samples recorded concentrations of PFHxS+PFOS that exceed the human health guideline for drinking water. It is noted that the comparison of leachate results to the adopted human health guideline for drinking water is a conservative approach which does not take into account the significant dilution that is expected to occur when leachate discharges into the groundwater. In addition, four soil samples analysed for a standard suite of PFAS recorded PFOS concentrations which exceeded the ecological guideline for industrial/commercial land use.

Potable water for residential mining accommodation and commercial receptors at Lorim Point and Evans Landing is supplied by a network of seven potable wells connected to accumulation tanks. PFAS has been detected in all of the potable wells and the accumulation point at Lorim Point. All recorded PFAS concentrations were below the human health guideline values for drinking water.

Lorim Point Industrial precinct (LPI) has a network of 24 monitoring wells located 170m to the south of the F&R building. Concentrations of 1 to 4 µg/L PFOS+PFHxS were recorded at 11 of the non-potable groundwater wells in the central and western portions of the LPI area. These concentrations exceed the drinking water and recreational water guideline values. Groundwater samples from the eastern portion of this area recorded moderately elevated concentrations up to the drinking water value of 0.07 µg/L PFOS+PFHxS.

Surface water from the Embley River was sampled at Lorim Point, 600m east and 600m west of this point (i.e. along 1.2 km of shoreline). PFAS was detected at low concentrations in two samples, one near the ship loading jetty at Lorim Point and one approximately 600m west. The recorded PFAS concentrations are below the human health screening guideline but exceed the screening guideline for aquatic ecosystems. Results are shown in **Table 12**.

Table 12 Tier 1 Assessment for Lorim Point (Primary Source)

Analyte	Number of samples analysed	Number of detections	Maximum concentration	No. of exceedances Human Health	No. of exceedances Ecological
Soil (mg/kg)					
PFOS+PFHxS	14	14	2.541	0	4
PFOS	14	14	2.43		
PFOA	14	14	0.1090		
Soil leachate (µg/L)					
PFOS+PFHxS	2	2	154	2 for drinking water and 1 for recreational water	2
PFOS	2	2	153		
PFOA	2	2	0.393		
Groundwater (µg/L) *					
PFOS+PFHxS	23	23	4.13	11 (drinking and recreational water)	23
PFOS	23	23	2.25		
PFOA	23	23	0.156		
Potable water (µg/L)					
PFOS+PFHxS	34	34	0.048	0	30
PFOS	34	34	0.034		
PFOA	34	0	<0.002		

Analyte	Number of samples analysed	Number of detections	Maximum concentration	No. of exceedances Human Health	No. of exceedances Ecological
Surface water (µg/L)					
PFOS+PFHxS	3	3	0.0007	0	2
PFOS	3	3	0.007		
PFOA	3	0	<0.002		

Note: * Samples collected from non-potable groundwater wells

PFAS has been detected in soil samples collected from one location adjacent to the East Weipa Heavy Equipment Workshop (EWHEQ), two locations adjacent to the vehicle wash pad and two locations downstream of the discharge point. No sample concentrations exceed the human health and ecological guideline values for industrial/commercial land use. However, one soil leachate sample recorded a concentration of PFHxS+PFOS that exceeds the human health guideline value for drinking water (noting that, as indicated previously, this is a conservative comparison). This sample also recorded a PFOS concentration that exceeds the adopted ecological guideline value.

Surface water samples from two locations downstream of the EWHEQ discharge point recorded elevated concentrations of PFAS with one sample exceeding the human health guideline value for drinking water and all samples contained PFOS concentrations that exceed the aquatic ecosystem guideline value for 99% species protection.

Potable water for the EWHEQ is supplied from SA027 located approximately 200m south of the EWHEQ area. Four monitoring rounds from SA027 (4 samples) and the accumulation tank (1 sample) recorded PFAS concentrations consistently below the human health guideline values for drinking water, but above the adopted ecological guidelines.

Groundwater from five monitoring wells (non-potable) to the south and south west of the EWHEQ recorded elevated concentrations of PFAS compared with surface water. Two samples to the south west of the area recorded PFHxS+PFOS concentrations that exceed the human health guideline value for drinking water. All groundwater samples recorded PFOS concentrations in excess of the aquatic ecosystem guideline value. Results are shown in **Table 13**.

Table 13 Tier 1 Assessment for East Weipa Heavy Equipment Workshop (Primary Source)

Analyte	Number of samples analysed	Number of detections	Maximum concentration (µg/L)	No. of exceedances Human Health	No. of exceedances Ecological
Soil					
PFOS+PFHxS	4	4	0.0267	0	0
PFOS	4	4	0.0353		
PFOA	4	4	0.0353		
Soil leachate					
PFOS+PFHxS	1	1	0.11	1 (drinking water guideline)	1
PFOS	1	1	0.069		
PFOA	1	1	0.018		
Groundwater*					
PFOS+PFHxS	8	8	0.242	2 (drinking water	5

Analyte	Number of samples analysed	Number of detections	Maximum concentration (µg/L)	No. of exceedances Human Health	No. of exceedances Ecological
PFOS	8	8	0.156	guideline)	
PFOA	8	8	0.0112		
Potable water					
PFOS+PFHxS	5	5	0.009	0	5
PFOS	5	5	0.005		
PFOA	5	0	<0.002		
Surface Water					
PFOS+PFHxS	3	3	0.0923	1 (drinking water)	3
PFOS	3	3	0.0614		
PFOA	3	3	0.0127		

Note: * Samples collected from non-potable groundwater wells

Soil investigation at Weipa Airport at both ends of the runway and near the passenger terminal in the approximate areas of training events identified low concentrations of PFAS. None of the recorded soil concentrations exceed the adopted human health or ecological guideline values. However, one soil leachate sample recorded a concentration of PFHxS+PFOS that exceeds the human health guideline value for drinking water (noting that, as indicated previously, this is a conservative comparison). This sample also recorded a PFOS concentration that exceeded the adopted ecological guideline value. Results are shown in **Table 14**.

Potable water for the airport is currently supplied from SA026 located to the south west of the runway. Four monitoring rounds from SA026 recorded concentrations consistently below the human health guideline value for drinking water. Groundwater from seven monitoring wells (non-potable) to the south west of the runway recorded elevated concentrations of PFAS. One sample from near the Fuel Depot recorded a PFHxS + PFOS concentration is excess of the human health guideline value for drinking water. All groundwater samples recorded PFOS concentrations in excess of the aquatic ecosystem guideline value.

Table 14 Tier 1 Assessment for Weipa Airport (Primary source)

Analyte	Number of samples analysed	Number of detections	Maximum concentration	No. of exceedances Human Health	No. of exceedances Ecological
Soil (mg/kg)					
PFOS+PFHxS	24	2	0.0024	0	0
PFOS	24	0	<0.0002		
PFOA	24	2	0.0024		
Soil leachate (µg/L)					
PFOS+PFHxS	1	1	0.181	1 (drinking water guideline)	1
PFOS	1	1	0.173		
PFOA	1	1	0.003		

Analyte	Number of samples analysed	Number of detections	Maximum concentration	No. of exceedances Human Health	No. of exceedances Ecological
Groundwater (µg/L)*					
PFOS+PFHxS	7	7	0.136	1 (drinking water guideline)	7
PFOS	7	7	0.052		
PFOA	7	7	0.004		
Potable water (µg/L)					
PFOS+PFHxS	8	8	0.047	0	6
PFOS	8	8	0.027		
PFOA	8	8	0.002		

Note: * Samples collected from non-potable groundwater wells

Samples from three groundwater monitoring wells from east, south and west of the Lorim Point Fuel Depot were tested. The recorded concentrations of PFAS were all below the human health guideline values but exceeded the aquatic ecosystem guideline value. Results are shown in **Table 15**.

Table 15 Tier 1 Assessment for Lorim Point Fuel Depot (Secondary source)

Analyte	Number of samples analysed	Number of detections	Maximum concentration (µg/L)	No. of exceedances Human Health	No. of exceedances Ecological
Groundwater*					
PFOS+PFHxS	3	3	0.0255	0	3
PFOS	3	3	0.0148		
PFOA	3	3	0.002		

Note: * Samples collected from non-potable groundwater wells

For the East Weipa Mine Area, five surface water samples from four river locations were collected and analysed for PFAS. Most locations recorded concentrations of PFAS <LOR, however, the downstream sample from Beening Creek recorded low concentrations of PFAS in two samples. Results are shown in **Table 16**.

Table 16 Tier 1 Assessment for East Weipa Mine Area (Secondary Source)

Analyte	Number of samples analysed	Number of detections	Maximum concentration (µg/L)	No. of exceedances Human Health	No. of exceedances Ecological
Surface Water					
PFOS+PFHxS	5	2	0.0038	0	2
PFOS	5	2	0.0015		
PFOA	5	0	<0.0005		

All surface water samples collected from Lake Patricia and Lake McLeod recorded PFAS concentrations below the LOR. Results are shown in **Table 17**.

Table 17 Tier 1 Assessment for East Weipa Peninsula (Secondary Source)

Analyte	Number of samples analysed	Number of detections	Maximum concentration (µg/L)	No. of exceedances Human Health	No. of exceedances Ecological
Surface Water					
PFOS+PFHxS	2	0	<LOR	0	0
PFOS	2	0	<LOR		
PFOA	2	0	<LOR		

4.3 Tier 1 Assessment for Surface Water and Biota

A total of 83 biota samples were analysed, and approximately 95% of the samples reported concentrations of PFAS compounds below the laboratory LOR of 0.5 µg/kg. Of the four samples with PFAS detections, the highest total PFAS concentration (0.9 µg/kg) was reported from a gastropod sample, collected from Jessica Point.

All reported concentrations greater than LOR were approximately two orders of magnitude below the adopted human health screening guidelines.

A summary of the Human Health and Ecological Tier 1 Screening Assessment for the biota, surface water and sediment samples collected during the Biota Investigation is presented in **Table 18** to **Table 20**.

Table 18 Tier 1 Surface water Assessment

Analyte	Number of samples analysed	Number of detections	Maximum concentration (µg/L)	No. of exceedances Human Health	No. of exceedances Ecological
PFOS	11	0	<0.0003	0	0
PFHxS	11	0	<0.0005	0	0
PFOA	11	0	<0.0005	0	0
PFHxA	11	0	<0.0005	0	0

Table 19 Tier 1 Sediment Assessment

Analyte	Number of samples analysed	Number of detections	Maximum concentration (mg/kg)	No. of exceedances Human Health	No. of exceedances Ecological
PFOS	11	0	<0.005	0	0
PFHxS	11	0	<0.005	0	0
PFOA	11	0	<0.005	0	0
PFHxA	11	0	<0.005	0	0

Table 20 Tier 1 Biota Assessment

Sample	Location	PFOA µg/kg	PFHxS µg/kg	PFBA µg/kg	PFPeS µg/kg	PFOS µg/kg	Sum PFAS µg/kg
BT05_GASTROPOD_	Site 05	0.5	0.4	<0.0005	<0.0005	<0.0003	0.9

Sample	Location	PFOA µg/kg	PFHxS µg/kg	PFBA µg/kg	PFPeS µg/kg	PFOS µg/kg	Sum PFAS µg/kg
19/07/18	Jessica Point						
BT07_MUDCRAB(2)_17/07/18	Site 07 Beening Creek	<0.0005	<0.0003	0.6	<0.0005	<0.0003	0.6
BT07_MULLET_24/07/18	Site 07 Beening Creek	<0.0005	<0.0003	<0.0005	0.6	<0.0003	0.6
BT07_SCAT(2)_16/07/18	Site 07 Beening Creek	<0.0005	<0.0003	<0.0005	<0.0005	0.7	0.7

Notes Shows only samples with concentrations of PFAS above Laboratory LOR. Guidelines for biota are shown in Table 3 for both human and ecological receptors

4.4 Summary of Tier 1 Risk Assessment

PFAS has been reported at measurable concentrations in soil, surface water, groundwater and potable water samples from within the investigation area. Six primary source areas have been identified, with confirmed AFFF storage, use and release to the environment and elevated contaminant concentrations.

Detailed investigation and monitoring of these primary areas is recommended to confirm the extent and magnitude of contamination as to assess the potential risk to human health and the environment. The Primary Source Areas proposed for further investigation include:

- Mission River Catchment:
  - AHEQ
- Embrey River Catchment:
  - Evans Landing
  - Railway workshop
  - Lorim Point
  - Weipa Airport
  - East Weipa Heavy Equipment Workshop.

Recommendations and Interim Management Measures are presented in **Section 6.0**.

Aquatic biota, sediment and surface water samples were collected from 11 sites across the investigation area. The biota samples included species commonly consumed across the investigation area, and included a range of ecological groups from pelagic fish to sessile invertebrates. The reported PFAS concentrations in all biota samples analysed were at least an order of magnitude below the adopted guidelines. The reported PFAS concentrations for all co-located surface water and sediment samples analysed were below the laboratory LOR. Based on the available information, the Tier 1 assessment of biota, sediment and surface water concludes that there is negligible risk to human and ecological health from the consumption of aquatic biota end Environmental Values relating to aquatic food consumption and aquaculture.

It is noted that factors such as seasonal influence and collection methodology of surface water (i.e. from the central position of a watercourse instead of the river/creek bank) may have contributed to the non-correlation of the surface water results from the biota investigation when compared to those collected during the PSI (Golder 2018a).

The biota sampling did not specifically target two primary source areas identified during the concurrent PSI (Evans point landing and Lorim point), and the potential for localised impact and risk cannot be discounted in these specific areas. However, the low number of samples reporting detectable (but below guideline) PFAS concentrations in biota and the absence of samples reporting detectable PFAS concentrations in sediment suggest that there is not widespread contamination in the receiving environment.

5.0 Conceptual Site Model (CSM) Summary

The source areas are those which have been identified as having PFAS in groundwater and soils at concentrations exceeding guidelines for groundwater, surface water, potable water, soil leachate and industrial soil in the PFAS NEMP (2018). Where linkages are complete or potentially complete, further investigation is proposed to better understand the impact of primary source areas to the identified receptors. Only complete pathways or linkages between a source and a receptor result in potential risk. If a contaminant pathway is incomplete or not linked, there is considered to be no exposure and therefore no risk via that pathway.

It is noted that this CSM has been developed based on the review of the available data which have been collected to date. The CSM is a dynamic tool that will be continually challenged and updated throughout the investigation process as new information becomes available. Its development will be an iterative process. At the end of each phase of investigation or where key pieces of information become available, the CSM will be refined, as required. The CSMs for the Mission River and Embley River Catchments are presented in **Table 21** and **Table 22**.

Table 21 Conceptual Site Model for Mission River Catchment

Primary source area	Source media	Transport mechanisms	Exposure pathways	Exposed population characterisation / receptor	Linkages
Andoom Heavy Equipment Workshop (AHEQ) identified soil source and elevated concentrations in down gradient groundwater. PFAS has been released to the environment from this facility during annual servicing of fire suppression systems on HME during the period 1997 to 2017 PFAS can soak into soil and / or infrastructure from where it can be eroded as sediment or leached by rainwater or flood water and migrate to groundwater, or dissolved in surface water runoff and potentially transported to affect other media.	PFAS in shallow soil (<2.0 m)	Water erosion Excavation and re-location of soil during construction activities	Human health: Incidental ingestion of soil on-Site	Commercial/industrial	Incomplete (Soil PFAS concentrations below adopted HH guidelines)
			Human health: Direct contact with soil on-Site	Commercial/industrial	Incomplete (Soil PFAS concentrations below adopted HH guidelines)
			Ecological	On-Site ecosystem	Incomplete (Soil PFAS concentrations below adopted Eco guidelines)
	PFAS in groundwater PFAS in soil leachate PFAS in potable water	Groundwater transport in aquifer followed by extraction and use for recreational and domestic uses and irrigation	Human health: Direct ingestion of groundwater (on- and off-Site)	Commercial/industrial, residential	Incomplete (Potable water PFAS concentrations below adopted HH guidelines. GW and leachate PFAS concentrations are above HH guidelines, but there is no identified linkage between impacted GW, leachate and human consumption).
			Human health: Incidental ingestion of groundwater (on- and off-Site)	Commercial/industrial, residential	Incomplete (see above)
			Human health: Direct contact of groundwater (on- and off-Site)	Commercial/industrial, residential	Incomplete (see above)
	PFAS in surface water	Surface water transport, discharging to Mission River	Human health: Incidental ingestion of surface water (on- and off-Site)	Recreational	Incomplete (SW PFAS concentrations below adopted HH guidelines)
			Human health: Direct contact with surface water (on- and off-Site)	Recreational, ecosystem	Incomplete (SW PFAS concentrations below adopted HH guidelines)
			Ecological (on and off-Site)	Ecosystem (on and off-Site)	Complete (SW PFAS concentrations above Eco guidelines)
	PFAS in sediment	Dispersion via surface water or via drain maintenance activities.	Human health: Incidental ingestion of sediment on-Site.	Commercial/industrial	Potentially Complete (Anecdotal evidence suggests sediment from the drainage system is potentially impacted by PFAS)
			Human health: Direct contact of sediment on-Site.	Commercial/industrial	Potentially Complete (see above)
			Ecological (on- and off-Site).	Ecosystem (on- and off-Site)	On-site Potentially Complete (see above) Off-site Incomplete (Sediment PFAS concentrations below adopted Eco guidelines and <LOR)
			Human health: Incidental ingestion of sediment off-Site, impacted by surface water or groundwater (extracted via bore).	Residential	Incomplete (Sediment PFAS concentrations below adopted HH guidelines and <LOR)
			Human health: Direct contact of sediment on- and off-Site impacted by groundwater (extracted via bore) or surface water	Commercial/industrial, residential	Potentially Complete. (Anecdotal evidence suggest PFAS in sediment on-site, and PFAS concentrations in groundwater are above adopted HH guidelines)

Primary source area	Source media	Transport mechanisms	Exposure pathways	Exposed population characterisation / receptor	Linkages
	Terrestrial biota	Harvesting	Human health: Ingestion of terrestrial organisms (including fruit and vegetables, chicken eggs)	Residential	Incomplete (Potable water PFAS concentrations below adopted HH guidelines. GW PFAS concentrations are above HH guidelines, but there is no identified linkage between impacted GW and human consumption).
			Ecological (on- and off-Site).	Ecosystem (on- and off-Site)	Incomplete (PFAS concentrations in soil are below eco guidelines)
	Aquatic biota	Harvesting	Human health: Ingestion of aquatic organisms (including fish and yabbies, shrimps and mussels)	Residential, recreational	Incomplete (PFAS concentrations below adopted HH guidelines)
			Ecological (off-Site).	Ecosystem (off-Site)	Incomplete (PFAS concentrations below adopted eco guidelines)

Note – Shading indicates a Complete Pathway.

Table 22 Conceptual Site Model for Embley River Catchment

Primary source area	Source media	Transport mechanisms	Exposure pathways	Exposed population characterisation / receptor	Linkages
EVL, RWW, F&R, airport and EWHEQ identified PFAS source and elevated concentrations in downgradient groundwater. On-Site areas where fire-fighting retardants /suppression foams have been discharged or spilt to the environment PFAS can soak into soil and / or infrastructure from where it can be eroded as sediment or leached by rainwater or flood water and migrate to groundwater, or dissolved in surface water runoff and potentially transported to affect other media.	PFAS in shallow soil (<2.0 m)	Water erosion Excavation and re-location of soil during construction activities	Human health: Incidental ingestion of soil on-Site	Commercial/industrial	Incomplete (Soil PFAS concentrations below adopted HH guidelines)
			Human health: Direct contact with soil on-Site	Commercial/industrial	Incomplete (Soil PFAS concentrations below adopted HH guidelines)
			Ecological	On-Site ecosystem	Complete (Soil PFAS concentrations above adopted Eco guidelines)
	PFAS in groundwater PFAS in soil leachate PFAS in potable water	Groundwater transport in aquifer followed by extraction and use for recreational and domestic uses and irrigation	Human health: Direct ingestion of groundwater (on- and off-Site)	Commercial/industrial, residential	Incomplete (Potable water PFAS concentrations below adopted HH guidelines and potable abstraction wells SA014 and SA015 located nearby the GW plume have been excluded from the potable water network. GW and leachate PFAS concentrations are above HH guidelines, but there is no identified linkage between impacted GW and human consumption.
			Human health: Incidental ingestion of groundwater (on- and off-Site)	Commercial/industrial, residential	Incomplete (see above)
			Human health: Direct contact of groundwater (on- and off-Site)	Commercial/industrial, residential	Incomplete (see above)
	PFAS in surface water	Surface water transport, discharging to Embley River	Human health: Incidental ingestion of surface water (on- and off-Site)	Recreational	Incomplete (SW PFAS concentrations below HH guidelines)
			Human health: Direct contact with surface water (on- and off-Site)	Recreational, ecosystem	Incomplete (SW PFAS concentrations below HH guidelines)

Primary source area	Source media	Transport mechanisms	Exposure pathways	Exposed population characterisation / receptor	Linkages
			Ecological (on and off-Site)	Ecosystem (on and off-Site)	Complete (SW PFAS concentrations above adopted Eco guidelines)
		Infiltration to groundwater followed by extraction and use for drinking water, recreational uses and irrigation.	Human health: Direct contact with groundwater (on- and off-Site).	Commercial/industrial, residential	Incomplete (Potable water PFAS concentrations below adopted HH guidelines and potable abstraction wells SA014 and SA015 located nearby the GW plume have been excluded from the potable water network. GW PFAS concentrations are above HH guidelines, but there is no identified linkage between impacted GW and human consumption).
	PFAS in sediment	Dispersion via surface water or via drain maintenance activities.	Human health: Incidental ingestion of sediment on-Site.	Commercial/industrial	Potentially Complete (Anecdotal evidence suggests sediment from the drainage system is potentially impacted by PFAS).
			Human health: Direct contact of sediment on-Site.	Commercial/industrial	Potentially Complete (see above)
			Ecological (on- and off-Site).	Ecosystem (on- and off-Site)	On-site Potentially Complete (see above) Off-site Incomplete (Sediment PFAS concentrations below adopted Eco guidelines and <LOR)
			Human health: Incidental ingestion of sediment off-Site, impacted by surface water or groundwater (extracted via bore).	Residential (off-Site)	Incomplete (Off-Site sediment PFAS concentrations below adopted HH guidelines and <LOR)
			Human health: Direct contact of sediment on- and off-Site impacted by groundwater (extracted via bore) or surface water	Commercial/industrial, residential	Potentially Complete. (Anecdotal evidence suggest PFAS in sediment on-site, and PFAS concentrations in groundwater are above adopted HH guidelines)

Primary source area	Source media	Transport mechanisms	Exposure pathways	Exposed population characterisation / receptor	Linkages
	Terrestrial biota	Harvesting	Human health: Ingestion of terrestrial organisms (including fruit and vegetables, chicken eggs)	Residential	Incomplete (Potable water PFAS concentrations below adopted HH guidelines. GW PFAS concentrations are above HH guidelines, but there is no identified linkage between impacted GW and human consumption).
			Ecological (on-Site).	Ecosystem (on -Site)	Complete (PFAS concentrations in on-Site soil are above eco guidelines)
	Aquatic biota	Harvesting	Human health: Ingestion of aquatic organisms (including fish and yabbies, shrimps and mussels)	Residential, recreational	Incomplete (PFAS concentrations in aquatic biota are below adopted HH guidelines)
			Ecological (off-Site).	Ecosystem (off-Site)	Incomplete (PFAS concentrations in aquatic biota are below adopted eco guidelines)

Note – Shading indicates a Complete Pathway.

6.0 Interim Management Measures

Based on the information presented in PSI (Golder 2018a) and Biota Investigation Report (Golder 2018b), the following interim management measures are recommended to protect the relevant environmental values for the Primary Source Areas.

6.1 Andoom Heavy Equipment Workshop (AHEQ)

Detailed investigation is recommended (and is already underway via a detailed site investigation, DSI) to confirm that the reported PFAS concentrations in soil, surface water and groundwater samples from around the AHEQ do not present a risk to human health. As the PFAS concentrations may present an unacceptable risk to aquatic ecosystems, investigation and/or monitoring is also recommended to assess the potential ecological risk. Continued fortnightly monitoring of potable water for the AHEQ from the three wells located approximately 3.5 km east is recommended.

6.2 Evans Landing (EVL)

Detailed investigation is recommended (and is already underway via a DSI) to confirm the extent and magnitude of contamination in groundwater from EVL and assess the potential risk to human health and the environment. The source of PFAS in groundwater at EVL is not known but may relate to remediation of petroleum hydrocarbons in this area during 2011 or an upgradient source.

Surface water samples from the Embley River at EVL contained low concentrations of PFAS below the human health guideline values, but above the guideline value for aquatic ecosystems. Further investigation and monitoring is recommended for Evans Landing as part of the DSI in this area to assess the area of PFAS contamination and assess the potential risk to human health and the environment.

6.3 Railway Workshop (RWW)

Detailed investigation is recommended (and is already underway via a DSI) to confirm the extent and magnitude of PFAS contamination in soil, groundwater and potable water samples around the RWW.

Potable water for the RWW (and EVL/Lorim Point areas) is supplied from wells located to the south west and the east. Four monitoring rounds from these wells recorded concentrations consistently below the guideline values for drinking water, however, continued fortnightly monitoring of potable water at the accumulation points is recommended.

6.4 Lorim Point

Detailed investigation is recommended (and is already underway via a DSI) to confirm the extent and magnitude of contamination in soil, surface water and groundwater samples from around the F&R building and within a contaminated groundwater plume extending some 400m south west and downgradient from the F&R building towards the Embley River.

Potable wells located down- and across-hydraulic gradient of the F&R building include SA014 located 70m to the east and SA015 located 180m south east. Four monitoring rounds from these wells recorded concentrations consistently below the guideline values for drinking water. Continued monitoring of potable water is recommended.

The available information suggests that there may be a viable pathway for PFAS sourced from the F&R area to reach potable abstraction well SA015 and potentially SA014. Further investigation and assessment would be required to assess these potential pathways.

Therefore, it is recommended that a precautionary approach is adopted with the continued isolation of SA015 and possibly SA014 from the potable water supply network. If potable water abstraction recommences from one or more of these wells it is recommended that sentinel wells are installed, and that regular monitoring is completed.

6.5 Weipa Airport

Detailed investigation is recommended (and is already underway via a DSI) to confirm the extent and magnitude of contamination in soil leachate and groundwater samples from around the airport. Potable water for the airport is supplied from well SA026 located to the south west of the runway. Four monitoring rounds from this well recorded concentrations consistently below the human health guideline values for drinking water. Continued fortnightly monitoring of potable water is recommended.

6.6 East Weipa Heavy Equipment Workshop

Detailed investigation is recommended (and is already underway via a DSI) to confirm the extent and magnitude of contamination of soil leachate, surface water and groundwater samples from around the EWHEQ. Potable water for the EWHEQ is supplied from well SA027 located approximately 200m south of EWHEQ. Four monitoring rounds from this well recorded concentrations consistently below the human health guideline values for drinking water. Continued fortnightly monitoring of potable water is recommended.

7.0 Conclusions

This report presents an Interim RA on potential risks associated with PFAS in the Weipa and Andoom mining areas on Western Cape York Peninsula. The overall objective of the work was to understand the nature and extent of the identified PFAS impact and to address Requirement 6 of the DES *Notice to conduct or commission an environmental evaluation*, dated 7 September 2018, which is:

"Using the findings and results of the PSI and Biota Assessment completed in requirements 3 and 4 respectively, by 30 November 2018, prepare and submit to the department an Interim Risk Assessment that assesses the risk to environmental values and details interim management measures to protect the relevant environmental values."

The scope of work for this Interim RA was based on the review and incorporation of findings from historical reports prepared by Golder (2018a,b). Potential risks to environmental values associated with human and ecological health were assessed by comparison of measured PFAS concentrations in soil, water (ground- and surface), sediment and biota against Australian guidelines. A CSM was developed that indicated where linkages between sources of PFAS and receptors (both human and ecological) were likely to be complete (and therefore present a potential risk) or incomplete (in which case risks were considered to be negligible). The CSM is a dynamic tool that will be updated as new information becomes available.

This Interim RA found exceedance of human health and ecological guideline values at some locations at the site, such as the AHEQ, Evans Landing, Railway Workshop, Lorim Point, Weipa Airport and EWHEQ. No exceedances of drinking water guidelines for groundwater currently used for potable purposes were identified.

Based on the above, interim management measures were developed for the potentially complete CSM linkages. It is noted that many of the identified interim management measures are already complete or underway, such as fortnightly groundwater monitoring and well isolation. A detailed site investigation (DSI) is being completed to address Requirement 8 in the Notice, which requires delineation of the lateral and vertical extent of contamination, update the CSM and identify and refine remediation and management measures.

8.0 References

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9.0 Standard Limitation

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Yours sincerely

Cindy Cheung
Senior Environmental Engineer
cindy.cheung@aecom.com

Mobile: 0408 688 050
Direct Dial: +61 7 3553 2000
Direct Fax: +61 7 3553 2050

Carolyn Brumley
Technical Director - Environment
carolyn.brumley@aecom.com

Direct Dial: +61 7 3553 2000
Direct Fax: +61 7 3553 2050

encl: Attachment A –Figures (adapted from Golder, 2018a)
Attachment B – Analytical Result Tables (Golder 2018a, 2018b)

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Attachment A – Figures (adapted from Golder, 2018a)



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N

DATUM GDA 1994, PROJECTION MGA ZONE 56

0 1,500 3,000 6,000

metres

1:185,000 (when printed at A3)

LEGEND

Mineral Exploration Permit

Mining Lease

Data sources:
Golder, 2013b – DSI SAQP provided by RTAW.
Qspatial: Mining Lease spatial layers

Weipa

REGIONAL LOCALITY MAP AND MINING LEASE AREAS

PROJECT ID	60588844
CREATED BY	JB
LAST MODIFIED	JB - 01 Nov 2018
VERSION:	1

Figure 1

Filename: T:\JRB\Tasks\Carina J - Weipa\Weipa_F3_MiningLease_20181031.mxd

A3 size



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DATUM GDA 1994, PROJECTION MGA ZONE 56

0 1,500 3,000 6,000

metres

1:170,000 (when printed at A3)

LEGEND

Investigation Area

Receiving Environment Investigation Area

Data sources:
Golder, 2013b – DSI SAQP provided by RTAW.

Weipa

LOCAL FEATURES AND PRIMARY SOURCE AREAS

PROJECT ID	60588844
CREATED BY	JB
LAST MODIFIED	JB - 01 Nov 2018
VERSION:	1

Figure 2

Filename: T:\JRB\Tasks\Carina J - Weipa\Weipa_F2_LocalityFeatures_20181031.mxd

A3 size



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DATUM GDA 1994, PROJECTION MGA ZONE 56

0 1,500 3,000 6,000

metres

1:149,000 (when printed at A3)

LEGEND

Catchment:

- Embley River
- Mission River
- Wenlock River
- Pine River

Data sources:
Golder, 2013b – DSI SAQP provided by RTAW.

Weipa

CATCHMENT BOUNDARIES

PROJECT ID	60588844
CREATED BY	JB
LAST MODIFIED	JB - 01 Nov 2018
VERSION:	1

Figure 3

Filename: T:\JRB\Tasks\Carina J - Weipa\Weipa_CatchmentMap_20181031.mxd

A3 size

PATH: R:\01 Client\18100235\18100235\99_PROJECTS\018\18100235-018-R-F002-Rev0-Biota_SAQP_Locations.mxd PRINTED ON: 2018-10-12 AT: 11:21:11 AM

Site	Sample location	Habitats present	Rationale
1 and 1DS	Andoom Creek: downstream (site 1) and upstream (site 1DS) of the railway crossing	Estuarine creek system lined with dense and extensive mangroves on both banks.	Downstream from areas of the Andoom mining area and the Andoom Heavy Equipment Workshop PFAS source area. Fishing spot for both shore and boat fishing.
2	Wallaby Island on southern bank of the Mission River	Wide sand bank adjacent to a rocky shore.	Downstream receiving environment approximately 2 km west of the mouth of the Trunding Creek which originates in the vicinity of the East Weipa Heavy Equipment Workshop (EWHEQ) PFAS source area and more generally the north Weipa peninsular.
3 and 3A	Kerr and Goonburg Points	Shallow, sandy and muddy foreshore. Shoreline fringed with mangroves.	Receiving environment of the Weipa Fire & Rescue potential PFAS source. Fishing spots for either shore or boat-based fishing and key areas for the collection of bivalves from intertidal shores.
4	Bank in Weipa Channel off Humbug Point	Shallow bank of shell gravel and coarse sand.	
5	Jessica Point off Napranum	Muddy foreshore.	
6	Leithen Creek mouth	Narrow estuarine creek mouth lined with dense and extensive mangroves.	
7	Beening Creek mouth	Narrow estuarine creek mouth lined with dense and extensive mangroves.	Drains areas associated with the Weipa Airport and the East Weipa Heavy Equipment Workshop (EWHEQ) potential PFAS source areas.
8	Hey and Embely River confluence	Wide estuarine mud flats lined with dense and extensive mangroves.	Albeit slightly upstream of potential PFAS sources, the confluence of the site is considered to be within the zone of potential impact from the identified PFAS source areas.
1US	Eastern branch of Andoom Creek	Estuarine creek system lined with dense and extensive mangroves on both banks.	Remote from the inferred drainage associated with the Andoom Heavy Equipment Workshop (AHEQ) potential PFAS source area.
9	Upper Hey River	Wide estuarine mud flats lined with dense and extensive mangroves on both banks.	Reference sites upstream of known potential PFAS source areas.
10	Upper Mission River		
11	North Pine River Bay		

KEY MAP



Inset Map
1:90,000

LEGEND

Watercourse
- Major
- Minor

Sample Locations
- Potential Receiving Environment
- Reference Sites
- Biota Sampling Investigation Area

Coordinate System:
GDA 1994 MGA Zone 54
Projection: Transverse Mercator
Datum: GDA 1994

0 2 4 6 8 10 kilometres
Scale: 1:200,000 @ A3

NOTE(S)

Gazetter: © State of Queensland (Department of Natural Resources, Mines and Energy) 2018
Watercourse: © Geoscience Australia.

REFERENCE(S)

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Basemap: Pan-sharpened Landsat 8 OLI Image Service, 31/07/2017

TITLE

BIOTA SAMPLING: SAMPLE LOCATIONS

CONSULTANT

GOLDER

YYYY-MM-DD	2018-10-12
DESIGNED	DC
PREPARED	DC
REVIEWED	JC
APPROVED	GW

PROJECT NO.	CONTROL	REV.	FIGURE
18100235	018	0	4

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ISO A3

Attachment B – Analytical Tables (from Golder 2018a and 2018b)

GOLDER

[redacted] **Summary of Laboratory Results for PFAS in Water Samples** Source: Golder (2018a)

[redacted]

	Per- and polyfluoroalkyl substances (PFAS)																																	
	N-Methyl PFO sulfonamidoethanol (MeFOSE)	Perfluorodecane sulfonic acid (PFDS)	N-methyl-PFO sulfonamidoacetic acid (MeFOSAA)	Perfluorooctanoic Acid (PFOA)	Perfluorooctane sulfonic acid (PFOS)	Perfluorohexane sulfonic acid (PFHxS)	Sum of PFHxS and PFOS (lab reported)	Sum of WA DER PFAS (n=10)	Sum of PFASs (n=28 - Lab Reported)	Perfluorobutanoic acid (PFBA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorodecanoic acid (PFDA)	Perfluoropentanoic acid (PFPeA)	Perfluorononanoic acid (PFNA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorododecanoic acid (PFDoDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorobutane sulfonic acid (PFBS)	4:2 Fluorotelomer sulfonic acid (4:2 FTSA)	6:2 Fluorotelomer sulfonic acid (6:2 FTSA)	8:2 Fluorotelomer sulfonic acid (8:2 FTSA)	10:2 Fluorotelomer sulfonic acid (10:2 FTSA)	N-Ethyl PFO sulfonamide (EtFOSA)	N-Ethyl PFO sulfonamidoethanol (EtFOSE)	N-Methyl PFO sulfonamide (MeFOSA)	Perfluorooctane sulfonamide (FOSA)	N-ethyl-PFO sulfonamidoacetic acid (EtFOSAA)
	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	µg/L	µg/L
EQL	0.001	0.0005	0.0005	0.0005	0.0003	0.0005	0.0003	0.0003	0.0003	0.002	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.0005	0.0005
Aquatic Ecosystem Freshwater/Marine 99% species protection NEMP 2018 (a)				19	0.00023																												
Health-based guidance values – Drinking Water NEMP 2018 (a)				0.56			0.07																										

Field_ID	Sample Type	Location ID	Location	Sampled Date	Lab Report Number																													
AHEQ-SS12/0-0.1	Soil Leachate	AHEQ-SS12	Andoom HEQ	10/19/2017	ES1727434	<0.005	<0.002	<0.002	0.008	0.093	0.003	0.096	0.593	0.699	<0.01	0.05	0.012	0.003	0.02	0.003	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	0.413	0.087	0.007	<0.005	<0.005	<0.005	<0.002	<0.002
AP-SS03/0-0.1	Soil Leachate	AP-SS03	Weipa Airport	10/18/2017	ES1727434	<0.005	<0.002	<0.002	0.003	0.173	0.008	0.181	0.011	0.184	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
EWHEQ-SS16/0-0.1	Soil Leachate	EWHEQ-SS16	East Weipa HEQ	10/19/2017	ES1727434	<0.005	<0.002	<0.002	0.018	0.069	0.041	0.11	2.31	2.39	<0.01	0.2	0.035	0.003	0.185	<0.002	<0.005	<0.002	<0.002	<0.002	0.003	<0.002	<0.002	<0.005	1.72	0.114	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
FR-SS08/0-0.1	Soil Leachate	FR-SS08	Fire and Rescue Building	10/18/2017	ES1727434	<0.005	<0.002	<0.002	0.02	0.448	0.113	0.561	0.166	0.629	<0.01	0.016	0.007	<0.002	<0.002	0.007	<0.005	<0.002	<0.002	<0.002	0.008	0.01	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
FR-TP12/0.1-0.2	Soil Leachate	FR-TP12	Fire and Rescue Building	10/18/2017	ES1727434	<0.025	0.014	<0.01	0.393	153	0.952	154	2.54	156	<0.01	0.261	0.109	0.039	0.09	0.1	<0.025	<0.01	<0.01	<0.01	0.219	0.03	0.023	<0.01	0.591	0.087	<0.01	<0.025	<0.025	<0.025	0.057	<0.01
AFD-MW21	Groundwater Well	AFD-MW21	Airport Fuel Depot	23/10/2017	EB1722399	<0.005	<0.002	<0.002	<0.002	0.003	0.003	0.006	0.003	0.006	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
AFD-MW-21	Groundwater Well	AFD-MW-21		6/06/2018	ES1817464	<0.001	<0.0005	<0.0005	<0.0005	0.0012	0.0021	0.0033	0.0033	0.0033	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
AFD-MW-22	Groundwater Well	AFD-MW-22		6/06/2018	ES1817464	<0.001	<0.0005	<0.0005	<0.0005	0.0004	0.0048	0.0052	0.0064	0.0071	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0007	0.0012	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
AFD-MW36	Groundwater Well	AFD-MW36		19/10/2017	EB1722399	<0.005	<0.002	<0.002	0.004	0.052	0.084	0.136	0.137	0.195	<0.01	0.005	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	0.006	0.019	0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
AFD-MW-36	Groundwater Well	AFD-MW-36		6/06/2018	ES1817464	<0.001	<0.0005	<0.0005	0.0015	0.0115	0.0349	0.0464	0.0606	0.0664	<0.002	0.0046	0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0007	0.0051	0.0061	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
AHEQ-MW-01	Groundwater Well	AHEQ-MW-01	Andoom HEQ	6/06/2018	ES1817464	<0.001	<0.0005	<0.0005	<0.0005	0.002	0.0028	0.0048	0.0057	0.0057	<0.002	0.0009	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
AHEQ-MW-02	Groundwater Well	AHEQ-MW-02		6/06/2018	ES1817464	<0.001	<0.0005	<0.0005	0.001	0.0078	0.0087	0.0165	0.0314	0.0314	<0.002	0.0044	0.0018	<0.0005	0.0022	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0005	<0.001	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
AHEQ-MW-03	Groundwater Well	AHEQ-MW-03		6/06/2018	ES1817464	<0.001	<0.0005	<0.0005	0.003	0.0252	0.0257	0.0509	0.0991	0.102	0.002	0.0211	0.0068	<0.0005	0.013	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.001	0.0022	0.0023	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
AHEQ-MW-05	Groundwater Well	AHEQ-MW-05		6/06/2018	ES1817464	<0.001	<0.0005	<0.0005	0.0029	0.0233	0.024	0.0473	0.2	0.203	0.01	0.0504	0.0272	<0.0005	0.061	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0009	0.0015	0.0016	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
AHEQ-MW-06	Groundwater Well	AHEQ-MW-06		6/06/2018	ES1817464	<0.001	<0.0005	<0.0005	0.0022	0.0312	0.0464	0.0776	0.13	0.136	0.004	0.0182	0.0086	<0.0005	0.0154	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0015	0.0039	0.0042	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
AHEQ-MW2	Groundwater Well	AHEQ-MW2		20/10/2017	EB1722399	<0.005	<0.002	<0.002	<0.002	0.004	0.007	0.011	0.036	0.04	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	0.029	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
AHEQ-MW3	Groundwater Well	AHEQ-MW3		20/10/2017	EB1722399	<0.005	<0.002	<0.002	0.004	0.069	0.03	0.099	0.059	0.128	<0.01	0.012	0.004	<0.002	0.006	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	0.003	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
AHEQ-MW4	Groundwater Well	AHEQ-MW4		20/10/2017	EB1722399	<0.005	<0.002	<0.002	<0.002	0.019	0.01	0.029	0.076	0.095	<0.01	0.016	0.007	<0.002	0.02	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	0.007	<0.002	<0.005	0.016	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
ALF-MW1	Groundwater Well	ALF-MW1	Airport Landfill	29/11/2017	ES1730754	<0.005	<0.002	<0.002	<0.002	0.014	0.011	0.025	0.016	0.03	<0.01	0.005	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
ALF-MW4	Groundwater Well	ALF-MW4		29/11/2017	ES1730754	<0.005	<0.002	<0.002	<0.002	0.026	0.013	0.039	0.013	0.039	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
ASB-MW-07	Groundwater Well	ASB-MW-07	Andoom Service Bay	7/06/2018	ES1817464	<0.001	<0.0005	<0.0005	<0.0005	0.0007	<0.0005	0.0007	0.0007	0.0007	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
ASB-MW-08	Groundwater Well	ASB-MW-08		8/06/2018	ES1817464	<0.001	<0.0005	<0.0005	<0.0005	0.0009	0.0008	0.0017	0.0017	0.0017	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
ASB-MW-10	Groundwater Well	ASB-MW-10		7/06/2018	ES1817464	<0.001	<0.0005	<0.0005	<0.0005	0.0014	0.0012	0.0026	0.0049	0.0049	<0.002	0.0009	<0.0005	<0.0005	0.0014	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
ASB-MW-16	Groundwater Well	ASB-MW-16		7/06/2018	ES1817464	<0.001	<0.0005	<0.0005	<0.0005	0.0005	<0.0005	0.0005	0.0005	0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
ASB-MW-21	Groundwater Well	ASB-MW-21		7/06/2018	ES1817464	<0.001	<0.0005	<0.0005	<0.0005	0.0013	0.0012	0.0025	0.0025	0.0025	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
ASB-MW-23	Groundwater Well	ASB-MW-23		8/06/2018	ES1817464	<0.001	<0.0005	<0.0005	<0.0005	0.0019	0.0011	0.003	0.003	0.003	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
BRL-MW2	Groundwater Well	BRL-MW2	Boundary Road Landfill	28/11/2017	ES1730754	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
BRP-MW-01	Groundwater Well	BRP-MW-01	Bioremediation Pad	3/06/2018	ES1817464	<0.001	<0.0005	<0.0005	0.0011	0.0057	0.0073	0.013	0.0182	0.0199	<0.002	0.0012	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0017	0.0029	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
BRP-MW-02	Groundwater Well	BRP-MW-02		3/06/2018	ES1817464	<0.001	<0.0005	<0.0005	0.0009	0.0023	0.0044	0.0067	0.0543	0.0551	<0.002	0.0143	0.0031	<0.0005	0.0276	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0008	0.0017	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
BRP-MW-03	Groundwater Well	BRP-MW-03		3/06/2018	ES1817464	<0.001	<0.0005	<0.0005	<0.0005	0.001	0.0018	0.0028	0.0058	0.0058	<0.002	0.0009	<0.0005	<0.0005	0.0015	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0006	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
ELN-MW-02	Groundwater Well	ELN-MW-02	Evans Landing North	4/06/2018	ES1817464	<0.001	<0.0005	<0.0005	0.0068	0.0459	0.0203	0.0662	0.121	0.125	0.006	0.0141	0.0103	<0.0005	0.017	0.002	<0.0005	<0.0005	<0.0005	<0.0005	0.0006	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
ELN-MW-04	Groundwater Well	ELN-MW-04		4/06/2018	ES1817464	<0.001	<0.0005	<0.0005	<0.0005	<0.0003	<0.0005	<0.0003	<0.0003	<0.0003	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
ELN-MW-06	Groundwater Well	ELN-MW-06		4/06/2018	ES1817464	<0.001	<0.0005	<0.0005	<0.0005	0.0004	0.0005	0.0009	0.0009	0.0009	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
ELN-MW-07	Groundwater Well	ELN-MW-07		4/06/2018	ES1817464	<0.001	<0.0005	<0.0005	0.0045	0.0748	0.0378	0.113	0.141	0.145	<0.002	0.0079	0.0057	<0.0005	0.0088	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0014	0.002	0.0019	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
ELN-MW-30	Groundwater Well	ELN-MW-30		4/06/2018	ES1817464	<0.001	<0.0005	<0.0005	<0.0005	<0.0003	<0.0005	<0.0003	<0.0003	<0.0003	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
ELS-MW-18	Groundwater Well	ELS-MW-18	Evans Landing South	2/06/2018	ES1817464	<0.001	<0.0005	<0.0005	0.0178	0.453	0.257	0.71	0.861	0.884	0.014	0.0494	0.0201	<0.0005	0.0413	0.0017	<0.0005	<0.0005	<0.0005	<0.0005	0.0092	0.0121	0.008	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
ELS-MW-19	Groundwater Well	ELS-MW-19		2/06/2018	ES1817464	<0.001	<0.0005	<0.0005	0.0078	0.156	0.0766	0.233	0.289	0.297	<0.002	0.0194	0.0083	<0.0005	0.0153	0.0006	<0.0005	<0.0005	<0.0005	<0.0005	0.0034	0.0045	0.0055	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
ELS-MW-20	Groundwater Well	ELS-MW-20		2/06/2018	ES1817464	<0.001	<0.0005	<0.0005	0.0107	0.266	0.12	0.386	0.484	0.505	0.009	0.0334	0.0116	<0.0005	0.0223	0.001	<0.0005	<0.0005	<0.0005	<0.0005	0.0066	0.0131	0.011	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
ELS-MW-23	Groundwater Well	ELS-MW-23		2/06/2018	ES1817464	<0.001	<0.0005	<0.0005	0.0015	0.0467	0.0284	0.0751	0.0817	0.0851	<0.002	0.0011	0.001	<0.0005	0.0006	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0011	0.0023	0.0024	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
ELS-MW-24	Groundwater Well	ELS-MW-24		2/06/2018	ES1817464	<0.001	<0.0005	<0.0005	0.0035	0.0712	0.0584	0.13	0.151	0.158	<0.002	0.0053	0.0032	<0.0005	0.0034	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0024	0.0047	0.0064	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
ELS-RW-1	Groundwater Well	ELS-RW-1		2/06/2018	ES1817464	<0.001	<0.0005	<0.0005	0.0122	0.234	0.113	0.347	0.48	0.495	0.009	0.0458	0.0164	<0.0005	0.043	0.0013	<0.0005	<0.0005	<0.0005	<0.0005	0.0049	0.0094	0.0061	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
EVL-1	Groundwater Well	EVL-1	Evans Landing	28/11/2017	ES1730754	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
EWHEQ-MW-01	Groundwater Well	EWHEQ-MW-01	East Weipa HEQ	6/06/2018	ES1817464	<0.001	<0.0005	<0.0005	<0.0005	0.0049	0.0102	0.0151	0.0159	0.0171	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0005	0.0007	0.0008	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
EWHEQ-MW-02	Groundwater Well	EWHEQ-MW-02		6/06/2018	ES1817464	<0.001	<0.0005	<0.0005	0.0019	0.0329	0.0384	0.0713	0.11	0.116	0.002	0.0111	0.0034	<0.0005	0.0107	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0022	0.004	0.0046	<0.001	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
EWHEQ-MW-03	Groundwater Well	EWHEQ-MW-03		6/06/2018	ES1817464	<0.001	<0.0005	<0.0005	0.0011	0.0171	0.0158	0.0329	0.0599	0.0628	0.002	0.0078	0.0023	<0.0005	0.0086	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.001	0.0019	0.0022	<0.001	0.003	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
EWHEQ-MW-04	Groundwater Well	EWHEQ-MW-04		6/06/2018	ES1817464	<0.001	<0.0005	<0.0005	<0.0005	0.0041	0.0045	0.0086	0.0565	0.057	0.004	0.0048	0.0014	<0.0005	0.0089	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0005	0.0008	<0.001	0.028	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
EWHEQ-MW-05	Groundwater Well	EWHEQ-MW-05		6/06/2018	ES1817464	<0.001	<0.0005	<0.0005	0.0112	0.156	0.0862	0.242	0.715	0.73	0.018	0.155	0.0895	<0.0005	0.172	0.001	<0.0005	<0.0005	<0.0005	<0.0005	0.0055	0.0085	0.0074	<0.001	0.02	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
EWHEQ-MW2	Groundwater Well	EWHEQ-MW2		23/10/2017	EB1722399	<0.005	<0.002	<0.002	<0.002	0.027	0.017	0.044	0.023	0.05	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	0.003	0.003	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
EWHEQ-MW3	Groundwater Well	EWHEQ-MW3		23/10/2017	EB1722399	<0.005	<0.002	<0.002	<0.002	0.013	0.009	0.022	0.016	0.029	<0.01	0.005	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
EWHEQ-MW4	Groundwater Well	EWHEQ-MW4		23/10/2017	EB1722399	<0.005	<0.002	<0.002	0.009	0.043	0.022	0.065	1.84	1.89	0.06	0.168	0.058	<0.002	0.246	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	0.004	0.006	<0.005	1.27	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
HOS-SA/2	Groundwater Well	HOS-SA/2	Herring Oil Slot	5/06/2018	ES1817464	<0.001	<0.0005	<0.0005	0.0009	0.0149	0.009	0.0239	0.0292	0.0298	<0.002	0.0033	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0006	<0.0005	0.0011	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005

GOLDER

[redacted] Summary of Laboratory Results for PFAS in Water Samples

[redacted]

	Per- and polyfluoroalkyl substances (PFAS)																																					
	N-Methyl PFO sulfonamidoethanol (MeFOSE)	Perfluorodecane sulfonic acid (PFDS)	N-methyl-PFO sulfonamidoacetic acid (MeFOSAA)	Perfluorooctanoic Acid (PFOA)	Perfluorooctane sulfonic acid (PFOS)	Perfluorohexane sulfonic acid (PFHxS)	Sum of PFHxS and PFOS (lab reported)	Sum of WA DER PFAS (n=10)	Sum of PFASs (n=28 - Lab Reported)	Perfluorobutanoic acid (PFBA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorodecanoic acid (PFDA)	Perfluoropentanoic acid (PFPeA)	Perfluorononanoic acid (PFNA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorododecanoic acid (PFDoDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorobutane sulfonic acid (PFBS)	4:2 Fluorotelomer sulfonic acid (4:2 FTSA)	6:2 Fluorotelomer sulfonic acid (6:2 FTSA)	8:2 Fluorotelomer sulfonic acid (8:2 FTSA)	10:2 Fluorotelomer sulfonic acid (10:2 FTSA)	N-Ethyl PFO sulfonamide (EtFOSA)	N-Ethyl PFO sulfonamidoethanol (EtFOSE)	N-Methyl PFO sulfonamide (MeFOSA)	Perfluorooctane sulfonamide (FOSA)	N-ethyl-PFO sulfonamidoacetic acid (EtFOSAA)
	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	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	0.001	0.0005	0.0005	0.0005	0.0003	0.0005	0.0003	0.0003	0.0003	0.002	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.0005	0.0005
Aquatic Ecosystem Freshwater/Marine 99% species protection NEMP 2018 (a)				19	0.00023																															
Health-based guidance values – Drinking Water NEMP 2018 (a)				0.56			0.07																													

Field_ID	Sample Type	Location ID	Location	Sampled Date	Lab Report Number																																	
HOS-SA/249	Groundwater Well	HOS-SA/249		5/06/2018	ES1817464	<0.001	<0.0005	<0.0005	<0.0005	0.0058	0.0072	0.013	0.0135	0.0135	<0.002	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
HOS-SA/254	Groundwater Well	HOS-SA/254		5/06/2018	ES1817464	<0.001	<0.0005	<0.0005	<0.0005	<0.0003	<0.0005	<0.0003	0.001	0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
HOS-SA/4	Groundwater Well	HOS-SA/4		5/06/2018	ES1817464	<0.001	<0.0005	<0.0005	<0.0005	<0.0003	0.0007	0.0007	0.0007	0.0007	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
LDP-MW-10	Groundwater Well	LDP-MW-10	Lorim Point	3/06/2018	ES1817464	<0.001	<0.0005	<0.0005	<0.0005	0.0018	0.0026	0.0044	0.0044	0.0044	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
LDP-MW-13	Groundwater Well	LDP-MW-13	Fuel Depot	3/06/2018	ES1817464	<0.001	<0.0005	<0.0005	<0.0005	0.0056	0.0049	0.0105	0.0111	0.0111	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0006	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
LDP-MW-34	Groundwater Well	LDP-MW-34		3/06/2018	ES1817464	<0.001	<0.0005	<0.0005	0.002	0.0148	0.0107	0.0255	0.0311	0.0324	<0.002	0.0014	0.0013	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0006	0.0007	0.0009	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
LPI-MW-08	Groundwater Well	LPI-MW-08	Lorim Point	9/06/2018	ES1817464	<0.001	<0.0005	<0.0005	0.156	2	1.5	3.5	4.41	4.76	0.026	0.339	0.0972	<0.0005	0.0961	0.005	<0.0005	<0.0005	<0.0005	<0.0005	0.131	0.211	0.179	<0.001	0.017	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
LPI-MW20	Groundwater Well	LPI-MW20	Industrial	28/11/2017	ES1730754	<0.005	<0.002	<0.002	0.067	1.24	0.714	1.95	1.11	2.39	<0.01	0.108	0.059	<0.002	0.03	<0.002	<0.005	<0.002	<0.002	<0.002	0.04	0.066	0.048	<0.005	0.017	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
LPI-MW-20	Groundwater Well	LPI-MW-20	Precinct	9/06/2018	ES1817464	<0.001	<0.0005	<0.0005	0.0033	0.0421	0.0229	0.065	0.0788	0.0813	<0.002	0.0044	0.0033	<0.0005	0.0013	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0011	0.0014	0.0015	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
LPI-MW-21	Groundwater Well	LPI-MW-21		9/06/2018	ES1817464	<0.001	<0.0005	<0.0005	0.0631	0.696	0.439	1.14	1.45	1.54	0.014	0.108	0.0504	<0.0005	0.0297	0.0021	<0.0005	<0.0005	<0.0005	<0.0005	0.0315	0.0574	0.039	<0.001	0.007	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
LPI-MW22	Groundwater Well	LPI-MW22		28/11/2017	ES1730754	<0.005	<0.002	<0.002	<0.002	0.007	0.012	0.019	0.014	0.021	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
LPI-MW-22	Groundwater Well	LPI-MW-22		9/06/2018	ES1817464	<0.001	<0.0005	<0.0005	0.0014	0.0086	0.0091	0.0177	0.0206	0.0212	<0.002	0.0006	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0006	0.0009	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
RMW-MW-01	Groundwater Well	RWW-MW-01	Railway	5/06/2018	ES1817464	<0.001	<0.0005	<0.0005	0.0157	0.152	0.126	0.278	0.739	0.754	0.016	0.143	0.0743	<0.0005	0.131	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0069	0.0084	0.0072	<0.001	0.074	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
RMW-MW-02	Groundwater Well	RWW-MW-02	Workshop	6/06/2018	ES1817464	<0.001	<0.0005	<0.0005	0.0006	0.0014	0.0018	0.0032	0.0076	0.0076	<0.002	0.0012	0.0006	<0.0005	0.0014	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0006	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
RMW-MW-04	Groundwater Well	RWW-MW-04		5/06/2018	ES1817464	<0.001	<0.0005	<0.0005	<0.0005	0.0013	0.0024	0.0037	0.0049	0.0049	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0012	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
RMW-MW-05	Groundwater Well	RMW-MW-05		2/06/2018	ES1817464	<0.001	<0.0005	<0.0005	<0.0005	0.0024	0.0041	0.0065	0.0073	0.0073	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0008	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
RWW-MW-03	Groundwater Well	RWW-MW-03		5/06/2018	ES1817464	<0.001	<0.0005	<0.0005	<0.0005	0.0021	0.0044	0.0065	0.0635	0.0641	0.005	0.0148	0.0034	<0.0005	0.0328	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0006	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
RWW-MW4	Groundwater Well	RWW-MW4		28/11/2017	ES1730754	<0.005	<0.002	<0.002	<0.002	0.004	0.003	0.007	0.016	0.02	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	0.013	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
RWW-MW5	Groundwater Well	RWW-MW5		28/11/2017	ES1730754	<0.005	<0.002	<0.002	<0.002	0.007	0.004	0.011	0.016	0.023	<0.01	0.006	<0.002	<0.002	0.006	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
TRL-MW2	Groundwater Well	TRL-MW2	Tonkings Road	28/11/2017	ES1730754	<0.005	<0.002	<0.002	<0.002	0.003	0.004	0.007	0.004	0.007	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
LAKE/MCL_24-4-2018	Surface Water	LAKE/MCL	Lake McLeod	24/04/2018	EB1810438	<0.001	<0.0005	<0.0005	<0.0005	<0.0003	<0.0005	<0.0003	<0.0003	<0.0003	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
LAKE/PAT_24-4-2018	Surface Water	LAKE/PAT	Lake Patrica	24/04/2018	EB1810438	<0.001	<0.0005	<0.0005	<0.0005	<0.0003	<0.0005	<0.0003	<0.0003	<0.0003	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
SP/AND/SLTS_23-4-2018	Surface Water	SP/AND/SLTS	Saleng Tea Tree Swamp	23/04/2018	EB1810438	<0.001	<0.0005	<0.0005	<0.0005	<0.0003	<0.0005	<0.0003	<0.0003	<0.0003	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
SP/BOT_23-4-2018	Surface Water	SP/BOT	Botchett Swamp	23/04/2018	EB1810438	<0.001	<0.0005	<0.0005	<0.0005	<0.0003	<0.0005	<0.0003	<0.0003	<0.0003	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
SP/ELY/MS1_23-4-2018	Surface Water	SP/ELY/MS1	Andoom Creek(Vices Crossing)	23/04/2018	EB1810438	<0.001	<0.0005	<0.0005	<0.0005	<0.0003	<0.0005	<0.0003	<0.0003	<0.0003	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
SP/ELY/MS3_23-4-2018	Surface Water	SP/ELY/MS3	Sunrise Creek	23/04/2018	EB1810438	<0.001	<0.0005	<0.0005	<0.0005	<0.0003	<0.0005	<0.0003	<0.0003	<0.0003	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
SP/TDC/UPS_23-4-2018	Surface Water	SP/TDC/UPS	Andoom Creek (Tailings DamCreek)	23/04/2018	EB1810438	<0.001	<0.0005	<0.0005	<0.0005	<0.0003	<0.0005	<0.0003	<0.0003	<0.0003	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
SW/BEN/DOS_24-4-2018	Surface Water	SW/BEN/DOS	Beening Creek Downstream	24/04/2018	EB1810438	<0.001	<0.0005	<0.0005	<0.0005	0.0015	0.0015	0.003	0.003	0.003	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
SW/BEN/UPS_24-4-2018	Surface Water	SW/BEN/UPS	Beening Creek Upstream	24/04/2018	EB1810438	<0.001	<0.0005	<0.0005	<0.0005	<0.0003	<0.0005	<0.0003	<0.0003	<0.0003	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
SW/MAR/DOS_24-4-2018	Surface Water	SW/MAR/DOS	Marmoss Creek Downstream	24/04/2018	EB1810438	<0.001	<0.0005	<0.0005	<0.0005	<0.0003	<0.0005	<0.0003	<0.0003	<0.0003	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
SW/MAR/UPS_24-4-2018	Surface Water	SW/MAR/UPS	Marmoss Creek Upstream	24/04/2018	EB1810438	<0.001	<0.0005	<0.0005	<0.0005	<0.0003	<0.0005	<0.0003	<0.0003	<0.0003	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
SW/PAP/DOS_24-4-2018	Surface Water	SW/PAP/DOS	Pappan Creek Downstream	24/04/2018	EB1810438	<0.001	<0.0005	<0.0005	<0.0005	<0.0003	<0.0005	<0.0003	0.0008	0.0008	<0.002	<0.0005	<0.0005	<0.0005	0.0008	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
SW/PAP/UPS_24-4-2018	Surface Water	SW/PAP/UPS	Pappan Creek Upstream	24/04/2018	EB1810438	<0.001	<0.0005	<0.0005	<0.0005	<0.0003	<0.0005	<0.0003	<0.0003	<0.0003	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005

GOLDER

[redacted] Summary of Laboratory Results for PFAS in Water Samples

[redacted]

	Per- and polyfluoroalkyl substances (PFAS)																																
	N-Methyl PFO sulfonamidoethanol (MeFOSE)	Perfluorodecane sulfonic acid (PFDS)	N-methyl-PFO sulfonamidoacetic acid (MeFOSAA)	Perfluorooctanoic Acid (PFOA)	Perfluorooctane sulfonic acid (PFOS)	Perfluorohexane sulfonic acid (PFHxS)	Sum of PFHxS and PFOS (lab reported)	Sum of WA DER PFAS (n=10)	Sum of PFASs (n=28 - Lab Reported)	Perfluorobutanoic acid (PFBA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorodecanoic acid (PFDA)	Perfluoropentanoic acid (PFPeA)	Perfluorononanoic acid (PFNA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorododecanoic acid (PFDoDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorobutane sulfonic acid (PFBS)	4:2 Fluorotelomer sulfonic acid (4:2 FTSA)	6:2 Fluorotelomer sulfonic acid (6:2 FTSA)	8:2 Fluorotelomer sulfonic acid (8:2 FTSA)	10:2 Fluorotelomer sulfonic acid (10:2 FTSA)	N-Ethyl PFO sulfonamide (EtFOSA)	N-Ethyl PFO sulfonamidoethanol (EtFOSE)	N-Methyl PFO sulfonamide (MeFOSA)	Perfluorooctane sulfonamide (FOSA)	N-ethyl-PFO sulfonamidoacetic acid (EtFOSAA)
	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	µg/L
EQL	0.001	0.0005	0.0005	0.0005	0.0003	0.0005	0.0003	0.0003	0.0003	0.002	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.0005	0.0005
Aquatic Ecosystem Freshwater/Marine 99% species protection NEMP 2018 (a)				19	0.00023																											
Health-based guidance values – Drinking Water NEMP 2018 (a)				0.56			0.07																									

Field_ID	Sample Type	Location ID	Location	Sampled Date	Lab Report Number																												
SW/TRC/DOS_24-4-2018	Surface Water	SW/TRC/DOS	Trunding Creek Downstream	24/04/2018	EB1810438	<0.001	<0.0005	<0.0005	<0.0005	0.0006	0.0009	0.0015	0.0015	0.0015	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
SW/TRC/UPS_24-4-2018	Surface Water	SW/TRC/UPS	Trunding Creek Upstream	24/04/2018	EB1810438	<0.001	<0.0005	<0.0005	<0.0005	0.0015	0.0017	0.0032	0.0032	0.0032	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
PR/AND/DOS_23-4-2018	Surface Water	PR/AND/DOS	Andoom Creek downstream	24/04/2018	EB1810438	<0.001	<0.0005	<0.0005	0.005	0.0217	0.0099	0.0316	0.564	0.568	<0.002	0.0349	0.006	<0.0005	0.0115	0.0009	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	0.449	0.026	0.003	<0.001	<0.001	<0.001	<0.0005	<0.0005
PR/AND/HEQW_23-4-2018	Surface Water	PR/AND/HEQW	Andoom HEQ Wash Tower	23/04/2018	EB1810438	<0.001	<0.0005	<0.0005	<0.0005	0.0014	0.0005	0.0019	0.0108	0.0108	<0.002	0.003	0.0009	<0.0005	0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	0.003	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
PR/AND/WS/DOS_23-4-2018	Surface Water	PR/AND/WS/DOS	Andoom HEQ/ Wash Pad downstream	23/04/2018	EB1810438	<0.001	<0.0005	<0.0005	<0.0005	<0.0003	<0.0005	<0.0003	<0.0003	<0.0003	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
PR/AND/WS_23-4-2018	Surface Water	PR/AND/WS	Andoom HEQ/ Wash Pad	23/04/2018	EB1810438	<0.005	<0.002	<0.002	0.0044	0.03	0.0094	0.0394	0.371	0.371	<0.002	0.0146	0.003	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.294	0.016	<0.002	<0.005	<0.005	<0.005	<0.002	<0.002
PR/EWM/MP_25-4-2018	Surface Water	PR/EWM/WP	East Weipa HEQ wash Pad	25/04/2018	EB1810438	<0.001	<0.0005	<0.0005	0.0038	0.0391	0.0112	0.0503	0.228	0.23	<0.002	0.0162	0.0022	<0.0005	0.0047	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0016	0.0032	<0.001	0.14	0.008	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
PR/EWM/WP/DOS_25-4-2018	Surface Water	PR/EWM/WP/DOS	East Weipa HEQ wash Pad Downstream	25/04/2018	EB1810438	<0.001	<0.0005	<0.0005	0.0127	0.0614	0.0309	0.0923	0.926	0.935	<0.002	0.0291	0.0065	0.0008	0.0114	0.0031	<0.0005	<0.0005	<0.0005	<0.0005	0.0016	0.0036	0.0083	<0.001	0.746	0.02	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
MRC/DOS_24-4-108	Surface Water	MRC/DOS	Mission River Creek Down stream	24/04/2018	EB1810438	<0.001	<0.0005	<0.0005	<0.0005	0.001	0.0014	0.0024	0.0024	0.0024	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
MRC/UPS_24-4-2018	Surface Water	MRC/UPS	Mission River Creek Upstream	24/04/2018	EB1810438	<0.001	<0.0005	<0.0005	<0.0005	<0.0003	<0.0005	<0.0003	<0.0003	<0.0003	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
NO ID (B)	Surface Water	NO ID (B)	Location no known	23/04/2018	EB1810438	<0.001	<0.0005	<0.0005	<0.0005	<0.0003	<0.0005	<0.0003	<0.0003	<0.0003	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
SA009	Potable Bore	SA009	Weipa Airport	17/10/2017	EB1721509	<0.005	<0.002	<0.002	<0.002	<0.002	0.003	0.003	0.003	0.003	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA009	Potable Bore	SA009	Weipa Airport	29/11/2017	ES1730754	<0.005	<0.002	<0.002	<0.002	0.002	0.003	0.005	0.003	0.005	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA009_25-4-2018	Potable Bore	SA009	Weipa Airport	25/04/2018	EB1810440	<0.005	<0.002	<0.002	<0.002	0.007	0.002	0.009	0.009	0.009	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA012	Potable Bore	SA012	Lorim Point	17/10/2017	EB1721509	<0.005	<0.002	<0.002	<0.002	0.01	0.009	0.019	0.013	0.023	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	0.002	0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA012	Potable Bore	SA012	Lorim Point	29/11/2017	ES1730754	<0.005	<0.002	<0.002	<0.002	0.006	0.007	0.013	0.007	0.013	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA012_25-4-2018	Potable Bore	SA012	Lorim Point	25/04/2018	EB1810440	<0.005	<0.002	<0.002	<0.002	0.004	0.008	0.012	0.012	0.012	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA013	Potable Bore	SA013	Lorim Point	17/10/2017	EB1721509	<0.005	<0.002	<0.002	<0.002	0.005	0.004	0.009	0.006	0.011	<0.01	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA013	Potable Bore	SA013	Lorim Point	29/11/2017	ES1730754	<0.005	<0.002	<0.002	<0.002	0.005	0.004	0.009	0.006	0.011	<0.01	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA013_25-4-2018	Potable Bore	SA013	Lorim Point	25/04/2018	EB1810440	<0.005	<0.002	<0.002	<0.002	0.002	0.005	0.007	0.007	0.007	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA014	Potable Bore	SA014	Lorim Point	17/10/2017	EB1721509	<0.005	<0.002	<0.002	<0.002	0.013	0.007	0.02	0.009	0.022	<0.01	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA014	Potable Bore	SA014	Lorim Point	29/11/2017	ES1730754	<0.005	<0.002	<0.002	<0.002	0.022	0.012	0.034	0.016	0.038	<0.01	0.004	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA014_25-4-2018	Potable Bore	SA014	Lorim Point	25/04/2018	EB1810440	<0.005	<0.002	<0.002	<0.002	0.003	0.005	0.008	0.008	0.008	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA015	Potable Bore	SA015	Lorim Point	17/10/2017	EB1721509	<0.005	<0.002	<0.002	<0.002	0.019	0.012	0.031	0.014	0.033	<0.01	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA015	Potable Bore	SA015	Lorim Point	29/11/2017	ES1730754	<0.005	<0.002	<0.002	<0.002	0.034	0.014	0.048	0.016	0.05	<0.01	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA015_25-4-2018	Potable Bore	SA015	Lorim Point	25/04/2018	EB1810440	<0.005	<0.002	<0.002	<0.002	<0.002	0.003	0.003	0.003	0.003	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA017	Potable Bore	SA017	Lorim Point	17/10/2017	EB1721509	<0.005	<0.002	<0.002	<0.002	0.005	0.006	0.011	0.006	0.011	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA017	Potable Bore	SA017	Lorim Point	29/11/2017	ES1730754	<0.005	<0.002	<0.002	<0.002	0.004	0.006	0.01	0.006	0.01	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA017_25-4-2018	Potable Bore	SA017	Lorim Point	25/04/2018	EB1810440	<0.005	<0.002	<0.002	<0.002	<0.002	0.005	0.005	0.005	0.005	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA020	Potable Bore	SA020	Lorim Point	17/10/2017	EB1721509	<0.005	<0.002	<0.002	<0.002	0.005	0.004	0.009	0.004	0.009	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002

GOLDER

[redacted] Summary of Laboratory Results for PFAS in Water Samples

[redacted]

	Per- and polyfluoroalkyl substances (PFAS)																																		
	N-Methyl PFO sulfonamidoethanol (MeFOSE)	Perfluorodecane sulfonic acid (PFDS)	N-methyl-PFO sulfonamidoacetic acid (MeFOSAA)	Perfluorooctanoic Acid (PFOA)	Perfluorooctane sulfonic acid (PFOS)	Perfluorohexane sulfonic acid (PFHxS)	Sum of PFHxS and PFOS (lab reported)	Sum of WA DER PFAS (n=10)	Sum of PFASs (n=28 - Lab Reported)	Perfluorobutanoic acid (PFBA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorodecanoic acid (PFDA)	Perfluoropentanoic acid (PFPeA)	Perfluorononanoic acid (PFNA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorododecanoic acid (PFDoDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorobutane sulfonic acid (PFBS)	4:2 Fluorotelomer sulfonic acid (4:2 FTSA)	6:2 Fluorotelomer sulfonic acid (6:2 FTSA)	8:2 Fluorotelomer sulfonic acid (8:2 FTSA)	10:2 Fluorotelomer sulfonic acid (10:2 FTSA)	N-Ethyl PFO sulfonamide (EtFOSA)	N-Ethyl PFO sulfonamidoethanol (EtFOSE)	N-Methyl PFO sulfonamide (MeFOSA)	Perfluorooctane sulfonamide (FOSA)	N-ethyl-PFO sulfonamidoacetic acid (EtFOSAA)
	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	µg/L	µg/L	µg/L
EQL	0.001	0.0005	0.0005	0.0005	0.0003	0.0005	0.0003	0.0003	0.0003	0.002	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.0005	0.0005
Aquatic Ecosystem Freshwater/Marine 99% species protection NEMP 2018 (a)				19	0.00023																												
Health-based guidance values – Drinking Water NEMP 2018 (a)				0.56			0.07																										

Field_ID	Sample Type	Location ID	Location	Sampled Date	Lab Report Number																														
SA020	Potable Bore	SA020	Lorim Point	29/11/2017	ES1730754	<0.005	<0.002	<0.002	<0.002	0.006	0.005	0.011	0.005	0.011	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA020_25-4-2018	Potable Bore	SA020	Lorim Point	25/04/2018	EB1810440	<0.005	<0.002	<0.002	<0.002	0.005	0.004	0.009	0.009	0.009	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA026	Potable Bore	SA026	Weipa Ariport	17/10/2017	EB1721509	<0.005	<0.002	<0.002	<0.002	0.027	0.021	0.048	0.043	0.07	0.01	0.004	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	0.004	0.004	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA026	Potable Bore	SA026	Weipa Ariport	29/11/2017	ES1730754	<0.005	<0.002	<0.002	0.002	0.026	0.021	0.047	0.035	0.063	<0.01	0.005	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	0.002	0.003	0.004	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA026_25-4-2018	Potable Bore	SA026	Weipa Ariport	26/04/2018	EB1810440	<0.005	<0.002	<0.002	<0.002	0.017	0.014	0.031	0.039	0.043	<0.01	0.004	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	0.004	0.004	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA027	Potable Bore	SA027	Weipa Township	17/10/2017	EB1721509	<0.005	<0.002	<0.002	<0.002	0.005	0.01	0.015	0.01	0.015	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA027	Potable Bore	SA027	Weipa Township	29/11/2017	ES1730754	<0.005	<0.002	<0.002	<0.002	0.004	0.008	0.012	0.008	0.012	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA027_25-4-2018	Potable Bore	SA027	Weipa Township	25/04/2018	EB1810440	<0.005	<0.002	<0.002	<0.002	0.003	0.008	0.011	0.011	0.011	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA036	Potable Bore	SA036	Weipa Township	17/10/2017	EB1721509	<0.005	<0.002	<0.002	<0.002	0.002	<0.002	0.002	<0.002	0.002	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA036	Potable Bore	SA036	Weipa Township	27/11/2017	ES1730754	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA036_25-4-2018	Potable Bore	SA036	Weipa Township	25/04/2018	EB1810440	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA037	Potable Bore	SA037	Weipa Township	17/10/2017	EB1721509	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA037	Potable Bore	SA037	Weipa Township	30/11/2017	ES1730754	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA037_25-4-2018	Potable Bore	SA037	Weipa Township	25/04/2018	EB1810440	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA038	Potable Bore	SA038	Weipa Township	17/10/2017	EB1721509	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA038	Potable Bore	SA038	Weipa Township	27/11/2017	ES1730754	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA038_25-4-2018	Potable Bore	SA038	Weipa Township	25/04/2018	EB1810440	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA039	Potable Bore	SA039	Weipa Township	17/10/2017	EB1721509	<0.005	<0.002	<0.002	<0.002	0.019	0.013	0.032	0.018	0.037	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	0.003	0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA039	Potable Bore	SA039	Weipa Township	27/11/2017	ES1730754	<0.005	<0.002	<0.002	<0.002	0.018	0.013	0.031	0.015	0.033	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA39_25-4-2018	Potable Bore	SA039	Weipa Township	25/04/2018	EB1810440	<0.005	<0.002	<0.002	<0.002	0.01	0.009	0.019	0.019	0.019	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA041	Potable Bore	SA041	Weipa Township	17/10/2017	EB1721509	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA041	Potable Bore	SA041	Weipa Township	27/11/2017	ES1730754	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA041_25-4-2018	Potable Bore	SA041	Weipa Township	25/04/2018	EB1810440	<0.005	<0.002	<0.002	<0.002	0.002	0.002	0.004	0.004	0.004	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA091	Potable Bore	SA091	Andoom	17/10/2017	EB1721509	<0.005	<0.002	<0.002	<0.002	<0.002	0.002	0.002	0.002	0.002	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA091	Potable Bore	SA091	Andoom	27/11/2017	ES1730754	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA091_25-4-2018	Potable Bore	SA091	Andoom	25/04/2018	EB1810440	<0.005	<0.002	<0.002	<0.002	<0.002	0.003	0.003	0.003	0.003	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA092	Potable Bore	SA092	Andoom	17/10/2017	EB1721509	<0.005	<0.002	<0.002	<0.002	0.002	0.003	0.005	0.013	0.015	0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA092	Potable Bore	SA092	Andoom	27/11/2017	ES1730754	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA093	Potable Bore	SA093	Andoom	17/10/2017	EB1721509	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA093	Potable Bore	SA093	Andoom	27/11/2017	ES1730754	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA093_25-4-2018	Potable Bore	SA093	Andoom	25/04/2018	EB1810440	<0.005	<0.002	<0.002	<0.002	<0.002	0.002	0.002	0.002	0.002	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA107	Potable Bore	SA107	Weipa Township	17/10/2017	EB1721509	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA107	Potable Bore	SA107	Weipa Township	27/11/2017	ES1730754	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA107_25-4-2018	Potable Bore	SA107	Weipa Township	25/04/2018	EB1810440	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA110	Potable Bore	SA110	Weipa Township	17/10/2017	EB1721509	<0.005	<0.002	<0.002	<0.002	0.003	0.004	0.007	0.004	0.007	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002

GOLDER

[redacted] Summary of Laboratory Results for PFAS in Water Samples

[redacted]

	Per- and polyfluoroalkyl substances (PFAS)																																			
	N-Methyl PFO sulfonamidoethanol (MeFOSE)	Perfluorodecane sulfonic acid (PFDS)	N-methyl-PFO sulfonamidoacetic acid (MeFOSAA)	Perfluorooctanoic Acid (PFOA)	Perfluorooctane sulfonic acid (PFOS)	Perfluorohexane sulfonic acid (PFHxS)	Sum of PFHxS and PFOS (lab reported)	Sum of WA DER PFAS (n=10)	Sum of PFASs (n=28 - Lab Reported)	Perfluorobutanoic acid (PFBA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorodecanoic acid (PFDA)	Perfluoropentanoic acid (PFPeA)	Perfluorononanoic acid (PFNA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorododecanoic acid (PFDoDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorobutane sulfonic acid (PFBS)	4:2 Fluorotelomer sulfonic acid (4:2 FTSA)	6:2 Fluorotelomer sulfonic acid (6:2 FTSA)	8:2 Fluorotelomer sulfonic acid (8:2 FTSA)	10:2 Fluorotelomer sulfonic acid (10:2 FTSA)	N-Ethyl PFO sulfonamide (EtFOSA)	N-Ethyl PFO sulfonamidoethanol (EtFOSE)	N-Methyl PFO sulfonamide (MeFOSA)	Perfluorooctane sulfonamide (FOSA)	N-ethyl-PFO sulfonamidoacetic acid (EtFOSAA)
	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	µg/L	µg/L	µg/L	µg/L
EQL	0.001	0.0005	0.0005	0.0005	0.0003	0.0005	0.0003	0.0003	0.0003	0.002	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.0005	0.0005
Aquatic Ecosystem Freshwater/Marine 99% species protection NEMP 2018 (a)				19	0.00023																													
Health-based guidance values – Drinking Water NEMP 2018 (a)				0.56			0.07																											

Field_ID	Sample Type	Location ID	Location	Sampled Date	Lab Report Number																															
SA110	Potable Bore	SA110	Weipa Township	29/11/2017	ES1730754	<0.005	<0.002	<0.002	<0.002	0.009	0.006	0.015	0.006	0.015	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA110_25-4-2018	Potable Bore	SA110	Weipa Township	25/04/2018	EB1810440	<0.005	<0.002	<0.002	<0.002	0.002	0.005	0.007	0.007	0.007	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA349	Potable Bore	SA349	Weipa Township	17/10/2017	EB1721509	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA349	Potable Bore	SA349	Weipa Township	27/11/2017	ES1730754	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA349_25-4-2018	Potable Bore	SA349	Weipa Township	25/04/2018	EB1810440	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA350	Potable Bore	SA350	Weipa Township	17/10/2017	EB1721509	<0.005	<0.002	<0.002	<0.002	0.003	0.002	0.005	0.002	0.005	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA350	Potable Bore	SA350	Weipa Township	29/11/2017	ES1730754	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA350_25-4-2018	Potable Bore	SA350	Weipa Township	25/04/2018	EB1810440	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA351	Potable Bore	SA351	Weipa Township	17/10/2017	EB1721509	<0.005	<0.002	<0.002	<0.002	0.003	0.003	0.006	0.003	0.006	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
SA351_25-4-2018	Potable Bore	SA351	Weipa Township	25/04/2018	EB1810440	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
APT_25-4-2018	Accumulation Point	APT	Andoom Potable Tank	25/04/2018	EB1810440	<0.005	<0.002	<0.002	<0.002	<0.002	0.002	0.002	0.002	0.002	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
EW	Accumulation Point	EW	East Weipa Mine Centre Potable Tank	29/11/2017	ES1730754	<0.005	<0.002	<0.002	<0.002	0.005	0.007	0.012	0.007	0.012	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
LPTA	Accumulation Point	LPTA	Lorim Point Potable Tank	29/11/2017	ES1730754	<0.005	<0.002	<0.002	<0.002	0.013	0.008	0.021	0.008	0.021	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
LPTA_25-4-2018	Accumulation Point	LPTA	Lorim Point Potable Tank	25/04/2018	EB1810440	<0.005	<0.002	<0.002	<0.002	0.008	0.005	0.013	0.013	0.013	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
TD	Accumulation Point	TWD	Town Water Dam	29/11/2017	ES1730754	<0.005	<0.002	<0.002	<0.002	0.004	0.003	0.007	0.003	0.007	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
TWD	Accumulation Point	TWD	Town Water Dam	17/10/2017	EB1721509	<0.005	<0.002	<0.002	<0.002	0.004	0.003	0.007	0.003	0.007	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
TWD_26-4-2018	Accumulation Point	TWD	Town Water Dam	26/04/2018	EB1810440	<0.005	<0.002	<0.002	<0.002	0.004	0.003	0.007	0.007	0.007	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002

Notes:
"<" Denotes below detection limit and is in grey font.
"*" Calculated aged EIL criteria
NL' - Not limiting
"-" - Not analysed
(a) HEPA (Heads of EPA's Australia and New Zealand and the Australian Government Department of the Environment and Energy) 2018. PFAS National Environment Management Plan (NEMP).
Aquatic Ecosystem Freshwater/Marine 99% species protection NEMP 2018 [a]
Health-based guidance values – Drinking Water NEMP 2018 [a]

GOLDER

[redacted] Summary of Laboratory Results for PFAS in Soil Samples

[redacted]

					Per- and polyfluoroalkyl substances (PFAS)																																			
					Sum of PFOS and PFHxS	Perfluorooctanoate (PFOA)	Perfluorooctanesulfonic acid (PFOS)	Perfluorobutanesulfonic acid (PFBS)	Perfluoroheptane sulfonic acid (PFPeS)	Perfluorohexanesulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoro-n-pentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnA)	Perfluorododecanoic acid (PFDoA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorooctanesulfonamide (PFOSA)	N-Me-FOSA	N-Et-FOSA	N-Me-FOSE	N-Et-FOSE	N-methyl-perfluorooctanesulfonamidoacetic acid (MeFOSAA)	N-ethyl-perfluorooctanesulfonamidoacetic acid (EtFOSAA)	4:2 Fluorotelomer sulfonic acid	6:2 Fluorotelomer Sulfonate (6:2 FtS)	8:2 Fluorotelomer sulfonate	10:2 Fluorotelomer sulfonic acid	Sum of PFAS
					mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL					0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.001	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0005	0.0002	0.0005	0.0005	0.0005	0.0005	0.0002	0.0002	0.0005	0.0005	0.0005	0.0005	0.0005	0.0002
Soil - Health-based guidance values – Industrial/commercial NEMP 2018 [a]					**20**	**50**																																	
Soil - Health-based guidance values – Public Open Space NEMP 2018 [a]					*1*	*10*																																	
Interim soil – ecological indirect exposure - Residential NEMP 2018 [a]							**0.01**																																
Interim soil – ecological indirect exposure - Industrial/commercial NEMP 2018 [a]							**0.14**																																
Area	**Sample_ID**	**Sample Depth**	**Sampled Date**	**Lab Batch**																																			
Andoom Heavy Equipment Workshop	AHEQ-SS12	0-0.1	10/19/2017	EB1721789	0.0006	<0.0002	0.0006	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	0.0012	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0005	0.0138	0.0036	0.0038	0.0232
	AHEQ-SS13	0-0.1	10/19/2017	EB1721789	0.0008	<0.0002	0.0004	0.0026	<0.0002	0.0004	<0.0002	<0.0002	<0.001	0.0062	0.0014	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0005	0.0021	<0.0005	<0.0005	0.0131
	AHEQ-SS14	0-0.1	10/19/2017	EB1721789	0.0059	0.0006	0.0054	<0.0002	<0.0002	0.0005	<0.0002	<0.0002	<0.001	0.0012	0.0007	0.0004	0.0002	0.0004	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0005	0.0014	0.0017	0.0048	0.0173
	AHEQ-SS15	0-0.1	10/19/2017	EB1721789	0.0072	0.0004	0.0051	<0.0002	0.0004	0.0021	0.0004	0.0002	<0.001	0.0003	0.0006	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0005	0.0061	0.0028	0.0017	0.0197
	AHEQ-SS15 TOPA	0-0.1	10/19/2017	ES1727434	0.002	0.0005	0.0014	<0.0002	<0.0002	0.0006	<0.0002	<0.0002	<0.001	0.0018	0.0014	0.0006	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0006	<0.0002	<0.0006	<0.0006	<0.0006	<0.0006	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	0.0066
Weipa Airport	AP-SS01	0-0.1	10/18/2017	EB1721789	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002
	AP-SS02	0-0.1	10/18/2017	EB1721789	0.0003	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	0.0003
	AP-SS02 TOPA	0-0.1	10/18/2017	ES1727434	0.0013	<0.0002	0.0013	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	0.0013
	AP-SS03	0-0.1	10/18/2017	EB1721789	0.0024	<0.0002	0.0024	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	0.0024
	AP-SS04	0-0.1	10/18/2017	EB1721789	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002
	AP-SS05	0-0.1	10/18/2017	EB1721789	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002
	AP-SS06	0-0.1	10/19/2017	EB1721789	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002
	AP-TP01	0.1-0.2	10/18/2017	EB1721789	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002
	AP-TP01	0.8-1	10/18/2017	EB1721789	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002
	AP-TP02	0.1-0.2	10/18/2017	EB1721789	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002
	AP-TP02	0.8-1	10/18/2017	EB1721789	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002
	AP-TP03	0.1-0.2	10/18/2017	EB1721789	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002
	AP-TP03	0.8-1	10/18/2017	EB1721789	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002
	AP-TP04	0.1-0.2	10/18/2017	EB1721789	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002
	AP-TP04	0.8-1	10/18/2017	EB1721789	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002
	AP-TP05	0.1-0.2	10/18/2017	EB1721789	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002
	AP-TP05	0.8-1	10/18/2017	EB1721789	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002
	AP-TP06	0.1-0.2	10/18/2017	EB1721789	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002
	AP-TP06	0.8-1	10/18/2017	EB1721789	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002
	AP-TP07	0.1-0.2	10/18/2017	EB1721789	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002
	AP-TP07	0.8-1	10/18/2017	EB1721789	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002
	AP-TP08	0.1-0.2	10/18/2017	EB1721789	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002
	AP-TP08	0.8-1	10/18/2017	EB1721789	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002
	AP-TP09	0.1-0.2	10/18/2017	EB1721789	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002
	AP-TP09	0.8-1	10/18/2017	EB1721789	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002

GOLDER

[redacted] Summary of Laboratory Results for PFAS in Soil Samples

[redacted]

					Per- and polyfluoroalkyl substances (PFAS)																														
					Sum of PFOS and PFHxS	Perfluorooctanoate (PFOA)	Perfluorooctanesulfonic acid (PFOS)	Perfluorobutanesulfonic acid (PFBS)	Perfluoroheptane sulfonic acid (PFPeS)	Perfluorohexanesulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoro-n-pentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnA)	Perfluorododecanoic acid (PFDoA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorooctanesulfonamide (PFOSA)	N-Me-FOSA	N-Et-FOSA	N-Me-FOSE	N-Et-FOSE	N-methyl-perfluorooctanesulfonamidoacetic acid (MeFOSAA)	N-ethyl-perfluorooctanesulfonamidoacetic acid (EtFOSAA)	4:2 Fluorotelomer sulfonic acid	6:2 Fluorotelomer Sulfonate (6:2 FtS)	8:2 Fluorotelomer sulfonate	10:2 Fluorotelomer sulfonic acid	Sum of PFAS
EQL					mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
					0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.001	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0005	0.0002	0.0005	0.0005	0.0005	0.0005	0.0002	0.0002	0.0005	0.0005	0.0005	0.0005	0.0005	0.0002
Soil - Health-based guidance values – Industrial/commercial NEMP 2018 [a]					**20**	**50**																													
Soil - Health-based guidance values – Public Open Space NEMP 2018 [a]					*1*	*10*																													
Interim soil – ecological indirect exposure - Residential NEMP 2018 [a]							**0.01**																												
Interim soil – ecological indirect exposure - Industrial/commercial NEMP 2018 [a]							**0.14**																												
Area	**Sample_ID**	**Sample Depth**	**Sampled Date**	**Lab Batch**																															
East Weipa Heavy Equipment Workshop	EWHEQ-SS16	0-0.1	10/19/2017	EB1721789	0.0084	0.0008	0.0072	0.0004	0.0002	0.0012	<0.0002	<0.0002	<0.001	0.0086	0.0083	0.0016	<0.0002	0.0004	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0005	0.0343	0.0131	0.004	0.0801
	EWHEQ-SS17	0-0.1	10/19/2017	EB1721789	0.0011	<0.0002	0.0011	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0005	0.0044	0.0006	<0.0005	0.0061
	EWHEQ-SS18	0-0.1	10/19/2017	EB1721789	0.0016	<0.0002	0.0016	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0005	0.0018	0.0019	0.0017	0.007
	EWHEQ-SS19	0-0.1	10/19/2017	EB1721789	0.0047	0.0002	0.0047	<0.0002	0.0002	<0.0002	<0.0002	0.0009	<0.001	<0.0002	0.0016	<0.0002	<0.0002	<0.0002	0.0003	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0005	0.0106	0.0058	0.0105	0.0348
	EWHEQ-SS19 TOPA	0-0.1	10/19/2017	ES1727434	0.0353	0.0267	**0.0353**	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.005	0.111	0.0740	0.0534	0.0232	0.0164	<0.0050	<0.0050	<0.0050	<0.0125	<0.0050	<0.0125	<0.0125	<0.0125	<0.0125	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.340
Fire and Rescue Station	FR-SS07	0-0.1	10/18/2017	EB1721789	0.0454	0.0027	**0.0361**	0.001	0.0008	0.0093	0.0008	0.0039	<0.001	0.0027	0.0032	0.0016	0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	0.0014	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0639
	FR-SS08	0-0.1	10/18/2017	EB1721789	0.056	0.0009	**0.0458**	0.0007	0.0011	0.0102	0.0011	0.0021	<0.001	<0.0002	0.001	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	0.0007	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0005	0.0006	<0.0005	<0.0005	0.0642
	FR-SS09	0-0.1	10/18/2017	EB1721789	0.0234	0.0004	**0.0202**	0.0002	0.0002	0.0032	0.0002	0.003	<0.001	<0.0002	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	0.0276
	FR-SS10	0-0.1	10/18/2017	EB1721789	0.0058	0.0022	0.0047	<0.0002	<0.0002	0.0011	<0.0002	0.0017	<0.001	0.0054	0.0064	0.0015	0.0004	0.0004	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0005	0.0741	0.0128	<0.0005	0.111
	FR-SS10 TOPA	0-0.1	10/18/2017	ES1727434	0.111	<0.0250	**0.111**	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.025	0.108	0.0838	0.0270	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0625	<0.0250	<0.0625	<0.0625	<0.0625	<0.0625	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	0.33
	FR-SS11	0-0.1	10/18/2017	EB1721789	0.0187	0.0004	**0.0155**	0.0002	0.0004	0.0032	0.0004	0.0076	<0.001	<0.0002	0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	0.0006	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0287
	FR-TP10	0.1-0.2	10/18/2017	EB1721789	0.7496	0.0028	**0.742**	<0.0002	0.0029	0.0076	0.0029	<0.0002	<0.001	0.0025	0.0032	0.0009	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0005	0.0164	0.0005	<0.0005	0.78
	FR-TP11	0.1-0.2	10/18/2017	EB1721789	0.0621	0.0006	**0.0612**	<0.0002	0.0003	0.0009	0.0003	0.0197	<0.001	0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.0005	0.0024	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	0.0008	<0.0005	0.0866
	FR-TP11	0.8-1	10/18/2017	EB1721789	0.709	0.0189	**0.641**	0.0003	0.0239	0.068	0.0239	0.0004	<0.001	0.0008	0.0033	0.0015	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0005	0.0019	<0.0005	<0.0005	0.762
	FR-TP12	0.1-0.2	10/18/2017	EB1721789	*2.451*	0.0095	**2.43**	0.0005	0.0028	0.021	0.0028	0.024	<0.001	0.0021	0.0065	0.0019	0.0015	0.0011	0.0003	0.0003	<0.0002	<0.0005	0.0374	0.0006	<0.0005	<0.0005	<0.0005	0.0002	0.0006	<0.0005	0.0094	0.0014	<0.0005	2.55
	FR-TP12 TOPA	0.1-0.2	10/18/2017	ES1727434	*2.224*	0.109	**2.02**	0.0306	0.0086	0.204	0.0866	<0.0025	<0.002	0.0640	0.322	0.0223	0.0075	<0.0025	<0.0025	<0.0025	<0.0025	<0.0062	<0.0025	<0.0062	<0.0062	<0.0062	<0.0062	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	2.87
	FR-TP12	0.4-0.5	10/18/2017	EB1721789	*2.057*	0.0657	**1.88**	0.0309	0.0705	0.177	0.0705	0.0011	0.002	0.0294	0.0699	0.0096	0.0049	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	0.0016	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0005	0.0268	<0.0005	<0.0005	2.38
	FR-TP13	0.1-0.2	10/18/2017	EB1721789	0.0263	0.0015	**0.0245**	<0.0002	0.0002	0.0018	0.0002	0.0012	<0.001	0.0008	0.0014	0.0015	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	0.0332
	FR-TP13	0.8-1	10/18/2017	EB1721789	0.0844	0.0011	**0.0835**	<0.0002	0.0002	0.0009	0.0002	0.0003	<0.001	<0.0002	0.0004	0.0006	0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	0.0875
	FR-TP14	0.1-0.2	10/18/2017	EB1721789	0.0376	0.0014	**0.0346**	<0.0002	0.0009	0.003	0.0009	<0.0002	<0.001	<0.0002	0.0004	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	0.0407
	FR-TP14	0.8-1	10/18/2017	EB1721789	0.0457	0.0011	**0.0451**	<0.0002	0.0003	0.0006	0.0003	<0.0002	<0.001	<0.0002	0.0003	0.0003	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	0.0479

Notes:
"<" Denotes below detection limit and is in grey font.
"*" Calculated aged EIL criteria
NL' - Not limiting
"-" - Not analysed
(a) HEPA (Heads of EPA's Australia and New Zealand and the Australian Government Department of the Environment and Energy) 2018. PFAS National Environment Management Plan (NEMP).

Soil - Health-based guidance values – Industrial/commercial NEMP 2018 [a]
Soil - Health-based guidance values – Public Open Space NEMP 2018 [a]
Interim soil – ecological indirect exposure - Residential NEMP 2018 [a]
Interim soil – ecological indirect exposure - Industrial/commercial NEMP 2018 [a]

GOLDER

[redacted] Summary Laboratory Results, Water Confirmation Samples - July 2018 [redacted]

			Perfluorooctanoic Acid (PFOA)	Perfluorooctane sulfonic acid (PFOS)	Perfluorohexane sulfonic acid (PFHxS)	Sum of PFHxS and PFOS (lab reported)
			µg/L	µg/L	µg/L	µg/L
EQL			0.0005	0.0003	0.0005	0.0003
Field ID	**Sample Type**	**Date**				
EMB/EV/NSA_20180704	Surface Water	7/4/2018	<0.0005	<0.0003	<0.0005	<0.0003
EMB/EV/NSB_20180704	Surface Water	7/4/2018	<0.0005	0.0011	0.0012	0.0023
EMB/EV/NSC_20180704	Surface Water	7/4/2018	<0.0005	0.0008	0.0006	0.0014
EMB/LP/NSA_20180704	Surface Water	7/4/2018	<0.0005	<0.0003	<0.0005	<0.0003
EMB/LP/NSB_20180704	Surface Water	7/4/2018	<0.0005	0.0007	<0.0005	0.0007
EMB/LP/NSC_20180704	Surface Water	7/4/2018	<0.0005	0.0004	<0.0005	0.0004
MRC/DOS__20180704	Surface Water	7/4/2018	<0.0005	0.0009	0.0014	0.0023
PR/AND/DOS_20180704	Surface Water	7/4/2018	<0.0005	0.0003	<0.0005	0.0003
PR/EWM/WP/DOS_20180704	Surface Water	7/4/2018	0.0022	0.0272	0.0298	0.0570
SW/BEN/DOS_20180704	Surface Water	7/4/2018	<0.0005	0.0011	0.0027	0.0038
LP1_MW5_20180705	Groundwater Well	7/5/2018	0.0494	1.25	0.600	1.85
LPI_MW1_20180705	Groundwater Well	7/5/2018	0.108	2.15	0.983	3.13
LPI_MW15_20180704	Groundwater Well	7/4/2018	0.0274	0.635	0.448	1.08
LPI_MW16_20180705	Groundwater Well	7/5/2018	0.0747	1.60	0.545	2.14
LPI_MW17_20180704	Groundwater Well	7/4/2018	<0.0005	0.0135	0.0279	0.0414
LPI_MW18_20180705	Groundwater Well	7/5/2018	0.0007	0.0415	0.0261	0.0676
LPI_MW20_20180705	Groundwater Well	7/5/2018	0.0023	0.0395	0.0166	0.0561
LPI_MW21_20180705	Groundwater Well	7/5/2018	0.0598	0.738	0.484	1.22
LPI_MW22_20180705	Groundwater Well	7/5/2018	0.0008	0.0063	0.0092	0.0155
LPI_MW24_20180704	Groundwater Well	7/4/2018	0.0011	0.0161	0.0409	0.0570
LPI_MW4_20180705	Groundwater Well	7/5/2018	0.0989	1.95	0.894	2.84
LPI_MW7_20180705	Groundwater Well	7/5/2018	0.0906	1.61	1.04	2.65
LPI_MW8_20180705	Groundwater Well	7/5/2018	0.137	2.25	1.88	4.13
LPI-MW11_20180703	Groundwater Well	7/3/2018	0.0210	1.80	0.301	2.10
LPI-MW12_20180703	Groundwater Well	7/3/2018	0.0256	1.48	0.295	1.78
LPI-MW13_20180703	Groundwater Well	7/3/2018	0.0018	0.0141	0.0088	0.0229
LPI-MW19_20180703	Groundwater Well	7/3/2018	0.0023	0.0174	0.0165	0.0339
SA012_20180705	Potable Bore	7/5/2018	<0.0005	0.0056	0.0096	0.0152
SA013_20180703	Potable Bore	7/3/2018	<0.0005	0.0036	0.0054	0.0090
SA014_20180702	Potable Bore	7/2/2018	<0.0005	0.0049	0.0067	0.0116
SA015_20180702	Potable Bore	7/3/2018	<0.0005	0.0037	0.0041	0.0078
SA017_20180702	Potable Bore	7/2/2018	<0.0005	0.0032	0.0083	0.0115
SA020_20180702	Potable Bore	7/2/2018	<0.0005	0.0033	0.0071	0.0104
LPTA_20180702	Accumulation Point	7/2/2018	<0.0005	0.0031	0.0065	0.0096

Notes:
"<" Denotes below detection limit and is in grey font.
(a) Heads of EPA's Australia and New Zealand and the Australian Government Department of the Environment and Energy, Aquatic Ecosystem Freshwater/Marine 99% species protection NEMP 2018 [(a)]
Health-based guidance values – Drinking Water NEMP 2018 [(a)]

GOLDER

Table A - Summary Surface Water PFAS Laboratory Results Source: Golder (2018b)

											Per- and Polyfluoroalkyl Substances (PFAS)													
	8:2 Fluorotelomer sulfonate	N-Et-FOSA	N-Et-FOSE	N-Me-FOSA	N-Me-FOSE	Perfluorobutanoic acid (PFBA)	Perfluoro-n-pentanoic acid (PFPeA)	PFDcS	N-methyl-perfluorooctanesulfonamidoacetic acid	Perfluorobutanesulfonic acid (PFBS)	Perfluorodecanoic acid (PFDA)	Perfluorododecanoic acid (PFDoA)	Perfluoroheptanoic acid (PFHpA)	Perfluorohexanesulfonic acid (PFHxS)	Perfluorohexanoic acid (PFHxA)	Perfluorononanoic acid (PFNA)	N-ethyl-perfluorooctanesulfonamidoacetic acid	Perfluorooctanesulfonamide (PFOSA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorooctanesulfonic acid (PFOS)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnA)	6:2 Fluorotelomer Sulfonate (6:2 FtS)	Perfluorooctanoate (PFOA)
	ug/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	ug/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	ug/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	0.001	0.001	0.001	0.001	0.001	0.002	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0001	0.0005	0.0005	0.001	0.0005
National Environmental Management Plan - Health Based Guidance Values for Recreational Water																								5.6
High conservation/ecological value systems (99% species protetion), surface water (protection of freshwater aquatic ecosystems)																				0.00023 [a,d]				19 [c]
Slightly to moderately disturbed ecosystems (95% species protection), surface water (protection of freshwater aquatic ecosystems)																				0.13 [b,c]				220 [c]
Field_ID	**Sampled Date**	**Matrix Type**	**Lab Report Number**																					
SW01	23-Jul-18	WATER	EB1818258	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0005	<0.0005	<0.001	<0.0005
SW02	21-Jul-18	WATER	EB1818258	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0005	<0.0005	<0.001	<0.0005
SW03	20-Jul-18	WATER	EB1818258	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0005	<0.0005	<0.001	<0.0005
SW04	21-Jul-18	WATER	EB1818258	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0005	<0.0005	<0.001	<0.0005
SW05	20-Jul-18	WATER	EB1818258	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0005	<0.0005	<0.001	<0.0005
SW06	17-Jul-18	WATER	EB1818258	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0005	<0.0005	<0.001	<0.0005
SW07	16-Jul-18	WATER	EB1818258	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0005	<0.0005	<0.001	<0.0005
SW08	16-Jul-18	WATER	EB1818258	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0005	<0.0005	<0.001	<0.0005
SW09	19-Jul-18	WATER	EB1818258	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0005	<0.0005	<0.001	<0.0005
SW10	22-Jul-18	WATER	EB1818258	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0005	<0.0005	<0.001	<0.0005
SW11	18-Jul-18	WATER	EB1818258	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0005	<0.0005	<0.001	<0.0005

GOLDER

Table A - Summary Surface Water PFAS Laboratory Results

				Sum of PFHxS and PFOS (lab reported)	10:2 Fluorotelomer sulfonic acid	4:2 Fluorotelomer sulfonic acid	Perfluoroheptane sulfonic acid	Perfluoropentane sulfonic acid
				mg/L	µg/L	µg/L	µg/L	µg/L
EQL				0.0000003	0.001	0.001	0.0005	0.0005
National Environmental Management Plan - Health Based Guidance Values for Recreational Water				<3.0E-4				
High conservation/ecological value systems (99% species protetion), surface water (protection of freshwater aquatic ecosystems)								
Slightly to moderately disturbed ecosystems (95% species protection), surface water (protection of freshwater aquatic ecosystems)								
Field_ID	**Sampled Date**	**Matrix Type**	**Lab Report Number**					
SW01	23-Jul-18	WATER	EB1818258	<3.0E-7	<0.001	<0.001	<0.0005	<0.0005
SW02	21-Jul-18	WATER	EB1818258	<3.0E-7	<0.001	<0.001	<0.0005	<0.0005
SW03	20-Jul-18	WATER	EB1818258	<3.0E-7	<0.001	<0.001	<0.0005	<0.0005
SW04	21-Jul-18	WATER	EB1818258	<3.0E-7	<0.001	<0.001	<0.0005	<0.0005
SW05	20-Jul-18	WATER	EB1818258	<3.0E-7	<0.001	<0.001	<0.0005	<0.0005
SW06	17-Jul-18	WATER	EB1818258	<3.0E-7	<0.001	<0.001	<0.0005	<0.0005
SW07	16-Jul-18	WATER	EB1818258	<3.0E-7	<0.001	<0.001	<0.0005	<0.0005
SW08	16-Jul-18	WATER	EB1818258	<3.0E-7	<0.001	<0.001	<0.0005	<0.0005
SW09	19-Jul-18	WATER	EB1818258	<3.0E-7	<0.001	<0.001	<0.0005	<0.0005
SW10	22-Jul-18	WATER	EB1818258	<3.0E-7	<0.001	<0.001	<0.0005	<0.0005
SW11	18-Jul-18	WATER	EB1818258	<3.0E-7	<0.001	<0.001	<0.0005	<0.0005

Table B - Summary Sediment PFAS Laboratory Results

	Per- and polyfluoroalkyl substances (PFAS)																										
	8:2 Fluorotelomer sulfonate	N-Et-FOSA	N-Et-FOSE	N-Me-FOSA	N-Me-FOSE	Perfluorobutanoic acid (PFBA)	Perfluoro-n-pentanoic acid (PFPeA)	PFDcS	N-methyl-perfluorooctanesulfonamidoacetic acid	Perfluorobutanesulfonic acid (PFBS)	Perfluorodecanoic acid (PFDA)	Perfluorododecanoic acid (PFDoA)	Perfluoroheptanoic acid (PFHpA)	Perfluorohexanesulfonic acid (PFHxS)	Perfluorohexanoic acid (PFHxA)	Perfluorononanoic acid (PFNA)	N-ethyl-perfluorooctanesulfonamidoacetic acid	Perfluorooctanesulfonamide (PFOSA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorooctanesulfonic acid (PFOS)3	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnA)	6:2 Fluorotelomer Sulfonate (6:2 FtS)	Perfluorooctanoate (PFOA)	Sum of US EPA PFAS (PFOS + PFOA)	Sum of WA DER PFAS (n=10)
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.01	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.01	0.005	0.005	0.005	0.005	0.005	0.01	0.005	0.005	0.01
Sediment Screening Value, sample SD11 the background reference site results multiplied by a factor of 2 [a]																				0.01				0.01		
Field_ID	Sampled_Date_Time	Matrix_Description	Lab_Report_Number	SampleCode																							
SD01	18-Jul-18	SEDIMENT	612811	B18-JI34042	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01
SD02	18-Jul-18	SEDIMENT	612811	B18-JI34041	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01
SD03	18-Jul-18	SEDIMENT	612811	B18-JI34034	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01
SD04	18-Jul-18	SEDIMENT	612811	B18-JI34043	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01
SD05	18-Jul-18	SEDIMENT	612811	B18-JI34035	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01
SD06	18-Jul-18	SEDIMENT	612811	B18-JI34036	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01
SD07	18-Jul-18	SEDIMENT	612811	B18-JI34037	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01
SD08	18-Jul-18	SEDIMENT	612811	B18-JI34038	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01
SD09	18-Jul-18	SEDIMENT	612811	B18-JI34039	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01
SD10	18-Jul-18	SEDIMENT	613763	B18-Au29331	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01
SD11	18-Jul-18	SEDIMENT	612811	B18-JI34040	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01

Table B - Summary Sediment PFAS Laboratory Results

					Sum of PFASs (n=28)	Sum of enHealth PFAS (PFHxS + PFOS + PFOA)	10:2 Fluorotelomer sulfonic acid	4:2 Fluorotelomer sulfonic acid	Perfluoroheptane sulfonic acid	Perfluoropentane sulfonic acid
					mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL					0.05	0.005	0.005	0.005	0.005	0.005
Sediment Screening Value, sample SD11 the background reference site results multiplied by a factor o										
Field_ID	**Sampled_Date_Time**	**Matrix_Description**	**Lab_Report_Number**	**SampleCode**						
SD01	18-Jul-18	SEDIMENT	612811	B18-JI34042	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005
SD02	18-Jul-18	SEDIMENT	612811	B18-JI34041	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005
SD03	18-Jul-18	SEDIMENT	612811	B18-JI34034	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005
SD04	18-Jul-18	SEDIMENT	612811	B18-JI34043	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005
SD05	18-Jul-18	SEDIMENT	612811	B18-JI34035	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005
SD06	18-Jul-18	SEDIMENT	612811	B18-JI34036	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005
SD07	18-Jul-18	SEDIMENT	612811	B18-JI34037	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005
SD08	18-Jul-18	SEDIMENT	612811	B18-JI34038	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005
SD09	18-Jul-18	SEDIMENT	612811	B18-JI34039	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005
SD10	18-Jul-18	SEDIMENT	613763	B18-Au29331	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005
SD11	18-Jul-18	SEDIMENT	612811	B18-JI34040	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005

Table C - Summary Biota PFAS Laboratory Results

Field_ID	Sampled Date	Matrix Description	Lab Report Number	Per- and polyfluoroalkyl substances (PFAS)																																
				N-Methyl PFO sulfonamidoethanol (MeFOSE)	Perfluorodecane sulfonic acid (PFDS)	N-methyl-PFO sulfonamidoacetic acid (MeFOSAA)	Perfluorooctanoic Acid (PFOA)	Perfluorooctane sulfonic acid (PFOS)	Perfluorohexane sulfonic acid (PFHxS)	Sum of PFHxS and PFOS (lab reported)	Sum of US EPA PFAS (PFOS + PFOA)	Sum of WA DER PFAS (n=10)	Sum of PFASs (n=28 - Lab Reported)	Perfluorobutanoic acid (PFBA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorodecanoic acid (PFDA)	Perfluoropentanoic acid (PFPeA)	Perfluorononanoic acid (PFNA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorododecanoic acid (PFDoDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorobutane sulfonic acid (PFBS)	4:2 Fluorotelomer sulfonic acid (4:2 FTSA)	6:2 Fluorotelomer sulfonic acid (6:2 FTSA)	8:2 Fluorotelomer sulfonic acid (8:2 FTSA)	10:2 Fluorotelomer sulfonic acid (10:2 FTSA)	N-Ethyl PFO sulfonamide (EtFOSA)	N-Ethyl PFO sulfonamidoethanol (EtFOSE)	N-Methyl PFO sulfonamide (MeFOSA)	Perfluorooctane sulfonamide (FOSA)	N-ethyl-PFO sulfonamidoacetic acid (EtFOSAA)	Sum of enHealth PFAS (PFHxS + PFOS + PFOA)
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL				0.0005	0.0005	0.0005	0.0005	0.0003	0.0003	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Trigger Point for Fish and Seafood, Crustaceans#, derivation from Childeren 2-6 years, median consumption [a]							0.52	0.065		0.065																										
Trigger Point for Fish and Seafood, Finfish (all), derivation from Children 2-6 years, P90 consumption [a]							0.041	0.0052		0.0052																										
BT01_BREAM(2)_24/07/18	24-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT01_BREAM_24/07/18	24-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT01_CATFISH_24/07/18	24-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT01_MUDCRAB(2)_24/07/18	24-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT01_MUDCRAB_24/07/18	24-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT01_PRAWN(2)_24/07/18	24-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT01_PRAWN_24/07/18	24-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT01DS_MULLET_23/07/18	23-Jul-18	Biota	613766	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT01DS_CATFISH_23/07/18	23-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT01DS_JAVLINFISH(2)_23/07/18	23-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT01DS_JAVLINFISH_23/07/18	23-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT01DS_MUDCRAB_23/07/18	23-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT01DS_ROCKCOD_23/07/18	23-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT01US_MULLET_23/07/18	23-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT01US_ROCKCOD_23/07/18	23-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT01US_SHRIMP_23/07/18	23-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT02_GASTROPOD_23/07/18	23-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT02_MUDCRAB_20/07/18	20-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT02_PIPPY_23/07/18	23-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT02_ROCKOYSTER_23/07/18	23-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT02_SWIMMER(2)_22/07/18	22-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT02_SWIMMER(3)_22/07/18	22-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT03_COCKLE_19/07/18	19-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT03_MUDCRAB_19/07/18	19-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT03_ROCKOYSTER_19/07/18	19-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT03_SWIMMER_19/07/18	19-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT03A_MILKFISH_20/07/18	20-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT04_SWIMMER_21/07/18	21-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT05_CATFISH_20/07/18	20-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT05_COCKLE_19/07/18	19-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT05_GASTROPOD_19/07/18	19-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	0.0005	<0.0003	0.0004	<0.0005	0.0005	0.0009	0.0009	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0009
BT05_GRUNTER_20/07/18	19-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT05_MUDCRAB_20/07/18	19-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT05_SWIMMER_20/07/18	19-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT05_TRUMPETER_20/07/18	19-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT06_BREAM(2)_25/07/18	25-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT06_BREAM_25/07/18	25-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT06_DMULLET_21/07/18	21-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT06_MUDCRAB(2)_18/07/18	18-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT06_MUDCRAB(3)_18/07/18	18-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT06_MUDCRAB_18/07/18	18-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT06_MULLET_21/07/18	21-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT06_SHARK_18/07/18	21-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT06_SILVERBIDDY_21/07/18	21-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT06_SNAPPER_18/07/18	18-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT06_SWIMMER_18/07/18	18-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT07_CATFISH_17/07/18	17-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT07_GRUNTER_24/07/18	24-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT07_JAVELINFISH_24/07/18	24-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT07_MUDCRAB(2)_17/07/18	17-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	0.0006	0.0006	0.0006	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT07_MUDCRAB_24/07/18	24-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT07_MULLET(2)_16/07/18	16-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT07_MULLET_24/07/18	24-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	0.0006	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0006	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT07_SNAPPER_16/07/18	16-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT07_SCAT_16/07/18	16-Jul-18	Biota	613766	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT07_SCAT(2)_16/07/18	16-Jul-18	Biota	613766	<0.0005	<0.0005	<0.0005	<0.0005	0.0007	<0.0003	0.0007	0.0007	0.0007	0.0007	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0007
BT08_JAVELINFISH_19/07/18	16-Jul-18	Biota	613766	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT08_CATFISH(2)_16/07/18	16-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT08_CATFISH_19/07/18	19-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT08_MUDCRAB_17/07/18	17-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT08_MULLET_19/07/18	19-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT08_MULLET(2)_19/07/18	19-Jul-18	Biota	613766	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT08_MULLET(3)_19/07/18	19-Jul-18	Biota	613766	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT09_BREAM_19/07/18	19-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT09_CATFISH_19/07/18	19-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT09_MUDCRAB_19/07/18	19-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT09_ROCKCOD_19/07/18	19-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT10_CATFISH(2)_22/07/18	22-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT10_CATFISH_22/07/18	22-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT10_MUDCRAB_22/07/18	22-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT10_MULLET_22/07/18	22-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT10_SCAT_22/07/18	22-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT10_SWIMMER(2)_22/07/18	22-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT10_SWIMMER_22/07/18	22-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT11_CATFISH_18/07/18	18-Jul-18	Biota	613766	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT11_MULLET(4)_18/07/18	18-Jul-18	Biota	613766	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT11_SALMON(2)_18/07/18	18-Jul-18	Biota	613766	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT11_HERRING_18/07/18	18-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT11_MULLET(2)_18/07/18	18-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT11_MULLET(3)_18/07/18	18-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT11_MULLET_18/07/18	18-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT11_SALMON_18/07/18	18-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BT11_SWIMMER_18/07/18	18-Jul-18	Biota	609830	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005

Notes:

"<" Denotes below detection limit and is in grey font.

"-" - Not analysed

a) Food and Standards Australia New Zealand report on Perfluorinated Chemicals in Food (FSANZ, 2017)

#occasionally consumed food, trigger points for investigation for crustaceans will be applied to molluscs due to the small number of consumers of molluscs