DETAILED SITE INVESTIGATION REPORT

Enterprise Area
Lot 462 DP1178998 and Lot 2 DP816346
Marathon Street
Westdale, NSW 2340

Tamworth Regional Council – December 2017

Geo-Logix
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DETAILED SITE INVESTIGATION REPORT

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Lot 462 DP1178998 and Lot 2 DP816346
Marathon Street
Westdale, NSW 2340

PREPARED FOR

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Report reference: 1701110Rpt01FinalV01_7Dec17

Date: 7 December 2017

DISTRIBUTION AND REVISION REGISTER

Revision Number	Date	Description	Recipient	Deliverables
V01	7/12/2017	Final Report 1701110Rpt01FinalV01_7Dec17	Geo-Logix Pty Ltd	1 Electronic Copy
V01	7/12//2017	Final Report 1701110Rpt01FinalV01_7Dec17	Geo-Logix Pty Ltd	1 Electronic Copy

Issued by: Geo-Logix Pty Ltd

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EXECUTIVE SUMMARY

Geo-Logix Pty Ltd (Geo-Logix) was engaged by Tamworth Regional Council (TRC) to undertake a Detailed Site Investigation (DSI) of a 246.3 hectare parcel of land comprising Lot 462 DP1178998 and Lot 2 DP816346, Marathon Street, Westdale, NSW (Figure 1). TRC propose to rezone the land from rural to commercial / industrial. The parcel is referred to as the Enterprise Area.

Environmental investigation of the adjacent Tamworth Regional Airport has identified several sources of per- and polyfluorinated alkyl substances (PFAS) resulting from historical use of Aqueous Film Forming Foam (AFFF). The source areas are presented on Figure 2. A number of source areas are located directly up topographic slope of the Enterprise Area.

Historical investigations completed as part of the Airport assessment works identified the site of a TamAir aircraft crash in 1995 within the western portion of the Enterprise Area. Reference to the Bureau of Air Safety Investigation Report (BASI, 1997) indicates the aircraft took off from runway 12L, clipped trees along Oxley Highway and came to rest within the Enterprise Area near the boundary with Oxley Highway. The resulting fire was recorded as particularly intense with several explosions. By the time fire fighting appliance reached the crash site, the fuselage was complete engulfed. AFFF containing PFAS was used in fire suppression. The location of the crash site is presented on Figure 2.

Rezoning and redevelopment of the site has potential to remobilise PFAS, exacerbate existing contamination and impact upon off-site receptors. The objective of the investigation was to assess the nature, extent and magnitude of PFAS in shallow soils, surface waters / sediments and groundwater across the Enterprise Area to determine the following:

- Suitability of the site for the proposed land uses;
- Remediation requirements (if any);
- Dam dewatering and dam sediment disposal requirements;
- Contamination management requirements during redevelopment to control remobilisation and redistribution of PFAS;
- Long term management requirements or development design considerations;
- Waste classification of shallow soils that will require off-site disposal; and
- Initial assessment of groundwater conditions.

Based on topography and site history, PFAS at the site would be present as follows:

- In shallow soils across the TamAir aircraft crash site;
- In surface waters and sediments of drainage lines receiving runoff from the TamAir aircraft crash site;
- In surface waters and sediments of drainage lines receiving runoff from Tamworth Regional Airport; and
- In groundwater sourced from the TamAir aircraft crash site and / or Tamworth Regional Airport.

To assess for PFAS at the site, Geo-Logix completed the following scope of work. All samples were analysed for 28 PFAS compounds:

- Systematic soil sampling of shallow soils (0 – 0.1 m) at 12 locations on a 20 m grid based sampling pattern across the TamAir aircraft crash site;
- Surface soil sampling of shallow soils (0 – 0.1 m) at 12 locations across an approximate 500m grid based sampling pattern for site coverage;
- Collection of eight sediment samples from drainage lines and farm dams across the site;
- Collection of five surface water samples from drainage lines and farm dams across the site; and
- Collection and groundwater samples from two existing groundwater bores on the site.

Results of the investigation did not identify PFAS in soil, sediment, surface water or groundwater at concentrations that would preclude the suitability of the site for the proposed rezoning and redevelopment as the Enterprise Area.

While PFAS was detected in soil at concentrations greater than ecological screening criteria in one soil sample collected from the TamAir aircraft crash site, redevelopment as general and light industrial as per the conceptual precinct plan would eliminate any ecological exposure pathways. Remediation of PFAS impacted soil would be required if the area is developed as open ground.

PFAS in soil at the TamAir aircraft crash site may present a source of groundwater contamination. Though preliminary groundwater assessment did not identify PFAS in groundwater, investigation of groundwater at the crash site is recommended to determine if controls on groundwater use are warranted.

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1. INTRODUCTION

Geo-Logix Pty Ltd (Geo-Logix) was engaged by Tamworth Regional Council (TRC) to undertake a Detailed Site Investigation (DSI) of a 246.3 hectare parcel of land comprising Lot 462 DP1178998 and Lot 2 DP816346, Marathon Street, Westdale, NSW (Figure 1). TRC propose to rezone the land from rural to commercial / industrial. The parcel is referred to as the Enterprise Area. Proposed land uses within the Enterprise Area include heavy, general and light industry, business and technology, open space / drainage, freight terminal and a vegetated buffer. The Conceptual Precinct Plan is presented in Attachment A and as Figure 2.

Environmental investigation of the adjacent Tamworth Regional Airport has identified several sources of per- and polyfluorinated alkyl substances (PFAS) resulting from historical use of Aqueous Film Forming Foam (AFFF). Source areas are presented on Figure 3. A number of source areas are located directly up topographic slope of the Enterprise Area.

Historical investigations completed as part of the Airport assessment works identified the site of a TamAir aircraft crash in 1995 within the western portion of the Enterprise Area. Reference to the Bureau of Air Safety Investigation Report (BASI, 1997) indicates the aircraft took off from runway 12L, clipped trees along Oxley Highway and came to rest within the Enterprise Area near the boundary with Oxley Highway. The resulting fire was recorded as particularly intense with several explosions. By the time fire fighting appliance reached the crash the site the fuselage was complete engulfed. AFFF containing PFAS was used in fire suppression. The location of the crash site is presented on Figure 3. Excerpts from the BASI (1997) report are included in Attachment B.

2. OBJECTIVES

Rezoning and redevelopment of the site has potential to remobilise PFAS, exacerbate existing contamination and impact upon off-site receptors. The objective of the investigation was to assess the nature, extent and magnitude of PFAS in shallow soils, surface waters / sediments and groundwater across the Enterprise Area to determine the following:

- Suitability of the site for the proposed land uses;
- Remediation requirements (if any);
- Dam dewatering and dam sediment disposal requirements;
- Contamination management requirements during redevelopment to control remobilisation and redistribution of PFAS;
- Long term management requirements or development design considerations;
- Waste classification of shallow soils that will require off-site disposal; and
- Initial assessment of groundwater conditions.

3. SITE INFORMATION

3.1 Site Identification

The investigation area comprises the following properties:

Street Address	Lot and Deposited Plan (DP)	Area (ha)
Marathon Street, Westdale NSW 2340	Lot 462 DP1178998 Lot 2 DP 816346	246.3

3.2 Site Description

The site comprises a rural parcel used for stock grazing and developed with two houses.

Lot 462 DP1178998 comprises the eastern half of the site and is developed as grazing land with a farm house and associated sheds accessed from Marathon Street. Murroon Creek flows south to north through Lot 462 and beyond into neighbouring agricultural land before discharging into the Wallamore Anabranch. The creek was not flowing at the time of the investigation. The section of Murroon Creek from the Oxley Highway crossing to near the farm house is eroded and deeply incised into the surrounding topography. Several long discontinuous pools exist along the section of the creek. The creek becomes less incised to the north and exists as a series of discontinuous overland flow paths with isolated pockets of standing water. Murroon Creek is suspected of receiving limited storm water runoff from the Airport.

Lot 2 DP816346 is developed as grazing land with a residential dwelling located in the northeast corner. A drainage line runs south to north along the eastern edge of the lot. The drainage line receives water from Oxley Highway and from erosion berms across the site. A farm dam was located near the mid point of the drainage line. The remainder of the drainage line was dry. A second farm was located near the residential dwelling in the northeast portion of the lot.

3.3 Surrounding Land Use

Based on site observations and aerial imagery, the surrounding land use comprised the following:

- **North –** Wallamore Road with Westdale Sewage Treatment Plant beyond;
- **South –** Oxley Highway with Tamworth Regional Airport and rural residential properties beyond;
- **East –** Marathon Street and the residential suburb of Westdale beyond; and
- **West –** Goddard Lane with the Glen Artney Industrial estate beyond.

3.4 Registered Groundwater Bores

Reference to the NSW Groundwater Works Reports (NSW Government, 2017) indicates there are two registered groundwater bores on the property. Anecdotal information from Mr Alan Robson indicates the bores are incorrectly labelled on the Groundwater Works report. To avoid confusion, the bores have been labelled as BORE1 and BORE2. Bore locations are presented on Figure 4.

BORE1 is located in the northeast corner of Lot 2 DP816346 adjacent to a farm dam. The well head could not be accessed due to a pump and pump housing installed at the well. Anecdotal information from Mr

Robson indicated the bore to be approximately 100 feet deep. This corresponds with the drillers logs for bore GW023230 which has a well depth of 36.6m. The water bearing zone was recorded as 32 – 32.9 metres below grade (mbg) within basalt bedrock. The bore is licensed for irrigation.

BORE2 is located on Lot 462 DP1178998 between the farm house Murroon Creek. It is understood this bore is to be accessed for irrigation of the vegetated buffer along Marathon Street. No details for the bore were available.

4. CONTAMINANTS OF POTENTIAL CONCERN

PFAS are a wide group of compounds consisting of a fully-fluorinated hydrophobic alkyl chain of varying length and a hydrophilic end group (WA DER, 2016). These compounds are generally non-volatile, stable, soluble in water and do not readily adsorb to soils. These properties mean they are persistent, mobile in the environment and can migrate significant distances from a point of origin (US EPA, 2014).

PFOS and PFOA have been shown to be toxic to some animals, and as they are persistent can bioaccumulate and biomagnify in some wildlife, including fish (enHealth, 2016). It is currently unknown if PFOS or PFOA cause health problems in humans, but on current evidence from studies in animals the potential for adverse health effects cannot be excluded (enHealth, 2016). enHealth (2016) have reported that there is currently no conclusive evidence that PFAS cause illness or cancer in humans. Laboratory studies have indicated PFOS and PFOA may cause some cancers in animals following prolonged exposure to relatively high levels (enHealth, 2016).

5. SUMMARY OF POTENTIAL SITE CONTAMINATION

Based on anecdotal information and the BASI (1997) investigation report, the TamAir aircraft crash site is considered a potential contaminant source area.

Four separate PFAS source areas have been identified within the Tamworth Regional Airport grounds. Three of the source areas are located directly up topographic slope from the Enterprise Area. Detailed mapping of drainage lines on the airport indicates the majority of surface runoff leaves the site through drainage lines to the north of the Enterprise Area. No direct flow paths from the Airport onto the Enterprise Area were identified.

PFAS has been identified in surface waters and groundwater over 3 km northeast of the Airport. With regard to the Enterprise Area, investigation to date has been limited to collection of a surface water sample from Murroon Creek at the Oxley Highway crossing where PFAS was identified at low concentrations.

Previous investigations identified significant groundwater impact beneath the Glen Artney Industrial Area located to the north of the Enterprise Area. At this stage, groundwater assessment has been limited to the area north of Goddard Lane and no investigation has been completed on the site. The potential for impacted groundwater to be migrating below the site cannot be ruled out.

Based on topography and site history, PFAS would present as follows:

- In shallow soils across the TamAir crash site;
- In surface waters and sediments of drainage lines receiving runoff from the TamAir aircraft crash site;

- In surface waters and sediments of drainage lines receiving runoff from Tamworth Regional Airport; and
- In groundwater sourced from the TamAir aircraft crash site and / or Tamworth Regional Airport.

6. DATA QUALITY OBJECTIVES

The objective of the investigation was to undertake an assessment of soil, sediment, surface water and groundwater for contamination that may have originated from use of AFFF containing PFAS on the site and the adjacent Tamworth Regional Airport.

To achieve the objective, Geo-Logix has adopted the seven step Data Quality Objective (DQO) process as described in AS 4482.1-2005, US EPA (2000), NEPC (1999 amended) and DEC (2006).

Step 1: State the problem.

The site may be impacted by PFAS as a result of historical use of AFFF used for fire suppression at the TamAir aircraft crash site, and from the upgradient Airport. The site is proposed to be rezoned to commercial / industrial and redeveloped as an industrial estate. A detailed environmental assessment is required to assess the suitability of the site for the proposed land use.

Step 2: Identify the decision.

The results of the investigation confirm the site is suitable for the proposed rezoning and redevelopment without the requirement for contamination remediation / management.

Step 3: Identify inputs into the decision.

- Identification of locations of potential concern;
- Appropriate identification of COPC;
- A program of targeted and systematic sampling and analysis of soils, sediment, surface water and groundwater; and
- Screening sample analytical results against appropriate trigger values.

Step 4: Define the boundaries of the site.

The project boundary is defined as Lot 642 DP1778998 and Lot 2 DP816346 to a vertical depth to groundwater, approximately 30 mbg.

Step 5: Develop a decision rule.

Soil and Sediment

To conclude the decision, results of the soil and sediment assessment must comply with the following decision rules.

- COPC do not exist in soil at concentration in excess of commercial / industrial trigger values.

Groundwater and Surface Water

To conclude the decision, results of groundwater and surface water sampling must comply with the following decision rules.

- COPC do not exist in surface water and groundwater samples at concentration in excess of drinking water, ecological and recreational / non-potable trigger values.

Step 6: Specify acceptable limits on decision errors.

The field sampling methodology, sample preservation techniques, and laboratory analytical procedures must be appropriate to provide confidence in data quality so any comparison against trigger values can be considered reliable. This is achieved by defining and comparing results against the Data Quality Indicators (DQIs).

Step 7: Optimise the design for obtaining data.

This is achieved by sampling plan design in consideration of the available site history information, area of investigation, contaminant behaviour in the environment, and likely spatial distribution of contamination.

7. SOIL ASSESSMENT

7.1 General Site Coverage

Geo-Logix completed sampling across a broad grid based sampling plan to provide general coverage across the site. The scope of work comprised:

- Collection of shallow soil samples at 12 locations (SS1 to SS12) on a 500m grid based sampling plan (Figure 5); and
- Laboratory analysis of soil samples for PFAS.

7.2 TamAir Crash Site

To assess the potential presence and extent of PFAS in soil at the TamAir crash site, Geo-Logix completed the following:

- Collection of shallow soil samples from 12 locations (GS1 to GS12) on a 20 metre grid based sampling plan (Figure 6). The sampling plan is sufficient to identify a contamination hotspot of 23.6 metres diameter at a 95% level of statistical certainty and meets NSW EPA sampling density requirements for the investigation area size (5000 m^2); and
- Laboratory analysis of shallow soil samples for PFAS.

7.3 Soil Sampling Methodology

Soil samples were collected in general accordance with WA DER (2016) methodology. Soil samples were completed using a mattock, with care taken to sample soils that had not made contact with the mattock blade.

Sampling equipment was decontaminated by triple rinsing in deionised water and disposable nitrile gloves were changed between each sample location. Soil samples were placed in laboratory prepared Teflon free polyethylene jars, labelled and placed on ice in an esky for transport under chain of custody to a NATA accredited laboratory (Eurofins) for analysis of PFAS. Inter-laboratory samples were transported under chain of custody to Australian Laboratory Services (ALS).

8. SEDIMENT ASSESSMENT

Sediment samples were collected from drainage lines and farm dams across the site as follows (Figure 7):

- Sample SED1 was collected from the farm dam in the northeast corner of Lot 2;
- Sample SED2 was collected from sediments of the farm dam on the central drainage line;
- Samples SED4 to SED6 were collected from the channel of Murroon Creek; and
- Samples SED7 to SED9 were collected from the channel of the central drainage line.

8.1 Sediment Sampling Methodology

Soil samples were collected in general accordance with WA DER (2016) methodology. Where the Soil samples were completed using a mattock with care taken to sample soils that had not made contact with the mattock blade.

Sampling equipment was decontaminated by triple rinsing in deionised water and disposable nitrile gloves were changed between each sample location. Soil samples were placed in laboratory prepared Teflon free polyethylene jars, labelled and placed on ice in an esky for transport under chain of custody to a NATA accredited laboratory (Eurofins) for analysis of PFAS. Inter-laboratory samples were transported under chain of custody to Australian Laboratory Services (ALS).

9. SURFACE WATER ASSESSMENT

To assess potential surface water contamination, Geo-Logix completed the following scope of works. Surface water sample collection locations are presented on Figure 7:

- Collection of surface water samples SW1 and SW2 from farm dams. Location SW2 was also within the drainage line in the centre of the site that received runoff from the TamAir crash site;
- Collection of surface water samples SW4 to SW6 from Murroon Creek; and
- Laboratory analysis of surface water samples for PFAS.

9.1 Surface Water Sampling Methodology

Surface water samples were collected by submerging a laboratory prepared Teflon free PFAS bottle 100 mm below the surface, away from the edge and aquatic vegetation and above bottom sediments. Care was taken not to disturb bottom sediments during sampling. Disposable gloves were changed between each sample location.

Sample bottles were labelled and placed on ice in an esky for transport under chain of custody to a NATA accredited laboratory (Eurofins) for analysis of PFAS. Inter-laboratory samples were submitted to the ALS for analysis.

10. PRELIMINARY GROUNDWATER ASSESSMENT

Preliminary assessment of groundwater conditions comprised collected of groundwater samples from the two existing groundwater bores (BORE1 and BORE2).

10.1 Groundwater Sampling Methodology

The well head of groundwater well BORE2 was open and accessible. A groundwater sample was collected using Hydrasleeve sample collection sleeve. The well head of BORE1 was not accessible. The groundwater sample was collected from the outlet of the pump. The pump was left running prior to sampling to purge water that may have been sitting in the pump and associated pipework.

Water quality parameters pH, dissolved oxygen, conductivity, temperature and redox potential were measured using a water quality meter. Well sample logs are presented in Attachment C. Water quality meter calibration certificate is presented in Attachment D.

Groundwater samples were collected in laboratory prepared Teflon free PFAS bottles. Disposable gloves were changed between each sample location. Samples were labelled, placed on ice in an esky for transport under chain of custody to a NATA accredited laboratory (Eurofins) for analysis of PFAS. Inter-laboratory QA/QC samples were analysed by ALS.

11. QUALITY ASSURANCE / QUALITY CONTROL

Quality control (QC) sampling was undertaken in general accordance with specifications outlined in AS4482.1, *Guide to Sampling and Investigation of Potentially Contaminated Soil.* Field QC samples were collected and included the following:

Sample ID	Sample Type	Sample Matrix	Rate of Collection
DS1	Field duplicate of SS1/01.0-0.1	Soil	1 in 10 samples
TS1	Field triplicate of SS1/0.0-0.1	Soil	1 in 10 samples
DS2	Field duplicate of GS4/0.0-0.1	Soil	1 in 10 samples
TS2	Field triplicate of GS4/0.0-0.1	Soil	1 in 10 samples
DS3	Field duplicate of GS6/0.0-0.1	Soil	1 in 10 samples
TS3	Field triplicate of GS6/0.0-0.1	Soil	1 in 10 samples
DW1	Field duplicate of SW1	Water	1 in 5 samples
TW1	Field triplicate of SW1	Water	1 in 5 samples
DW2	Field duplicate of BORE1	Water	1 in 2 samples
TW2	Field triplicate of BORE2	Water	1 in 2 samples
R1	Equipment Rinsate	Water	1 per sampling day
B1	Field Blank	Water	1 per sample batch

Laboratory internal QC procedures are consistent with NEPM policy on laboratory analysis of contaminated soils.

Decontamination between each sample location was completed in accordance with the following methodology:

- Soil particles were removed from the mattock by hand;
- Sampling equipment was triple rinsed with deionised water;
- All rinsing water was discarded and replaced between sampling locations.

Disposable nitrile gloves were changed between each sample location. Nitrile gloves are appropriate for use in PFAS sampling.

12. TRIGGER VALUES

12.1 Soil Trigger Values

Soil analytical data were assessed against the following trigger values:

Human Health Screening Criteria, (OEH/Health, 2017)

NSW OEH Contaminants and Risk, Environment Protection Science Branch support the following criteria for human health protection under commercial /industrial land use. The criteria are based off ASC NEPM HIL-D assumptions:

Analyte	Commercial / Industrial (mg/kg)
PFOS (+ PFHxS)	20
PFOA	100

Ecological Screening Criteria, (OEH/Health, 2017)

NSW OEH Contaminants and Risk, Environment Protection Science Branch support the following criteria for ecosystem health protection under commercial /industrial land use. Criteria are for protection against direct toxicity and indirect toxicity, or secondary poisoning:

Analyte	Direct Toxicity (mg/kg)	Indirect Toxicity (mg/kg)
PFOS (+ PFHxS)	60	0.14
PFOA	48	NA

12.2 Surface Water / Groundwater Trigger Values

Surface water and groundwater data were assessed against the following trigger values:

Health Based Guidance Values (FSANZ, 2017)

The Department of Health commissioned Food Standards Australia New Zealand (FSANZ) to develop final health based guidance values for PFOS, PFOA and PFHxS based on a comprehensive review of current international and domestic PFAS health standards and up to date literature.

FSANZ (2017) drinking water HSLs were adopted as the primary screening level for the groundwater investigation as they represent the most current and conservative Australian guideline values for protection of human health at the time of the investigation. Guideline levels are presented in the table below:

Analyte	Drinking Water Quality Guideline (µg/L)	Recreational Water Quality Guideline (µg/L)
PFOS (+ PFHxS)	0.07	0.7
PFOA	0.56	5.6

Ecological Screening Levels (DoEE, 2016)

DoEE (2016) has developed ecological screening levels (ESLs) for PFOS + PFHxS and PFOA for the protection species in freshwater ecosystems to direct toxicity. The 95% ESL for freshwater ecosystem protection has been adopted. ESLs adopted are detailed in the table below:

Analyte	ESL 95% Species Protection (µg/L)
PFOS (+ PFHxS)	0.13
PFOA	220

13. INVESTIGATION RESULTS

13.1 Site Geology

Shallow soils across the site generally comprised clayey silts and silty clays with shale gravels.

13.2 Site Hydrogeology

The standing water level and total depth of BORE1 could not be measured as the well head was sealed. Standing water level in BORE2 was at the ground surface.

13.3 Soil Analytical Results

Soil analytical results are summarised in Tables 1 and 2. Laboratory reports are presented in Attachment E.

Whole Site

PFAS was not detected at concentrations above laboratory reporting limits in all whole site grid based samples SS1 to SS12 (Table 1).

TamAir Crash Site

PFOS was detected at concentrations greater than indirect ecological screening criteria in soil sample GS4/0.0-0.1 (Table 2).

PFAS was detected at concentrations greater than the laboratory reporting limits but below the assessment criteria in soil samples GS3/0.0-0.1, GS7/0.0-0.1, GS8/0.0-0.1 and GS11/0.0-0.1.

13.4 Sediment Sample Analytical Results

PFOS was detected at a concentration just above the laboratory detection limits and below the assessment criteria in sediment sample SED7 (Table 3).

PFAS was not detected at concentrations above the laboratory detection limits in all other sediment samples analysed.

13.5 Surface Water Analytical Data

Surface water analytical results are summarised in Table 4.

PFOS was detected at concentrations above the laboratory detection limits but below the assessment criteria in all surface water samples analysed.

PFOA was detected at concentrations greater than the laboratory detection limits but below the assessment criteria in surface water samples SW4, SW5 and SW6.

PFHxS was not detected at concentrations greater than the laboratory detection limits in all surface water samples analysed.

13.6 Groundwater Analytical Data

Groundwater analytical results are summarised in Table 5.

PFAS was not detected at concentrations above the laboratory reporting limits in the two groundwater samples analysed.

14. QA/QC ASSESSMENT

Duplicate sample results are within the adopted acceptance criteria of 30-50% (AS4482.1). Relative percent difference between primary sample GS4/0.0-0.1 and triplicate sample TS2 were above the acceptance criteria for PFHxS and PFOS. The non-conformance is attributed to natural variation of PFAS concentrations in soil.

PFAS were not detected at concentrations greater than the laboratory reporting limits in the trip blank sample indicating sample collection, handling, transport and analysis were adequate to prevent cross contamination (Table 6).

PFAS were not detected at concentrations greater than the laboratory reporting limits in equipment rinsate sample R1. Geo-Logix considers the decontamination procedures employed sufficient to prevent cross contamination during groundwater sampling.

A summary of the Laboratory QA / QC results is presented on the following table.

Report #	Analysis Within Holding Time	Surrogate Recovery	Lab. Duplicate RPD %	Lab. Matrix Spike Recovery	Lab. Control Sample	Lab. Method Blank
570391-S	✓	✓	✓	✓	✓	✓
570391-W	✓	✓	✓	✓	✓	✓
ES1727534	✓	✓	✓	X	✓	✓
✓ = Pass X = Fail (See Below) - = Not Required * = See Report Text						

Quality Assurance Criteria	Quality Control Criteria
Holding Times	**Accuracy**
PFAS – 14 days	Surrogate, matrix spike, control sample 70-130% and 30-130%
	Precision
	Method Blank - Not detected Duplicate - No limit (<10xEQL), 0-50% (10-20xEQL), 0-200% (>20xEQL)

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Matrix spikes recoveries for PFOS and PFHxS were not calculated as background levels were greater than four times the spike. The non-conformance is not considered to affect the integrity of the data.

15. DISCUSSION

15.1 PFAS in Soil

PFAS was identified in shallow soil at the TamAir aircraft crash site across an area of approximately 3000 – 3500 m^2 (Figure 8). Concentrations detected were well below human health protection criteria and ecological screening criteria for direct contact. PFOS was detected in one soil sample at a concentration above ecological screening criterion for indirect contact. Indirect contact criteria protect against bioaccumulation and / or offsite migration.

The TamAir aircraft crash site is proposed for redevelopment as general and light industry. Under such land use it is expected that the land would be sealed and any ecological exposure pathways eliminated. Remediation would be required if the land is developed an unsealed open space where ecological exposure pathways potentially remain.

PFAS was not detected in broadly spaced grid based samples across the site. It is unlikely the Enterprise Area is receiving PFAS impacted sheet water flows or dust from the Airport.

15.2 PFAS in Sediment

PFAS was detected in sediment sample SED7 at a concentration just above the detection limits. The sample was collected from the central drainage line immediately adjacent to the TamAir aircraft crash site and is likely associated with the crash.

PFAS was not detected in all other sediment samples collected. The results indicate contaminated soils and sediments that have been identified at the Airport are unlikely to be deposited onto the site via storm water runoff.

It is unlikely redevelopment works will result in remobilisation of impacted sediments. The PFAS identified in sediment at sample SED7 should be remediated or managed in conjunction with nearby impacted soils at the TamAir crash site.

15.3 PFAS in Surface Water

PFAS was detected in surface water samples from the two farm dams and Murroon Creek at concentrations above the laboratory reporting limits but well below assessment criteria. PFAS in surface waters of Murroon Creek is likely sourced from the Airport. PFAS in the two farm dams may be sourced from the Airport or the TamAir crash site.

The concentrations are very low and do not present an unacceptable condition with regard to commercial / industrial land use. Consideration of farm dam dewatering will be required during development.

15.4 PFAS in Groundwater

PFAS was not detected in groundwater samples from the two on-site bores.

Potential exists for groundwater at the TamAir crash site to be impacted by PFAS. The presence of PFAS in groundwater beneath the site is not considered to present a condition that would prevent rezoning, as there would be no complete exposure pathways between site users and contamination. Potentially complete exposure pathways could exist if groundwater is abstracted for beneficial use in the future.

Investigation of groundwater at the TamAir crash site is recommended to determine if controls on groundwater use are warranted.

16. CONCLUSIONS

Results of the investigation did not identify PFAS in soil, sediment, surface water or groundwater at concentrations that would preclude the suitability of the site for the proposed rezoning and redevelopment as the Enterprise Area.

While PFAS was detected in soil at concentrations greater than ecological screening criteria in one soil sample collected from the TamAir aircraft crash site, redevelopment as per the conceptual precinct plan would eliminate any ecological exposure pathways. Remediation of PFAS impacted soil would be required if the area is developed as open ground.

PFAS in soil at the TamAir aircraft crash site may present a source of groundwater contamination. While the preliminary groundwater assessment did not identify PFAS in groundwater, investigation of groundwater at the crash site is recommended to determine if controls on groundwater use are warranted.

17. LIMITATIONS

This report should be read in full, and no executive summary, conclusion or other section of the report may be used or relied on in isolation, or taken as representative of the report as a whole. No responsibility is accepted by Geo-Logix, and any duty of care that may arise but for this statement is excluded, in relation to any use of any part of this report other than on this basis.

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The works undertaken by Geo-Logix are based solely on the scope of works, as agreed by the Client (Scope of Works). No other investigations, sampling, monitoring works or reporting will be carried out other than as expressly provided in the Scope of Works. **A COPY OF THE SCOPE OF WORKS IS AVAILABLE ON REQUEST.**

To the extent permitted by law, Geo-Logix makes no warranties or representations as to the:

a. suitability of the Site for any specific use, or category of use, or

b. potential statutory requirements for remediation, if any, of the Site,

c. approvals, if any, that may be needed in respect of any use or category of use, or

d. level of remediation, if any, that is warranted to render the Site suitable for any specific use, or category of use, or

e. level of ongoing monitoring of Site conditions, if any, that is required in respect of any specific use, or category of use, or

f. presence, extent or absence of any substance in, on or under the Site, other than as expressly stated in this report.

The conclusions stated in this report are based solely on the information, Scope of Works, analysis and data that are stated or expressly referred to in this report.

To the extent that the information and data relied upon to prepare this report has been conveyed to Geo-Logix by the Client or third parties orally or in the form of documents, Geo-Logix has assumed that the information and data are completely accurate and has not sought independently to verify the accuracy of the information or data. Geo-Logix assumes no responsibility or duty of care in respect of any errors or omissions in the information or data provided to it.

Without limiting the paragraph above, where laboratory tests have been carried out by others on Geo-Logix's behalf, the tests are reproduced in this report on the assumption that the tests are accurate. Geo-Logix has not sought independently to verify the accuracy of those tests and assumes no responsibility in respect of them.

Geo-Logix assumes no responsibility in respect of any changes in the condition of the Site which have occurred since the time when Geo-Logix gathered data and/or took samples from the Site on its site inspections dated 30 October 2017.

Given the nature of asbestos, and the difficulties involved in identifying asbestos fibres, despite the exercise of all reasonable due care and diligence, thorough investigations may not always reveal its presence in either buildings or fill. Even if asbestos has been tested for and those tests' results do not reveal the presence of asbestos at those specific points of sampling, asbestos or asbestos containing materials may still be present at the Site, particularly if fill has been imported at any time, buildings constructed prior to 1980 have been demolished on the Site or materials from such buildings have been disposed of on the Site.

Where the Scope of Works does not include offsite investigations, Geo-Logix provides no warranty as to offsite conditions, including the extent if any to which substances in the Site may be emanating off site, and if so whether any adjoining sites have been or may be impacted by contamination originating from the Site.

Where the Scope of Works does not include the investigation, sampling, monitoring or other testing of groundwater in, on or under the Site, Geo-Logix provides no warranty or representation as to the quality of groundwater on the Site or the actual or potential migration of contamination in groundwater across or off the Site.

Subsurface site conditions are typically heterogeneous, and may change with time. Samples taken from different points on the Site may not enable inferences to be drawn about the condition of areas of the Site significantly removed from the sample points, or about the condition of any part of the Site whatsoever, in particular where the proposed inferences are to be drawn a long time after the date of the report.

Geo-Logix has prepared this report with the diligence, care and skill which a reasonable person would expect from a reputable environmental consultancy and in accordance with environmental regulatory authority and industry standards, guidelines and assessment criteria applicable as at the date of this report. Industry standards and environmental criteria change frequently, and may change at any time after the date of this report.

18. REFERENCES

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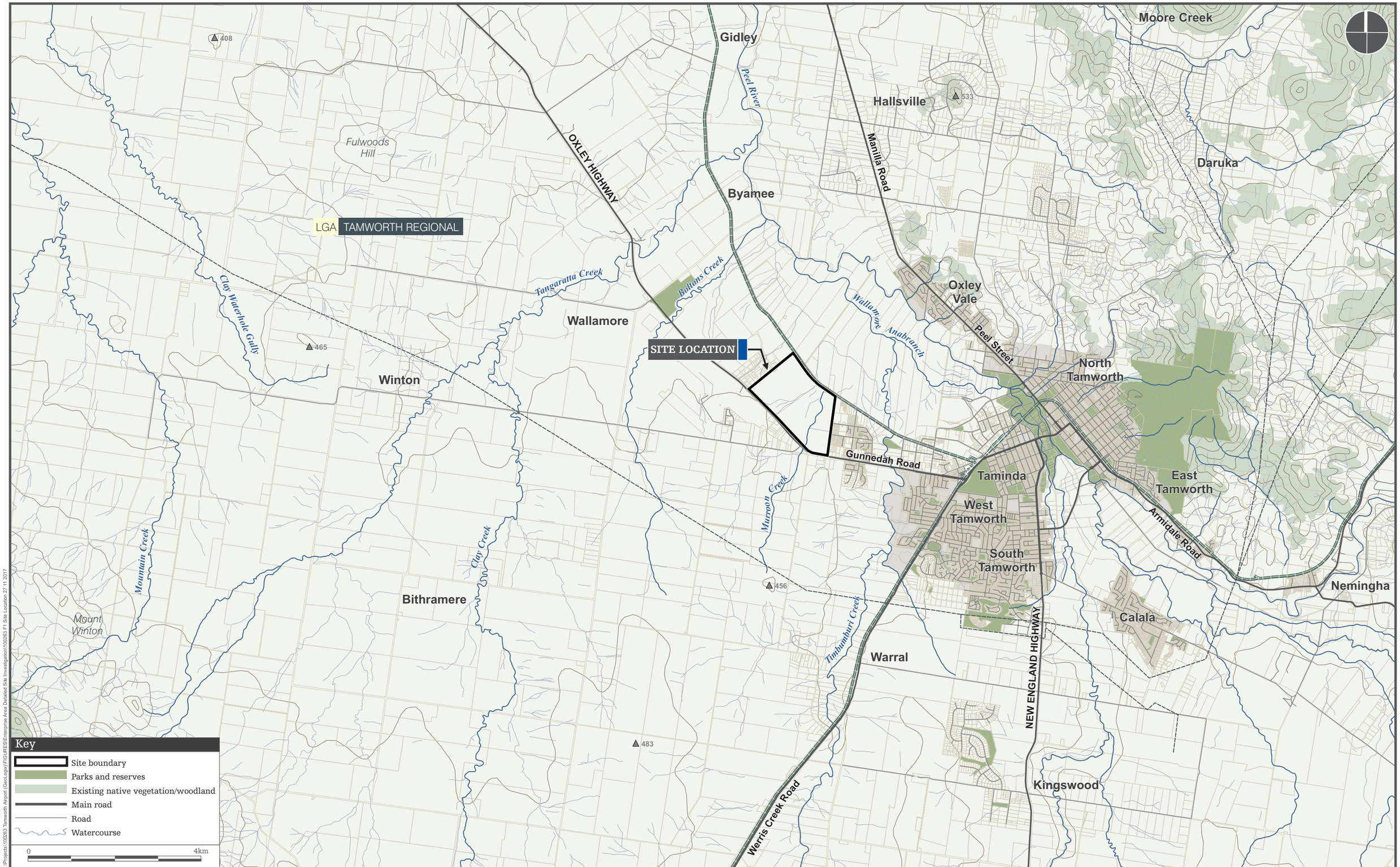
FIGURES



E:\Projects\101263 Tamworth Airport (GeoLogix)\FIGURES\Enterprise Area Detailed Site Investigation\101263 F1 Site Location 27 11 2017

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SITE LOCATION

Detailed Site Investigation
Westdale, New South Wales 2340

Project No. 1701110

Figure 1

Wallamore

GLEN ARTNEY INDUSTRIAL ESTATE

TAMWORTH REGIONAL AIRPORT

Runway 06/24

Runway 12L/30K

Terminal/ Airport Buildings

OXLEY HIGHWAY

Wallamore Road

Marram Creek

West Tamworth - Barraba Railway

Marathon Street

Flinders Street

Mitchell Street

New Winton Road

Key

- Site boundary
- Main road
- Road
- Watercourse

Conceptual Precinct Plan

- Intermodal Freight
- Heavy Industry
- General & Light Industry
- Business & Technology
- Open Space/Drainage
- Vegetated Buffer (20m)
- Regional Movement
- Gateways
- Signature Development Sites
- Rail Access

0 400m

E:\Projects\102263 Tamworth Airport (GeoLogix)\FIG\LIRES\Enterprise Area Detailed Site Investigation\102263 F2 Conceptual Precinct Plan 06.12.2017

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CONCEPTUAL PRECINCT PLAN

Detailed Site Investigation
Westdale, New South Wales 2340

Project No. 1701110

Figure 2

Known Source Area

1. Historic ARFF Drill Ground
2. Historic ARFF Wash-down Bay and Depot
3. Existing Soil Stockpile Area

Wallamore

Electrical Substation

GLEN ARTNEY INDUSTRIAL ESTATE

GW023230

Residential Dwelling

Farm Dam

Farm Dam

TAMWORTH REGIONAL AIRPORT

Runway 06/24

OXLEY HIGHWAY

Wallamore Road

Runway 12L/30K

Terminal/ Airport Buildings

GW023398

Farmhouse and sheds

West Tamworth - Barraba Railway

Murrumm Creek

Marathon Street

Flinders Street

Murroon Creek

Mitchell Street

BAE Training School

Accommodation

New Winton Road

Key

- Site boundary
- Main road
- Road
- Watercourse
- Registered groundwater bore

0 400m

E:\Projects\100263 Tamworth Airport (GeoLogix)\FIGURES\Enterprise Area Detailed Site Investigation\100263 F3 Site Plan 06 12 2017

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SITE LAYOUT

Detailed Site Investigation
Westdale, New South Wales 2340

Project No. 1701110

Figure 3

Wallamore

GLEN ARTNEY INDUSTRIAL ESTATE

BORE 1

BORE 2

TAMWORTH REGIONAL AIRPORT

Runway 06/24

Runway 12L/30K

Terminal/ Airport Buildings

OXLEY HIGHWAY

TamAir Aircraft Crash Site

Wallamore Road

West Tamworth - Barraba Railway

Marram Creek

Marathon Street

Flinders Street

Mitchell Street

New Winton Road

Key

- Site boundary
- Main road
- Road
- Watercourse
- Groundwater sample location

Conceptual Precinct Plan

- Intermodal Freight
- Heavy Industry
- General & Light Industry
- Business & Technology
- Open Space/Drainage
- Vegetated Buffer (20m)
- Regional Movement
- Gateways
- Signature Development Sites
- Rail Access

0 400m

E:\Projects\102263 Tamworth Airport (GeoLogix)\FIGURES\Enterprise Area Detailed Site Investigation\102263 F4 Private Groundwater Bore Map 07 12 2017

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PRIVATE GROUNDWATER BORE LOCATION MAP

Detailed Site Investigation
Westdale, New South Wales 2340

Project No. 1701110

Figure 4

Known Source Area

1. Historic ARFF Drill Ground
2. Historic ARFF Wash-down Bay and Depot
3. Existing Soil Stockpile Area

Wallamore

GLEN ARTNEY INDUSTRIAL ESTATE

TAMWORTH REGIONAL AIRPORT

Runway 06/24

Runway 12L/30K

OXLEY HIGHWAY

Terminal/ Airport Buildings

BAE Training School

Accommodation

New Winton Road

TamAir Aircraft Crash Site

SS1

SS2

SS3

SS4

SS5

SS6

SS7

SS8

SS9

SS10

SS11

SS12

Wallamore Road

West Tamworth - Barraba Railway

Murroon Creek

Marathon Street

Flinders Street

Mitchell Street

Key

- Known source areas
- Airport Buidlings Subsurface Drainage Network
- Site boundary
- Main road
- Road
- Watercourse
- Shallow soil sample

Conceptual Precinct Plan

- Intermodal Freight
- Heavy Industry
- General & Light Industry
- Business & Technology
- Open Space/Drainage
- Vegetated Buffer (20m)
- Regional Movement
- Gateways
- Signature Development Sites
- Rail Access

0 400m

E:\Projects\1702063 Tamworth Airport (GeoLogix)\FIGURES\Enterprise Area Detailed Site Investigation\1702063 F5 Grid Based Soil Sample Map 06 12 2017 Rev B

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GRID BASED SOIL SAMPLE LOCATION MAP

Detailed Site Investigation
Westdale, New South Wales 2340

Project No. 1701110

Figure 5

Key

Drainage Line

OXLEY HIGHWAY

Murroon Road

GS12
GS8
GS11
GS4
GS7
GS10
GS3
GS6
GS9
GS2
GS5
GS1

TamAir Aircraft Crash Site

Key

Site boundary
Watercourse
Shallow soil sample

0 40m

E:\Projects\100263 Tamworth Airport (GeoLogix)\FIG\RES\Enterprise Area Detailed Site Investigation\100263 F6 TamAir Aircraft Crash Site Sample Map 06 12 2017

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TAM AIR AIRCRAFT CRASH SITE SAMPLE MAP

Detailed Site Investigation
Westdale, New South Wales 2340

Project No. 1701110

Figure 6

Known Source Area

1. Historic ARFF Drill Ground
2. Historic ARFF Wash-down Bay and Depot
3. Existing Soil Stockpile Area

Wallamore
GLEN ARTNEY INDUSTRIAL ESTATE
TAMWORTH REGIONAL AIRPORT
Runway 06/24
Runway 12L/30K
OXLEY HIGHWAY
Terminal/ Airport Buildings
BAE Training School
Accommodation
New Winton Road
SED7
TamAir Aircraft Crash Site
SW1/SED1
SED9
SW2/SED2
SED8
SW4/SED4
SW5/SED5
SW6/SED6
Murrayon Creek
Wallamore Road
West Tamworth - Barraba Railway
Marathon Street
Flinders Street
Mitchell Street

Key

- Known source areas
- Airport Buidlings Subsurface Drainage Network
- Site boundary
- Main road
- Road
- Watercourse
- Surface water and sediment sample
- Sediment sample

Conceptual Precinct Plan

- Intermodal Freight
- Heavy Industry
- General & Light Industry
- Business & Technology
- Open Space/Drainage
- Vegetated Buffer (20m)
- Regional Movement
- Gateways
- Signature Development Sites
- Rail Access

0 400m

E:\Projects\1102063 Tamworth Airport (GeoLogix)\FIGURES\Enterprise Area Detailed Site Investigation\1102063-F7 Surface Water and Sediment Sample Location Map 06 12 2017

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SURFACE WATER AND SEDIMENT SAMPLE LOCATION MAP

Detailed Site Investigation
Westdale, New South Wales 2340

Project No. 1701110

Figure 7

Key

Investigation Area

Drainage Line

SED7
PFOS: 0.006 mg/kg

GS8
PFOS: 0.016 mg/kg

GS12
PFOS: ND

GS11
PFOS: 0.0087 mg/kg

GS4
PFOS: 0.53 mg/kg

GS10
PFOS: ND

GS7
PFOS: 0.0072 mg/kg

GS9
PFOS: ND

GS3
PFOS: 0.009 mg/kg

GS2
PFOS: ND

GS1
PFOS: ND

GS5
PFOS: ND

GS6
PFOS: ND

SED7 GS8 GS12 GS11 GS4 GS7 GS10 GS3 GS6 GS9 GS2 GS5 GS1

TamAir Aircraft Crash Site

OXLEY HIGHWAY

Murroon Road

Key

- Site boundary
- Estimated extent of PFAS in soil
- Watercourse
- Shallow soil sample
- Sediment sample

0 40m

E:\Projects\1\00263 Tamworth Airport (Geo-Logix\FIGURES\Enterprise Area Detailed Site Investigation\100263 F8 TamAir Aircraft Crash Site PFAS in Soil 06 12 2017

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PFAS IN SOIL - TAM AIR AIRCRAFT CRASH SITE

Detailed Site Investigation
Westdale, New South Wales 2340

Project No. 1701110

Figure 8

TABLES

Table 1 : Summary of Soil Analytical Data - Per- and Polyfluorinated Alkyl Substances

Detailed Site Investigation

Project No.: 1701110

Enterprise Area
Westdale NSW 2340

	Criteria 1	Criteria 2	Criteria 3					
	Direct	Indirect		Sample ID	SS1/0.0-0.1	DS1	RPD_DS1	TS1	RPD_TS1
	ESC	ESC	HHSC	Depth (m)	0.0-0.1	-	-	-	-
	Comm/Ind	Comm/Ind	Comm/Ind	Date	30/10/2017	30/10/2017	-	'10/2017 3:00:00	-
Perfluorobutanesulfonic acid-PFBS	-	-	-		< 0.005	< 0.005	*nc*	< 0.0002	*nc*
Perfluoropentanesulfonic acid-PFPeS	-	-	-		< 0.005	< 0.005	*nc*	< 0.0002	*nc*
Perfluorohexanesulfonic acid-PFHxS	-	-	-		< 0.005	< 0.005	*nc*	< 0.0002	*nc*
Perfluoroheptanesulfonic acid-PFHp	-	-	-		< 0.005	< 0.005	*nc*	< 0.0002	*nc*
Perfluorooctanesulfonic acid-PFOS	60	0.14	-		< 0.005	< 0.005	*nc*	< 0.0002	*nc*
Perfluorodecanesulfonic acid-PFDS	-	-	-		< 0.005	< 0.005	*nc*	< 0.0002	*nc*
Perfluorobutanoic acid-PFBA	-	-	-		< 0.005	< 0.005	*nc*	< 0.001	*nc*
Perfluoropentanoic acid-PFPeA	-	-	-		< 0.005	< 0.005	*nc*	< 0.0002	*nc*
Perfluorohexanoic acid-PFHxA	-	-	-		< 0.005	< 0.005	*nc*	< 0.0002	*nc*
Perfluoroheptanoic acid-PFHpA	-	-	-		< 0.005	< 0.005	*nc*	< 0.0002	*nc*
Perfluorooctanoic acid-PFOA	48	-	100		< 0.005	< 0.005	*nc*	< 0.0002	*nc*
Perfluorononanoic acid-PFNA	-	-	-		< 0.005	< 0.005	*nc*	< 0.0002	*nc*
Perfluorodecanoic acid-PFDA	-	-	-		< 0.005	< 0.005	*nc*	< 0.0002	*nc*
Perfluoroundecanoic acid-PFUnA	-	-	-		< 0.005	< 0.005	*nc*	< 0.0002	*nc*
Perfluorododecanoic acid-PFDoA	-	-	-		< 0.005	< 0.005	*nc*	< 0.0002	*nc*
Perfluorotridecanoic acid-PFTrDA	-	-	-		< 0.005	< 0.005	*nc*	< 0.0002	*nc*
Perfluorotetradecanoic acid-PFTeDA	-	-	-		< 0.005	< 0.005	*nc*	< 0.0005	*nc*

Notes:

Criteria 1 = NSW EPA, Draft PFAS Screening Criteria (May 2017), Commercial/industrial Direct Toxicity Ecological
Criteria 2 = NSW EPA, Draft PFAS Screening Criteria (May 2017), Commercial/industrial Indirect Toxicity Ecological
Criteria 3 = NSW EPA, Draft PFAS Screening Criteria (May 2017), Commercial/industrial Human Health
Total concentrations in mg/kg
- = assessment criteria not available
DS1 = duplicate of SS1/0.0-0.1
TS1 = triplicate of SS1/0.0-0.1
RPD = relative percent difference of duplicate/triplicate
nc = RPD not calculated, one or both samples below laboratory reporting limit
< # or ND = analyte(s) not detected in excess of laboratory reporting limit
-- = sample not analysed
Bold/red indicates exceedance of assessment criteria

MeFOSA = N-methyl-perfluorooctanesulfonamide
EtFOSAA = N-ethyl-perfluorooctanesulfonamide
MeFOSE = N-Methyl perfluorooctane sulfonamidoethanol
EtFOSE = N-Ethyl perfluorooctane sulfonamidoethanol
MeFOSAA = N-methyl-perfluorooctanesulfonamidoacetic acid
EtFOSAA = N-ethyl-perfluorooctanesulfonamidoacetic acid
4:2 FTS = 1H.1H.2H.2H-perfluorohexanesulfonic acid
6:2 FTS = 1H.1H.2H.2H-perfluorooctanesulfonic acid
8:2 FTS = 1H.1H.2H.2H-perfluorodecanesulfonic acid
10:2 FTS = 10:2 Fluorotelomer sulfonic acid

Table 1 : Summary of Soil Analytical Data - Per- and Polyfluorinated Alkyl Substances

Detailed Site Investigation

Project No.: 1701110

Enterprise Area
Westdale NSW 2340

	Criteria 1	Criteria 2	Criteria 3						
	Direct	Indirect		Sample ID	SS1/0.0-0.1	DS1	RPD_DS1	TS1	RPD_TS1
	ESC	ESC	HHSC	Depth (m)	0.0-0.1	-	-	-	-
	Comm/Ind	Comm/Ind	Comm/Ind	Date	30/10/2017	30/10/2017	-	'10/2017 3:00:00	-
Perfluorooctanesulfonamide-PFOSA	-	-	-		< 0.005	< 0.005	*nc*	< 0.0002	*nc*
MeFOSA	-	-	-		< 0.005	< 0.005	*nc*	< 0.0005	*nc*
EtFOSA	-	-	-		< 0.005	< 0.005	*nc*	< 0.0005	*nc*
MeFOSE	-	-	-		< 0.005	< 0.005	*nc*	--	--
EtFOSE	-	-	-		< 0.005	< 0.005	*nc*	< 0.0005	*nc*
MeFOSAA	-	-	-		< 0.01	< 0.01	*nc*	< 0.0002	*nc*
EtFOSAA	-	-	-		< 0.01	< 0.01	*nc*	< 0.0002	*nc*
4:2 FTS	-	-	-		< 0.005	< 0.005	*nc*	< 0.0005	*nc*
6:2 FTS	-	-	-		< 0.01	< 0.01	*nc*	< 0.0005	*nc*
8:2 FTS	-	-	-		< 0.005	< 0.005	*nc*	< 0.0005	*nc*
10:2 FTS	-	-	-		< 0.005	< 0.005	*nc*	< 0.0005	*nc*
PFOA + PFOS	-	-	-		ND	ND	*nc*	ND	*nc*
PFHxS + PFOS	-	-	20		< 0.005	< 0.005	*nc*	< 0.0002	*nc*
Total PFAS	-	-	-		ND	ND	*nc*	ND	*nc*

Notes:

Criteria 1 = NSW EPA, Draft PFAS Screening Criteria (May 2017), Commercial/industrial Direct Toxicity Ecological
Criteria 2 = NSW EPA, Draft PFAS Screening Criteria (May 2017), Commercial/industrial Indirect Toxicity Ecological
Criteria 3 = NSW EPA, Draft PFAS Screening Criteria (May 2017), Commercial/industrial Human Health
Total concentrations in mg/kg
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DS1 = duplicate of SS1/0.0-0.1
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EtFOSAA = N-ethyl-perfluorooctanesulfonamide
MeFOSE = N-Methyl perfluorooctane sulfonamidoethanol
EtFOSE = N-Ethyl perfluorooctane sulfonamidoethanol
MeFOSAA = N-methyl-perfluorooctanesulfonamidoacetic acid
EtFOSAA = N-ethyl-perfluorooctanesulfonamidoacetic acid
4:2 FTS = 1H.1H.2H.2H-perfluorohexanesulfonic acid
6:2 FTS = 1H.1H.2H.2H-perfluorooctanesulfonic acid
8:2 FTS = 1H.1H.2H.2H-perfluorodecanesulfonic acid
10:2 FTS = 10:2 Fluorotelomer sulfonic acid

Table 1 : Summary of Soil Analytical Data - Per- and Polyfluorinated Alkyl Substances

Detailed Site Investigation

Project No.: 1701110

Enterprise Area
Westdale NSW 2340

	Criteria 1	Criteria 2	Criteria 3						
	Direct	Indirect		Sample ID	SS2/0.0-0.1	SS3/0.0-0.1	SS4/0.0-0.1	SS5/0.0-0.1	SS6/0.0-0.1
	ESC	ESC	HHSC	Depth (m)	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1
	Comm/Ind	Comm/Ind	Comm/Ind	Date	30/10/2017	30/10/2017	30/10/2017	30/10/2017	30/10/2017
Perfluorobutanesulfonic acid-PFBS	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluoropentanesulfonic acid-PFPeS	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorohexanesulfonic acid-PFHxS	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluoroheptanesulfonic acid-PFHp	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorooctanesulfonic acid-PFOS	60	0.14	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorodecanesulfonic acid-PFDS	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorobutanoic acid-PFBA	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluoropentanoic acid-PFPeA	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorohexanoic acid-PFHxA	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluoroheptanoic acid-PFHpA	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorooctanoic acid-PFOA	48	-	100		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorononanoic acid-PFNA	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorodecanoic acid-PFDA	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluoroundecanoic acid-PFUnA	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorododecanoic acid-PFDoA	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorotridecanoic acid-PFTrDA	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorotetradecanoic acid-PFTeDA	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

Notes:

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6:2 FTS = 1H.1H.2H.2H-perfluorooctanesulfonic acid
8:2 FTS = 1H.1H.2H.2H-perfluorodecanesulfonic acid
10:2 FTS = 10:2 Fluorotelomer sulfonic acid

Table 1 : Summary of Soil Analytical Data - Per- and Polyfluorinated Alkyl Substances

Detailed Site Investigation

Project No.: 1701110

Enterprise Area
Westdale NSW 2340

	Criteria 1	Criteria 2	Criteria 3						
	Direct	Indirect		Sample ID	SS2/0.0-0.1	SS3/0.0-0.1	SS4/0.0-0.1	SS5/0.0-0.1	SS6/0.0-0.1
	ESC	ESC	HHSC	Depth (m)	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1
	Comm/Ind	Comm/Ind	Comm/Ind	Date	30/10/2017	30/10/2017	30/10/2017	30/10/2017	30/10/2017
Perfluorooctanesulfonamide-PFOSA	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
MeFOSA	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
EtFOSA	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
MeFOSE	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
EtFOSE	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
MeFOSAA	-	-	-		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
EtFOSAA	-	-	-		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
4:2 FTS	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
6:2 FTS	-	-	-		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
8:2 FTS	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
10:2 FTS	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
PFOA + PFOS	-	-	-		ND	ND	ND	ND	ND
PFHxS + PFOS	-	-	20		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Total PFAS	-	-	-		ND	ND	ND	ND	ND

Notes:

Criteria 1 = NSW EPA, Draft PFAS Screening Criteria (May 2017), Commercial/industrial Direct Toxicity Ecological
Criteria 2 = NSW EPA, Draft PFAS Screening Criteria (May 2017), Commercial/industrial Indirect Toxicity Ecological
Criteria 3 = NSW EPA, Draft PFAS Screening Criteria (May 2017), Commercial/industrial Human Health
Total concentrations in mg/kg
- = assessment criteria not available
DS1 = duplicate of SS1/0.0-0.1
TS1 = triplicate of SS1/0.0-0.1
RPD = relative percent difference of duplicate/triplicate
nc = RPD not calculated, one or both samples below laboratory reporting limit
< # or ND = analyte(s) not detected in excess of laboratory reporting limit
-- = sample not analysed
Bold/red indicates exceedance of assessment criteria

MeFOSA = N-methyl-perfluorooctanesulfonamide
EtFOSAA = N-ethyl-perfluorooctanesulfonamide
MeFOSE = N-Methyl perfluorooctane sulfonamidoethanol
EtFOSE = N-Ethyl perfluorooctane sulfonamidoethanol
MeFOSAA = N-methyl-perfluorooctanesulfonamidoacetic acid
EtFOSAA = N-ethyl-perfluorooctanesulfonamidoacetic acid
4:2 FTS = 1H.1H.2H.2H-perfluorohexanesulfonic acid
6:2 FTS = 1H.1H.2H.2H-perfluorooctanesulfonic acid
8:2 FTS = 1H.1H.2H.2H-perfluorodecanesulfonic acid
10:2 FTS = 10:2 Fluorotelomer sulfonic acid

Table 1 : Summary of Soil Analytical Data - Per- and Polyfluorinated Alkyl Substances

Detailed Site Investigation

Project No.: 1701110

Enterprise Area
Westdale NSW 2340

	Criteria 1	Criteria 2	Criteria 3						
	Direct	Indirect		Sample ID	SS7/0.0-0.1	SS8/0.0-0.1	SS9/0.0-0.1	SS10/0.0-0.1	SS11/0.0-0.1
	ESC	ESC	HHSC	Depth (m)	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1
	Comm/Ind	Comm/Ind	Comm/Ind	Date	30/10/2017	30/10/2017	30/10/2017	30/10/2017	30/10/2017
Perfluorobutanesulfonic acid-PFBS	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluoropentanesulfonic acid-PFPeS	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorohexanesulfonic acid-PFHxS	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluoroheptanesulfonic acid-PFHp	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorooctanesulfonic acid-PFOS	60	0.14	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorodecanesulfonic acid-PFDS	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorobutanoic acid-PFBA	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluoropentanoic acid-PFPeA	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorohexanoic acid-PFHxA	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluoroheptanoic acid-PFHpA	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorooctanoic acid-PFOA	48	-	100		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorononanoic acid-PFNA	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorodecanoic acid-PFDA	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluoroundecanoic acid-PFUnA	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorododecanoic acid-PFDoA	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorotridecanoic acid-PFTrDA	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorotetradecanoic acid-PFTeDA	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

Notes:

Criteria 1 = NSW EPA, Draft PFAS Screening Criteria (May 2017), Commercial/industrial Direct Toxicity Ecological
Criteria 2 = NSW EPA, Draft PFAS Screening Criteria (May 2017), Commercial/industrial Indirect Toxicity Ecological
Criteria 3 = NSW EPA, Draft PFAS Screening Criteria (May 2017), Commercial/industrial Human Health
Total concentrations in mg/kg
- = assessment criteria not available
DS1 = duplicate of SS1/0.0-0.1
TS1 = triplicate of SS1/0.0-0.1
RPD = relative percent difference of duplicate/triplicate
nc = RPD not calculated, one or both samples below laboratory reporting limit
< # or ND = analyte(s) not detected in excess of laboratory reporting limit
-- = sample not analysed
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MeFOSA = N-methyl-perfluorooctanesulfonamide
EtFOSAA = N-ethyl-perfluorooctanesulfonamide
MeFOSE = N-Methyl perfluorooctane sulfonamidoethanol
EtFOSE = N-Ethyl perfluorooctane sulfonamidoethanol
MeFOSAA = N-methyl-perfluorooctanesulfonamidoacetic acid
EtFOSAA = N-ethyl-perfluorooctanesulfonamidoacetic acid
4:2 FTS = 1H.1H.2H.2H-perfluorohexanesulfonic acid
6:2 FTS = 1H.1H.2H.2H-perfluorooctanesulfonic acid
8:2 FTS = 1H.1H.2H.2H-perfluorodecanesulfonic acid
10:2 FTS = 10:2 Fluorotelomer sulfonic acid

Table 1 : Summary of Soil Analytical Data - Per- and Polyfluorinated Alkyl Substances

Detailed Site Investigation

Project No.: 1701110

Enterprise Area
Westdale NSW 2340

	Criteria 1	Criteria 2	Criteria 3						
	Direct	Indirect		Sample ID	SS7/0.0-0.1	SS8/0.0-0.1	SS9/0.0-0.1	SS10/0.0-0.1	SS11/0.0-0.1
	ESC	ESC	HHSC	Depth (m)	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1
	Comm/Ind	Comm/Ind	Comm/Ind	Date	30/10/2017	30/10/2017	30/10/2017	30/10/2017	30/10/2017
Perfluorooctanesulfonamide-PFOSA	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
MeFOSA	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
EtFOSA	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
MeFOSE	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
EtFOSE	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
MeFOSAA	-	-	-		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
EtFOSAA	-	-	-		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
4:2 FTS	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
6:2 FTS	-	-	-		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
8:2 FTS	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
10:2 FTS	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
PFOA + PFOS	-	-	-		ND	ND	ND	ND	ND
PFHxS + PFOS	-	-	20		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Total PFAS	-	-	-		ND	ND	ND	ND	ND

Notes:

Criteria 1 = NSW EPA, Draft PFAS Screening Criteria (May 2017), Commercial/industrial Direct Toxicity Ecological
Criteria 2 = NSW EPA, Draft PFAS Screening Criteria (May 2017), Commercial/industrial Indirect Toxicity Ecological
Criteria 3 = NSW EPA, Draft PFAS Screening Criteria (May 2017), Commercial/industrial Human Health
Total concentrations in mg/kg
- = assessment criteria not available
DS1 = duplicate of SS1/0.0-0.1
TS1 = triplicate of SS1/0.0-0.1
RPD = relative percent difference of duplicate/triplicate
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Bold/red indicates exceedance of assessment criteria

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EtFOSAA = N-ethyl-perfluorooctanesulfonamide
MeFOSE = N-Methyl perfluorooctane sulfonamidoethanol
EtFOSE = N-Ethyl perfluorooctane sulfonamidoethanol
MeFOSAA = N-methyl-perfluorooctanesulfonamidoacetic acid
EtFOSAA = N-ethyl-perfluorooctanesulfonamidoacetic acid
4:2 FTS = 1H.1H.2H.2H-perfluorohexanesulfonic acid
6:2 FTS = 1H.1H.2H.2H-perfluorooctanesulfonic acid
8:2 FTS = 1H.1H.2H.2H-perfluorodecanesulfonic acid
10:2 FTS = 10:2 Fluorotelomer sulfonic acid

Table 1 : Summary of Soil Analytical Data - Per- and Polyfluorinated Alkyl Substances

Detailed Site Investigation

Project No.: 1701110

Enterprise Area
Westdale NSW 2340

	Criteria 1	Criteria 2	Criteria 3		
	Direct	Indirect		Sample ID	SS12/0.0-0.1
	ESC	ESC	HHSC	Depth (m)	0.0-0.1
	Comm/Ind	Comm/Ind	Comm/Ind	Date	30/10/2017
Perfluorobutanesulfonic acid-PFBS	-	-	-		< 0.005
Perfluoropentanesulfonic acid-PFPeS	-	-	-		< 0.005
Perfluorohexanesulfonic acid-PFHxS	-	-	-		< 0.005
Perfluoroheptanesulfonic acid-PFHp	-	-	-		< 0.005
Perfluorooctanesulfonic acid-PFOS	60	0.14	-		< 0.005
Perfluorodecanesulfonic acid-PFDS	-	-	-		< 0.005
Perfluorobutanoic acid-PFBA	-	-	-		< 0.005
Perfluoropentanoic acid-PFPeA	-	-	-		< 0.005
Perfluorohexanoic acid-PFHxA	-	-	-		< 0.005
Perfluoroheptanoic acid-PFHpA	-	-	-		< 0.005
Perfluorooctanoic acid-PFOA	48	-	100		< 0.005
Perfluorononanoic acid-PFNA	-	-	-		< 0.005
Perfluorodecanoic acid-PFDA	-	-	-		< 0.005
Perfluoroundecanoic acid-PFUnA	-	-	-		< 0.005
Perfluorododecanoic acid-PFDoA	-	-	-		< 0.005
Perfluorotridecanoic acid-PFTrDA	-	-	-		< 0.005
Perfluorotetradecanoic acid-PFTeDA	-	-	-		< 0.005

Notes:

Criteria 1 = NSW EPA, Draft PFAS Screening Criteria (May 2017), Commercial/industrial Direct Toxicity Ecological
Criteria 2 = NSW EPA, Draft PFAS Screening Criteria (May 2017), Commercial/industrial Indirect Toxicity Ecological
Criteria 3 = NSW EPA, Draft PFAS Screening Criteria (May 2017), Commercial/industrial Human Health
Total concentrations in mg/kg
- = assessment criteria not available
DS1 = duplicate of SS1/0.0-0.1
TS1 = triplicate of SS1/0.0-0.1
RPD = relative percent difference of duplicate/triplicate
nc = RPD not calculated, one or both samples below laboratory reporting limit
< # or ND = analyte(s) not detected in excess of laboratory reporting limit
-- = sample not analysed
Bold/red indicates exceedance of assessment criteria

MeFOSA = N-methyl-perfluorooctanesulfonamide
EtFOSAA = N-ethyl-perfluorooctanesulfonamide
MeFOSE = N-Methyl perfluorooctane sulfonamidoethanol
EtFOSE = N-Ethyl perfluorooctane sulfonamidoethanol
MeFOSAA = N-methyl-perfluorooctanesulfonamidoacetic acid
EtFOSAA = N-ethyl-perfluorooctanesulfonamidoacetic acid
4:2 FTS = 1H.1H.2H.2H-perfluorohexanesulfonic acid
6:2 FTS = 1H.1H.2H.2H-perfluorooctanesulfonic acid
8:2 FTS = 1H.1H.2H.2H-perfluorodecanesulfonic acid
10:2 FTS = 10:2 Fluorotelomer sulfonic acid

Table 1 : Summary of Soil Analytical Data - Per- and Polyfluorinated Alkyl Substances

Detailed Site Investigation

Project No.: 1701110

Enterprise Area
Westdale NSW 2340

	Criteria 1	Criteria 2	Criteria 3		
	Direct	Indirect		Sample ID	SS12/0.0-0.1
	ESC	ESC	HHSC	Depth (m)	0.0-0.1
	Comm/Ind	Comm/Ind	Comm/Ind	Date	30/10/2017
Perfluorooctanesulfonamide-PFOSA	-	-	-		< 0.005
MeFOSA	-	-	-		< 0.005
EtFOSA	-	-	-		< 0.005
MeFOSE	-	-	-		< 0.005
EtFOSE	-	-	-		< 0.005
MeFOSAA	-	-	-		< 0.01
EtFOSAA	-	-	-		< 0.01
4:2 FTS	-	-	-		< 0.005
6:2 FTS	-	-	-		< 0.01
8:2 FTS	-	-	-		< 0.005
10:2 FTS	-	-	-		< 0.005
PFOA + PFOS	-	-	-		ND
PFHxS + PFOS	-	-	20		< 0.005
Total PFAS	-	-	-		ND

Notes:

Criteria 1 = NSW EPA, Draft PFAS Screening Criteria (May 2017), Commercial/industrial Direct Toxicity Ecological
Criteria 2 = NSW EPA, Draft PFAS Screening Criteria (May 2017), Commercial/industrial Indirect Toxicity Ecological
Criteria 3 = NSW EPA, Draft PFAS Screening Criteria (May 2017), Commercial/industrial Human Health
Total concentrations in mg/kg
- = assessment criteria not available
DS1 = duplicate of SS1/0.0-0.1
TS1 = triplicate of SS1/0.0-0.1
RPD = relative percent difference of duplicate/triplicate
nc = RPD not calculated, one or both samples below laboratory reporting limit
< # or ND = analyte(s) not detected in excess of laboratory reporting limit
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Bold/red indicates exceedance of assessment criteria

MeFOSA = N-methyl-perfluorooctanesulfonamide
EtFOSAA = N-ethyl-perfluorooctanesulfonamide
MeFOSE = N-Methyl perfluorooctane sulfonamidoethanol
EtFOSE = N-Ethyl perfluorooctane sulfonamidoethanol
MeFOSAA = N-methyl-perfluorooctanesulfonamidoacetic acid
EtFOSAA = N-ethyl-perfluorooctanesulfonamidoacetic acid
4:2 FTS = 1H.1H.2H.2H-perfluorohexanesulfonic acid
6:2 FTS = 1H.1H.2H.2H-perfluorooctanesulfonic acid
8:2 FTS = 1H.1H.2H.2H-perfluorodecanesulfonic acid
10:2 FTS = 10:2 Fluorotelomer sulfonic acid

Table 2 : Summary of Soil Analytical Data - Per- and Polyfluorinated Alkyl Substances

Detailed Site Investigation

Project No.: 1701110

Enterprise Area
Westdale NSW 2340

	Criteria 1	Criteria 2	Criteria 3						
	Direct	Indirect		Sample ID	GS1/0.0-0.1	GS2/0.0-0.1	GS3/0.0-0.1	GS4/0.0-0.1	DS2
	ESC	ESC	HHSC	Depth (m)	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	-
	Comm/Ind	Comm/Ind	Comm/Ind	Date	30-Oct-17	30-Oct-17	30-Oct-17	30-Oct-17	30-Oct-17
Perfluorobutanesulfonic acid-PFBS	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluoropentanesulfonic acid-PFPeS	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorohexanesulfonic acid-PFHxS	-	-	-		< 0.005	< 0.005	< 0.005	0.036	0.026
Perfluoroheptanesulfonic acid-PFHp	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorooctanesulfonic acid-PFOS	60	0.14	-		< 0.005	< 0.005	0.009	**0.53**	**0.39**
Perfluorodecanesulfonic acid-PFDS	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorobutanoic acid-PFBA	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluoropentanoic acid-PFPeA	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorohexanoic acid-PFHxA	-	-	-		< 0.005	< 0.005	< 0.005	0.0056	0.0053
Perfluoroheptanoic acid-PFHpA	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorooctanoic acid-PFOA	48	-	100		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorononanoic acid-PFNA	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorodecanoic acid-PFDA	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluoroundecanoic acid-PFUnA	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorododecanoic acid-PFDoA	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorotridecanoic acid-PFTrDA	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorotetradecanoic acid-PFTeDA	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

Notes:

Table 2 : Summary of Soil Analytical Data - Per- and Polyfluorinated Alkyl Substances

Detailed Site Investigation

Project No.: 1701110

Enterprise Area

Westdale NSW 2340

	Criteria 1	Criteria 2	Criteria 3						
	Direct	Indirect		Sample ID	GS1/0.0-0.1	GS2/0.0-0.1	GS3/0.0-0.1	GS4/0.0-0.1	DS2
	ESC	ESC	HHSC	Depth (m)	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	-
	Comm/Ind	Comm/Ind	Comm/Ind	Date	30-Oct-17	30-Oct-17	30-Oct-17	30-Oct-17	30-Oct-17
Perfluorooctanesulfonamide-PFOSA	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
MeFOSA	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
EtFOSA	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
MeFOSE	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
EtFOSE	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
MeFOSAA	-	-	-		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
EtFOSAA	-	-	-		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
4:2 FTS	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
6:2 FTS	-	-	-		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
8:2 FTS	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
10:2 FTS	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
PFOA + PFOS	-	-	-		ND	ND	0.009	0.53	0.39
PFHxS + PFOS	-	-	20		< 0.005	< 0.005	0.009	0.566	0.416
Total PFAS	-	-	-		ND	ND	0.009	0.5716	0.4213

Notes:

Table 2 : Summary of Soil Analytical Data - Per- and Polyfluorinated Alkyl Substances

Detailed Site Investigation

Project No.: 1701110

Enterprise Area

Westdale NSW 2340

	Criteria 1	Criteria 2	Criteria 3						
	Direct	Indirect		Sample ID	RPD_DS2	TS2	RPD_TS2	GS5/0.0-0.1	GS6/0.0-0.1
	ESC	ESC	HHSC	Depth (m)	-	-	-	0.0-0.1	0.0-0.1
	Comm/Ind	Comm/Ind	Comm/Ind	Date	-	30-Oct-17	-	30-Oct-17	30-Oct-17
Perfluorobutanesulfonic acid-PFBS	-	-	-		*nc*	0.0013	*nc*	< 0.005	< 0.005
Perfluoropentanesulfonic acid-PFPeS	-	-	-		*nc*	0.0012	*nc*	< 0.005	< 0.005
Perfluorohexanesulfonic acid-PFHxS	-	-	-		*32%*	0.0156	*79%*	< 0.005	< 0.005
Perfluoroheptanesulfonic acid-PFHp	-	-	-		*nc*	0.0026	*nc*	< 0.005	< 0.005
Perfluorooctanesulfonic acid-PFOS	60	0.14	-		*30%*	**0.221**	*82%*	< 0.005	< 0.005
Perfluorodecanesulfonic acid-PFDS	-	-	-		*nc*	0.0022	*nc*	< 0.005	< 0.005
Perfluorobutanoic acid-PFBA	-	-	-		*nc*	0.01	*nc*	< 0.005	< 0.005
Perfluoropentanoic acid-PFPeA	-	-	-		*nc*	0.0013	*nc*	< 0.005	< 0.005
Perfluorohexanoic acid-PFHxA	-	-	-		*6%*	0.0035	*46%*	< 0.005	< 0.005
Perfluoroheptanoic acid-PFHpA	-	-	-		*nc*	0.0003	*nc*	< 0.005	< 0.005
Perfluorooctanoic acid-PFOA	48	-	100		*nc*	0.0012	*nc*	< 0.005	< 0.005
Perfluorononanoic acid-PFNA	-	-	-		*nc*	< 0.0002	*nc*	< 0.005	< 0.005
Perfluorodecanoic acid-PFDA	-	-	-		*nc*	< 0.0002	*nc*	< 0.005	< 0.005
Perfluoroundecanoic acid-PFUnA	-	-	-		*nc*	< 0.0002	*nc*	< 0.005	< 0.005
Perfluorododecanoic acid-PFDoA	-	-	-		*nc*	< 0.0002	*nc*	< 0.005	< 0.005
Perfluorotridecanoic acid-PFTrDA	-	-	-		*nc*	< 0.0002	*nc*	< 0.005	< 0.005
Perfluorotetradecanoic acid-PFTeDA	-	-	-		*nc*	< 0.0005	*nc*	< 0.005	< 0.005

Notes:

Table 2 : Summary of Soil Analytical Data - Per- and Polyfluorinated Alkyl Substances

Detailed Site Investigation

Project No.: 1701110

Enterprise Area

Westdale NSW 2340

	Criteria 1	Criteria 2	Criteria 3						
	Direct	Indirect		Sample ID	RPD_DS2	TS2	RPD_TS2	GS5/0.0-0.1	GS6/0.0-0.1
	ESC	ESC	HHSC	Depth (m)	-	-	-	0.0-0.1	0.0-0.1
	Comm/Ind	Comm/Ind	Comm/Ind	Date	-	30-Oct-17	-	30-Oct-17	30-Oct-17
Perfluorooctanesulfonamide-PFOSA	-	-	-		*nc*	0.0015	*nc*	< 0.005	< 0.005
MeFOSA	-	-	-		*nc*	< 0.0005	*nc*	< 0.005	< 0.005
EtFOSA	-	-	-		*nc*	< 0.0005	*nc*	< 0.005	< 0.005
MeFOSE	-	-	-		*nc*	--	--	< 0.005	< 0.005
EtFOSE	-	-	-		*nc*	< 0.0005	*nc*	< 0.005	< 0.005
MeFOSAA	-	-	-		*nc*	< 0.0002	*nc*	< 0.01	< 0.01
EtFOSAA	-	-	-		*nc*	< 0.0002	*nc*	< 0.01	< 0.01
4:2 FTS	-	-	-		*nc*	< 0.0005	*nc*	< 0.005	< 0.005
6:2 FTS	-	-	-		*nc*	0.0213	*nc*	< 0.01	< 0.01
8:2 FTS	-	-	-		*nc*	0.0008	*nc*	< 0.005	< 0.005
10:2 FTS	-	-	-		*nc*	< 0.0005	*nc*	< 0.005	< 0.005
PFOA + PFOS	-	-	-		*30%*	0.2222	*82%*	ND	ND
PFHxS + PFOS	-	-	20		*31%*	0.237	*82%*	< 0.005	< 0.005
Total PFAS	-	-	-		*30%*	0.2838	*67%*	ND	ND

Notes:

Table 2 : Summary of Soil Analytical Data - Per- and Polyfluorinated Alkyl Substances

Detailed Site Investigation

Project No.: 1701110

Enterprise Area
Westdale NSW 2340

	Criteria 1	Criteria 2	Criteria 3						
	Direct	Indirect		Sample ID	DS3	RPD_DS3	TS3	RPD_TS3	GS7/0.0-0.1
	ESC	ESC	HHSC	Depth (m)	-	-	-	-	0.0-0.1
	Comm/Ind	Comm/Ind	Comm/Ind	Date	30-Oct-17	-	30-Oct-17	-	30-Oct-17
Perfluorobutanesulfonic acid-PFBS	-	-	-		< 0.005	*nc*	< 0.0002	*nc*	< 0.005
Perfluoropentanesulfonic acid-PFPeS	-	-	-		< 0.005	*nc*	< 0.0002	*nc*	< 0.005
Perfluorohexanesulfonic acid-PFHxS	-	-	-		< 0.005	*nc*	< 0.0002	*nc*	< 0.005
Perfluoroheptanesulfonic acid-PFHp	-	-	-		< 0.005	*nc*	< 0.0002	*nc*	< 0.005
Perfluorooctanesulfonic acid-PFOS	60	0.14	-		< 0.005	*nc*	0.0005	*nc*	0.0072
Perfluorodecanesulfonic acid-PFDS	-	-	-		< 0.005	*nc*	< 0.0002	*nc*	< 0.005
Perfluorobutanoic acid-PFBA	-	-	-		< 0.005	*nc*	< 0.001	*nc*	< 0.005
Perfluoropentanoic acid-PFPeA	-	-	-		< 0.005	*nc*	< 0.0002	*nc*	< 0.005
Perfluorohexanoic acid-PFHxA	-	-	-		< 0.005	*nc*	< 0.0002	*nc*	< 0.005
Perfluoroheptanoic acid-PFHpA	-	-	-		< 0.005	*nc*	< 0.0002	*nc*	< 0.005
Perfluorooctanoic acid-PFOA	48	-	100		< 0.005	*nc*	< 0.0002	*nc*	< 0.005
Perfluorononanoic acid-PFNA	-	-	-		< 0.005	*nc*	< 0.0002	*nc*	< 0.005
Perfluorodecanoic acid-PFDA	-	-	-		< 0.005	*nc*	< 0.0002	*nc*	< 0.005
Perfluoroundecanoic acid-PFUnA	-	-	-		< 0.005	*nc*	< 0.0002	*nc*	< 0.005
Perfluorododecanoic acid-PFDoA	-	-	-		< 0.005	*nc*	< 0.0002	*nc*	< 0.005
Perfluorotridecanoic acid-PFTrDA	-	-	-		< 0.005	*nc*	< 0.0002	*nc*	< 0.005
Perfluorotetradecanoic acid-PFTeDA	-	-	-		< 0.005	*nc*	< 0.0005	*nc*	< 0.005

Notes:

Table 2 : Summary of Soil Analytical Data - Per- and Polyfluorinated Alkyl Substances

Detailed Site Investigation

Project No.: 1701110

Enterprise Area

Westdale NSW 2340

	Criteria 1	Criteria 2	Criteria 3						
	Direct	Indirect		Sample ID	DS3	RPD_DS3	TS3	RPD_TS3	GS7/0.0-0.1
	ESC	ESC	HHSC	Depth (m)	-	-	-	-	0.0-0.1
	Comm/Ind	Comm/Ind	Comm/Ind	Date	30-Oct-17	-	30-Oct-17	-	30-Oct-17
Perfluorooctanesulfonamide-PFOSA	-	-	-		< 0.005	*nc*	< 0.0002	*nc*	< 0.005
MeFOSA	-	-	-		< 0.005	*nc*	< 0.0005	*nc*	< 0.005
EtFOSA	-	-	-		< 0.005	*nc*	< 0.0005	*nc*	< 0.005
MeFOSE	-	-	-		< 0.005	*nc*	--	--	< 0.005
EtFOSE	-	-	-		< 0.005	*nc*	< 0.0005	*nc*	< 0.005
MeFOSAA	-	-	-		< 0.01	*nc*	< 0.0002	*nc*	< 0.01
EtFOSAA	-	-	-		< 0.01	*nc*	< 0.0002	*nc*	< 0.01
4:2 FTS	-	-	-		< 0.005	*nc*	< 0.0005	*nc*	< 0.005
6:2 FTS	-	-	-		< 0.01	*nc*	< 0.0005	*nc*	< 0.01
8:2 FTS	-	-	-		< 0.005	*nc*	< 0.0005	*nc*	< 0.005
10:2 FTS	-	-	-		< 0.005	*nc*	< 0.0005	*nc*	< 0.005
PFOA + PFOS	-	-	-		ND	*nc*	0.0005	*nc*	0.0072
PFHxS + PFOS	-	-	20		< 0.005	*nc*	0.0005	*nc*	0.0072
Total PFAS	-	-	-		ND	*nc*	0.0005	*nc*	0.0072

Notes:

Table 2 : Summary of Soil Analytical Data - Per- and Polyfluorinated Alkyl Substances

Detailed Site Investigation

Project No.: 1701110

Enterprise Area

Westdale NSW 2340

	Criteria 1	Criteria 2	Criteria 3						
	Direct	Indirect		Sample ID	GS8/0.0-0.1	GS9/0.0-0.1	GS10/0.0-0.1	GS11/0.0-0.1	GS12/0.0-0.1
	ESC	ESC	HHSC	Depth (m)	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1
	Comm/Ind	Comm/Ind	Comm/Ind	Date	30-Oct-17	30-Oct-17	30-Oct-17	30-Oct-17	30-Oct-17
Perfluorobutanesulfonic acid-PFBS	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluoropentanesulfonic acid-PFPeS	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorohexanesulfonic acid-PFHxS	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluoroheptanesulfonic acid-PFHp	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorooctanesulfonic acid-PFOS	60	0.14	-		0.016	< 0.005	< 0.005	0.0087	< 0.005
Perfluorodecanesulfonic acid-PFDS	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorobutanoic acid-PFBA	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluoropentanoic acid-PFPeA	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorohexanoic acid-PFHxA	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluoroheptanoic acid-PFHpA	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorooctanoic acid-PFOA	48	-	100		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorononanoic acid-PFNA	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorodecanoic acid-PFDA	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluoroundecanoic acid-PFUnA	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorododecanoic acid-PFDoA	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorotridecanoic acid-PFTrDA	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorotetradecanoic acid-PFTeDA	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

Notes:

Table 2 : Summary of Soil Analytical Data - Per- and Polyfluorinated Alkyl Substances

Detailed Site Investigation

Project No.: 1701110

Enterprise Area

Westdale NSW 2340

	Criteria 1	Criteria 2	Criteria 3						
	Direct	Indirect		Sample ID	GS8/0.0-0.1	GS9/0.0-0.1	GS10/0.0-0.1	GS11/0.0-0.1	GS12/0.0-0.1
	ESC	ESC	HHSC	Depth (m)	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1
	Comm/Ind	Comm/Ind	Comm/Ind	Date	30-Oct-17	30-Oct-17	30-Oct-17	30-Oct-17	30-Oct-17
Perfluorooctanesulfonamide-PFOSA	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
MeFOSA	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
EtFOSA	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
MeFOSE	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
EtFOSE	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
MeFOSAA	-	-	-		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
EtFOSAA	-	-	-		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
4:2 FTS	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
6:2 FTS	-	-	-		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
8:2 FTS	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
10:2 FTS	-	-	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
PFOA + PFOS	-	-	-		0.016	ND	ND	0.0087	ND
PFHxS + PFOS	-	-	20		0.016	< 0.005	< 0.005	0.0087	< 0.005
Total PFAS	-	-	-		0.016	ND	ND	0.0087	ND

Notes:

Table 3 : Summary of Sediment Analytical Data - Per- and Polyfluorinated Alkyl Substances

Detailed Site Investigation

Project No.: 1701110

Enterprise Area
Westdale NSW 2340

	Criteria 1						
		Sample ID	SED1	SED2	SED4	SED5	SED6
		Date	30-Oct-17	30-Oct-17	30-Oct-17	30-Oct-17	30-Oct-17
Perfluorobutanesulfonic acid-PFBS	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluoropentanesulfonic acid-PFPeS	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorohexanesulfonic acid-PFHxS	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluoroheptanesulfonic acid-PFHp	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorooctanesulfonic acid-PFOS	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorodecanesulfonic acid-PFDS	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorobutanoic acid-PFBA	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluoropentanoic acid-PFPeA	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorohexanoic acid-PFHxA	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluoroheptanoic acid-PFHpA	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorooctanoic acid-PFOA	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorononanoic acid-PFNA	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorodecanoic acid-PFDA	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluoroundecanoic acid-PFUnA	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorododecanoic acid-PFDoA	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorotridecanoic acid-PFTrDA	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Perfluorotetradecanoic acid-PFTeDA	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

Notes:

Total concentrations in mg/kg
- = assessment criteria not available
< # or ND = analyte(s) not detected in excess of laboratory reporting limit
-- = sample not analysed
Bold/red indicates exceedance of assessment criteria
MeFOSA = N-methyl-perfluorooctanesulfonamide
EtFOSAA = N-ethyl-perfluorooctanesulfonamide
MeFOSE = N-Methyl perfluorooctane sulfonamidoethanol
EtFOSE = N-Ethyl perfluorooctane sulfonamidoethanol
MeFOSAA = N-methyl-perfluorooctanesulfonamidoacetic acid
EtFOSAA = N-ethyl-perfluorooctanesulfonamidoacetic acid
4:2 FTS = 1H.1H.2H.2H-perfluorohexanesulfonic acid
6:2 FTS = 1H.1H.2H.2H-perfluorooctanesulfonic acid
8:2 FTS = 1H.1H.2H.2H-perfluorodecanesulfonic acid
10:2 FTS = 10:2 Fluorotelomer sulfonic acid

Table 3 : Summary of Sediment Analytical Data - Per- and Polyfluorinated Alkyl Substances

Detailed Site Investigation

Project No.: 1701110

Enterprise Area
Westdale NSW 2340

	Criteria 1					
		Sample ID	SED1	SED2	SED4	SED5	SED6
		Date	30-Oct-17	30-Oct-17	30-Oct-17	30-Oct-17	30-Oct-17
Perfluorooctanesulfonamide-PFOSA	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
MeFOSA	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
EtFOSA	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
MeFOSE	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
EtFOSE	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
MeFOSAA	-		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
EtFOSAA	-		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
4:2 FTS	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
6:2 FTS	-		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
8:2 FTS	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
10:2 FTS	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
PFOA + PFOS	-		ND	ND	ND	ND	ND
PFHxS + PFOS	-		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Total PFAS	-		ND	ND	ND	ND	ND

Notes:

Total concentrations in mg/kg
- = assessment criteria not available
< # or ND = analyte(s) not detected in excess of laboratory reporting limit
-- = sample not analysed
Bold/red indicates exceedance of assessment criteria
MeFOSA = N-methyl-perfluorooctanesulfonamide
EtFOSAA = N-ethyl-perfluorooctanesulfonamide
MeFOSE = N-Methyl perfluorooctane sulfonamidoethanol
EtFOSE = N-Ethyl perfluorooctane sulfonamidoethanol
MeFOSAA = N-methyl-perfluorooctanesulfonamidoacetic acid
EtFOSAA = N-ethyl-perfluorooctanesulfonamidoacetic acid
4:2 FTS = 1H.1H.2H.2H-perfluorohexanesulfonic acid
6:2 FTS = 1H.1H.2H.2H-perfluorooctanesulfonic acid
8:2 FTS = 1H.1H.2H.2H-perfluorodecanesulfonic acid
10:2 FTS = 10:2 Fluorotelomer sulfonic acid

Table 3 : Summary of Sediment Analytical Data - Per- and Polyfluorinated Alkyl Substances

Detailed Site Investigation

Project No.: 1701110

Enterprise Area
Westdale NSW 2340

	Criteria 1				
		Sample ID	SED7	SED8	SED9
		Date	30-Oct-17	30-Oct-17	30-Oct-17
Perfluorobutanesulfonic acid-PFBS	-		< 0.005	< 0.005	< 0.005
Perfluoropentanesulfonic acid-PFPeS	-		< 0.005	< 0.005	< 0.005
Perfluorohexanesulfonic acid-PFHxS	-		< 0.005	< 0.005	< 0.005
Perfluoroheptanesulfonic acid-PFHp	-		< 0.005	< 0.005	< 0.005
Perfluorooctanesulfonic acid-PFOS	-		0.006	< 0.005	< 0.005
Perfluorodecanesulfonic acid-PFDS	-		< 0.005	< 0.005	< 0.005
Perfluorobutanoic acid-PFBA	-		< 0.005	< 0.005	< 0.005
Perfluoropentanoic acid-PFPeA	-		< 0.005	< 0.005	< 0.005
Perfluorohexanoic acid-PFHxA	-		< 0.005	< 0.005	< 0.005
Perfluoroheptanoic acid-PFHpA	-		< 0.005	< 0.005	< 0.005
Perfluorooctanoic acid-PFOA	-		< 0.005	< 0.005	< 0.005
Perfluorononanoic acid-PFNA	-		< 0.005	< 0.005	< 0.005
Perfluorodecanoic acid-PFDA	-		< 0.005	< 0.005	< 0.005
Perfluoroundecanoic acid-PFUnA	-		< 0.005	< 0.005	< 0.005
Perfluorododecanoic acid-PFDoA	-		< 0.005	< 0.005	< 0.005
Perfluorotridecanoic acid-PFTrDA	-		< 0.005	< 0.005	< 0.005
Perfluorotetradecanoic acid-PFTeDA	-		< 0.005	< 0.005	< 0.005

Notes:

Total concentrations in mg/kg
- = assessment criteria not available
< # or ND = analyte(s) not detected in excess of laboratory reporting limit
-- = sample not analysed
Bold/red indicates exceedance of assessment criteria
MeFOSA = N-methyl-perfluorooctanesulfonamide
EtFOSAA = N-ethyl-perfluorooctanesulfonamide
MeFOSE = N-Methyl perfluorooctane sulfonamidoethanol
EtFOSE = N-Ethyl perfluorooctane sulfonamidoethanol
MeFOSAA = N-methyl-perfluorooctanesulfonamidoacetic acid
EtFOSAA = N-ethyl-perfluorooctanesulfonamidoacetic acid
4:2 FTS = 1H.1H.2H.2H-perfluorohexanesulfonic acid
6:2 FTS = 1H.1H.2H.2H-perfluorooctanesulfonic acid
8:2 FTS = 1H.1H.2H.2H-perfluorodecanesulfonic acid
10:2 FTS = 10:2 Fluorotelomer sulfonic acid

Table 3 : Summary of Sediment Analytical Data - Per- and Polyfluorinated Alkyl Substances

Detailed Site Investigation

Project No.: 1701110

Enterprise Area
Westdale NSW 2340

	Criteria 1				
		Sample ID	SED7	SED8	SED9
		Date	30-Oct-17	30-Oct-17	30-Oct-17
Perfluorooctanesulfonamide-PFOSA	-		< 0.005	< 0.005	< 0.005
MeFOSA	-		< 0.005	< 0.005	< 0.005
EtFOSA	-		< 0.005	< 0.005	< 0.005
MeFOSE	-		< 0.005	< 0.005	< 0.005
EtFOSE	-		< 0.005	< 0.005	< 0.005
MeFOSAA	-		< 0.01	< 0.01	< 0.01
EtFOSAA	-		< 0.01	< 0.01	< 0.01
4:2 FTS	-		< 0.005	< 0.005	< 0.005
6:2 FTS	-		< 0.01	< 0.01	< 0.01
8:2 FTS	-		< 0.005	< 0.005	< 0.005
10:2 FTS	-		< 0.005	< 0.005	< 0.005
PFOA + PFOS	-		0.006	ND	ND
PFHxS + PFOS	-		0.006	< 0.005	< 0.005
Total PFAS	-		0.006	ND	ND

Notes:

Total concentrations in mg/kg
- = assessment criteria not available
< # or ND = analyte(s) not detected in excess of laboratory reporting limit
-- = sample not analysed
Bold/red indicates exceedance of assessment criteria
MeFOSA = N-methyl-perfluorooctanesulfonamide
EtFOSAA = N-ethyl-perfluorooctanesulfonamide
MeFOSE = N-Methyl perfluorooctane sulfonamidoethanol
EtFOSE = N-Ethyl perfluorooctane sulfonamidoethanol
MeFOSAA = N-methyl-perfluorooctanesulfonamidoacetic acid
EtFOSAA = N-ethyl-perfluorooctanesulfonamidoacetic acid
4:2 FTS = 1H.1H.2H.2H-perfluorohexanesulfonic acid
6:2 FTS = 1H.1H.2H.2H-perfluorooctanesulfonic acid
8:2 FTS = 1H.1H.2H.2H-perfluorodecanesulfonic acid
10:2 FTS = 10:2 Fluorotelomer sulfonic acid

Table 4 : Summary of Surface Water Analytical Data - Per- and Polyfluorinated Alkyl Substances

Detailed Site Investigation

Project No.: 1701110

Enterprise Area
Westdale NSW 2340

	Criteria 1	Criteria 2	Criteria 3						
	DOH	DOH	DOEE						
	HBGV	HBGV	ESLs	Sample ID	SW1	SW2	DW1	RPD_DW1	TW1
	Drinking	Recreational	Freshwater	Date	30/10/2017	30/10/2017	30/10/2017	-	'10/2017 3:00:00
Perfluorobutanesulfonic acid-PFBS	-	-	-		< 0.001	< 0.001	< 0.001	*nc*	< 0.02
Perfluoropentanesulfonic acid-PFPeS	-	-	-		< 0.001	< 0.001	< 0.001	*nc*	< 0.02
Perfluorohexanesulfonic acid-PFHxS	-	-	-		< 0.001	< 0.001	< 0.001	*nc*	< 0.02
Perfluoroheptanesulfonic acid-PFHp	-	-	-		< 0.001	< 0.001	< 0.001	*nc*	< 0.02
Perfluorooctanesulfonic acid-PFOS	0.07	0.7	0.13		0.001	0.003	0.003	*0%*	< 0.01
Perfluorodecanesulfonic acid-PFDS	-	-	-		< 0.001	< 0.001	< 0.001	*nc*	< 0.02
Perfluorobutanoic acid-PFBA	-	-	-		< 0.005	< 0.005	< 0.005	*nc*	< 0.1
Perfluoropentanoic acid-PFPeA	-	-	-		0.001	< 0.001	< 0.001	*nc*	< 0.02
Perfluorohexanoic acid-PFHxA	-	-	-		< 0.001	< 0.001	< 0.001	*nc*	< 0.02
Perfluoroheptanoic acid-PFHpA	-	-	-		< 0.001	< 0.001	< 0.001	*nc*	< 0.02
Perfluorooctanoic acid-PFOA	0.56	5.6	220		< 0.001	< 0.001	< 0.001	*nc*	< 0.01
Perfluorononanoic acid-PFNA	-	-	-		< 0.001	< 0.001	< 0.001	*nc*	< 0.02
Perfluorodecanoic acid-PFDA	-	-	-		< 0.001	< 0.001	< 0.001	*nc*	< 0.02
Perfluoroundecanoic acid-PFUnA	-	-	-		< 0.001	< 0.001	< 0.001	*nc*	< 0.02
Perfluorododecanoic acid-PFDoA	-	-	-		< 0.001	< 0.001	< 0.001	*nc*	< 0.02
Perfluorotridecanoic acid-PFTrDA	-	-	-		< 0.001	< 0.001	< 0.001	*nc*	< 0.02
Perfluorotetradecanoic acid-PFTeDA	-	-	-		< 0.001	< 0.001	< 0.001	*nc*	< 0.05

Notes:

Criteria 1 = Department of Health (2017) Health Based Guidance Values, Drinking Water Quality Guideline.
Criteria 2 = Department of Health (2017) Health Based Guidance Values, Recreational Water Quality Guideline.
Criteria 3 = DOEE (2016) Draft Commonwealth Environmental Management Guidance on PFOS and PFOA
Total concentrations in µg/L
- = assessment criteria not available
DW1 = duplicate of SW2
TW1 = triplicate of SW2
RPD = relative percent difference of duplicate/triplicate
nc = RPD not calculated, one or both samples below laboratory reporting limit
< # or ND = analyte(s) not detected in excess of laboratory reporting limit
-- = sample not analysed
Bold/red indicates exceedance of assessment criteria

MeFOSA = N-methyl-perfluorooctanesulfonamide
EtFOSAA = N-ethyl-perfluorooctanesulfonamide
MeFOSE = N-Methyl perfluorooctane sulfonamidoethanol
EtFOSE = N-Ethyl perfluorooctane sulfonamidoethanol
MeFOSAA = N-methyl-perfluorooctanesulfonamidoacetic acid
EtFOSAA = N-ethyl-perfluorooctanesulfonamidoacetic acid
4:2 FTS = 1H.1H.2H.2H-perfluorohexanesulfonic acid
6:2 FTS = 1H.1H.2H.2H-perfluorooctanesulfonic acid
8:2 FTS = 1H.1H.2H.2H-perfluorodecanesulfonic acid
10:2 FTS = 10:2 Fluorotelomer sulfonic acid

Table 4 : Summary of Surface Water Analytical Data - Per- and Polyfluorinated Alkyl Substances

Detailed Site Investigation

Project No.: 1701110

Enterprise Area
Westdale NSW 2340

	Criteria 1	Criteria 2	Criteria 3						
	DOH	DOH	DOEE						
	HBGV	HBGV	ESLs	Sample ID	SW1	SW2	DW1	RPD_DW1	TW1
	Drinking	Recreational	Freshwater	Date	30/10/2017	30/10/2017	30/10/2017	-	'10/2017 3:00:00
Perfluorooctanesulfonamide-PFOSA	-	-	-		< 0.005	< 0.005	< 0.005	*nc*	< 0.02
MeFOSA	-	-	-		< 0.005	< 0.005	< 0.005	*nc*	< 0.05
EtFOSA	-	-	-		< 0.005	< 0.005	< 0.005	*nc*	< 0.05
MeFOSE	-	-	-		< 0.005	< 0.005	< 0.005	*nc*	--
EtFOSE	-	-	-		< 0.005	< 0.005	< 0.005	*nc*	< 0.05
MeFOSAA	-	-	-		< 0.005	< 0.005	< 0.005	*nc*	< 0.02
EtFOSAA	-	-	-		< 0.005	< 0.005	< 0.005	*nc*	< 0.02
4:2 FTS	-	-	-		< 0.001	< 0.001	< 0.001	*nc*	< 0.05
6:2 FTS	-	-	-		< 0.005	< 0.005	< 0.005	*nc*	< 0.05
8:2 FTS	-	-	-		< 0.001	< 0.001	< 0.001	*nc*	< 0.05
10:2 FTS	-	-	-		< 0.001	< 0.001	< 0.001	*nc*	< 0.05
PFOA + PFOS	-	-	-		0.001	0.003	0.003	*0%*	ND
PFHxS + PFOS	0.07	0.7	-		0.001	0.003	0.003	*0%*	< 0.01
Total PFAS	-	-	-		0.002	0.003	0.003	*0%*	ND

Notes:

Criteria 1 = Department of Health (2017) Health Based Guidance Values, Drinking Water Quality Guideline.
Criteria 2 = Department of Health (2017) Health Based Guidance Values, Recreational Water Quality Guideline.
Criteria 3 = DOEE (2016) Draft Commonwealth Environmental Management Guidance on PFOS and PFOA
Total concentrations in µg/L
- = assessment criteria not available
DW1 = duplicate of SW2
TW1 = triplicate of SW2
RPD = relative percent difference of duplicate/triplicate
nc = RPD not calculated, one or both samples below laboratory reporting limit
< # or ND = analyte(s) not detected in excess of laboratory reporting limit
-- = sample not analysed
Bold/red indicates exceedance of assessment criteria

MeFOSA = N-methyl-perfluorooctanesulfonamide
EtFOSAA = N-ethyl-perfluorooctanesulfonamide
MeFOSE = N-Methyl perfluorooctane sulfonamidoethanol
EtFOSE = N-Ethyl perfluorooctane sulfonamidoethanol
MeFOSAA = N-methyl-perfluorooctanesulfonamidoacetic acid
EtFOSAA = N-ethyl-perfluorooctanesulfonamidoacetic acid
4:2 FTS = 1H.1H.2H.2H-perfluorohexanesulfonic acid
6:2 FTS = 1H.1H.2H.2H-perfluorooctanesulfonic acid
8:2 FTS = 1H.1H.2H.2H-perfluorodecanesulfonic acid
10:2 FTS = 10:2 Fluorotelomer sulfonic acid

Table 4 : Summary of Surface Water Analytical Data - Per- and Polyfluorinated Alkyl Substances

Detailed Site Investigation

Project No.: 1701110

Enterprise Area
Westdale NSW 2340

	Criteria 1	Criteria 2	Criteria 3					
	DOH	DOH	DOEE					
	HBGV	HBGV	ESLs	Sample ID	RPD_TW1	SW4	SW5	SW6
	Drinking	Recreational	Freshwater	Date	-	30/10/2017	30/10/2017	30/10/2017
Perfluorobutanesulfonic acid-PFBS	-	-	-		*nc*	< 0.001	< 0.001	< 0.001
Perfluoropentanesulfonic acid-PFPeS	-	-	-		*nc*	< 0.001	< 0.001	< 0.001
Perfluorohexanesulfonic acid-PFHxS	-	-	-		*nc*	< 0.001	< 0.001	< 0.001
Perfluoroheptanesulfonic acid-PFHp	-	-	-		*nc*	< 0.001	< 0.001	< 0.001
Perfluorooctanesulfonic acid-PFOS	0.07	0.7	0.13		*nc*	0.005	0.003	0.003
Perfluorodecanesulfonic acid-PFDS	-	-	-		*nc*	< 0.001	< 0.001	< 0.001
Perfluorobutanoic acid-PFBA	-	-	-		*nc*	< 0.005	< 0.005	0.005
Perfluoropentanoic acid-PFPeA	-	-	-		*nc*	0.001	< 0.001	0.001
Perfluorohexanoic acid-PFHxA	-	-	-		*nc*	0.001	0.001	0.003
Perfluoroheptanoic acid-PFHpA	-	-	-		*nc*	< 0.001	< 0.001	< 0.001
Perfluorooctanoic acid-PFOA	0.56	5.6	220		*nc*	0.002	0.002	0.004
Perfluorononanoic acid-PFNA	-	-	-		*nc*	< 0.001	< 0.001	< 0.001
Perfluorodecanoic acid-PFDA	-	-	-		*nc*	< 0.001	< 0.001	< 0.001
Perfluoroundecanoic acid-PFUnA	-	-	-		*nc*	< 0.001	< 0.001	< 0.001
Perfluorododecanoic acid-PFDoA	-	-	-		*nc*	< 0.001	< 0.001	< 0.001
Perfluorotridecanoic acid-PFTrDA	-	-	-		*nc*	< 0.001	< 0.001	< 0.001
Perfluorotetradecanoic acid-PFTeDA	-	-	-		*nc*	< 0.001	< 0.001	< 0.001

Notes:

Criteria 1 = Department of Health (2017) Health Based Guidance Values, Drinking Water Quality Guideline.
Criteria 2 = Department of Health (2017) Health Based Guidance Values, Recreational Water Quality Guideline.
Criteria 3 = DOEE (2016) Draft Commonwealth Environmental Management Guidance on PFOS and PFOA
Total concentrations in µg/L
- = assessment criteria not available
DW1 = duplicate of SW2
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MeFOSA = N-methyl-perfluorooctanesulfonamide
EtFOSAA = N-ethyl-perfluorooctanesulfonamide
MeFOSE = N-Methyl perfluorooctane sulfonamidoethanol
EtFOSE = N-Ethyl perfluorooctane sulfonamidoethanol
MeFOSAA = N-methyl-perfluorooctanesulfonamidoacetic acid
EtFOSAA = N-ethyl-perfluorooctanesulfonamidoacetic acid
4:2 FTS = 1H.1H.2H.2H-perfluorohexanesulfonic acid
6:2 FTS = 1H.1H.2H.2H-perfluorooctanesulfonic acid
8:2 FTS = 1H.1H.2H.2H-perfluorodecanesulfonic acid
10:2 FTS = 10:2 Fluorotelomer sulfonic acid

Table 4 : Summary of Surface Water Analytical Data - Per- and Polyfluorinated Alkyl Substances

Detailed Site Investigation

Project No.: 1701110

Enterprise Area
Westdale NSW 2340

	Criteria 1	Criteria 2	Criteria 3					
	DOH	DOH	DOEE					
	HBGV	HBGV	ESLs	Sample ID	RPD_TW1	SW4	SW5	SW6
	Drinking	Recreational	Freshwater	Date	-	30/10/2017	30/10/2017	30/10/2017
Perfluorooctanesulfonamide-PFOSA	-	-	-		*nc*	< 0.005	< 0.005	< 0.005
MeFOSA	-	-	-		*nc*	< 0.005	< 0.005	< 0.005
EtFOSA	-	-	-		*nc*	< 0.005	< 0.005	< 0.005
MeFOSE	-	-	-		--	< 0.005	< 0.005	< 0.005
EtFOSE	-	-	-		*nc*	< 0.005	< 0.005	< 0.005
MeFOSAA	-	-	-		*nc*	< 0.005	< 0.005	< 0.005
EtFOSAA	-	-	-		*nc*	< 0.005	< 0.005	< 0.005
4:2 FTS	-	-	-		*nc*	< 0.001	< 0.001	< 0.001
6:2 FTS	-	-	-		*nc*	< 0.005	< 0.005	< 0.005
8:2 FTS	-	-	-		*nc*	< 0.001	< 0.001	< 0.001
10:2 FTS	-	-	-		*nc*	< 0.001	< 0.001	< 0.001
PFOA + PFOS	-	-	-		*nc*	0.007	0.005	0.007
PFHxS + PFOS	0.07	0.7	-		*nc*	0.005	0.003	0.003
Total PFAS	-	-	-		*nc*	0.009	0.006	0.016

Notes:

Criteria 1 = Department of Health (2017) Health Based Guidance Values, Drinking Water Quality Guideline.
Criteria 2 = Department of Health (2017) Health Based Guidance Values, Recreational Water Quality Guideline.
Criteria 3 = DOEE (2016) Draft Commonwealth Environmental Management Guidance on PFOS and PFOA
Total concentrations in µg/L
- = assessment criteria not available
DW1 = duplicate of SW2
TW1 = triplicate of SW2
RPD = relative percent difference of duplicate/triplicate
nc = RPD not calculated, one or both samples below laboratory reporting limit
< # or ND = analyte(s) not detected in excess of laboratory reporting limit
-- = sample not analysed
Bold/red indicates exceedance of assessment criteria

MeFOSA = N-methyl-perfluorooctanesulfonamide
EtFOSAA = N-ethyl-perfluorooctanesulfonamide
MeFOSE = N-Methyl perfluorooctane sulfonamidoethanol
EtFOSE = N-Ethyl perfluorooctane sulfonamidoethanol
MeFOSAA = N-methyl-perfluorooctanesulfonamidoacetic acid
EtFOSAA = N-ethyl-perfluorooctanesulfonamidoacetic acid
4:2 FTS = 1H.1H.2H.2H-perfluorohexanesulfonic acid
6:2 FTS = 1H.1H.2H.2H-perfluorooctanesulfonic acid
8:2 FTS = 1H.1H.2H.2H-perfluorodecanesulfonic acid
10:2 FTS = 10:2 Fluorotelomer sulfonic acid

Table 5 : Summary of Groundwater Analytical Data - Per- and Polyfluorinated Alkyl Substances

Detailed Site Investigation

Project No.: 1701110

Enterprise Area
Westdale NSW 2340

	Criteria 1	Criteria 2	Criteria 3						
	DOH	DOH	DOEE						
	HBGV	HBGV	ESLs	Sample ID	BORE1	DW2	RPD_DW2	TW2	RPD_TW2
	Drinking	Recreational	Freshwater	Date	30/10/2017	30/10/2017	-	'10/2017 3:00:00	-
Perfluorobutanesulfonic acid-PFBS	-	-	-		< 0.001	< 0.001	*nc*	< 0.02	*nc*
Perfluoropentanesulfonic acid-PFPeS	-	-	-		< 0.001	< 0.001	*nc*	< 0.02	*nc*
Perfluorohexanesulfonic acid-PFHxS	-	-	-		< 0.001	< 0.001	*nc*	< 0.02	*nc*
Perfluoroheptanesulfonic acid-PFHp	-	-	-		< 0.001	< 0.001	*nc*	< 0.02	*nc*
Perfluorooctanesulfonic acid-PFOS	0.07	0.7	0.13		< 0.001	< 0.001	*nc*	< 0.01	*nc*
Perfluorodecanesulfonic acid-PFDS	-	-	-		< 0.001	< 0.001	*nc*	< 0.02	*nc*
Perfluorobutanoic acid-PFBA	-	-	-		< 0.005	< 0.005	*nc*	< 0.1	*nc*
Perfluoropentanoic acid-PFPeA	-	-	-		< 0.001	< 0.001	*nc*	< 0.02	*nc*
Perfluorohexanoic acid-PFHxA	-	-	-		< 0.001	< 0.001	*nc*	< 0.02	*nc*
Perfluoroheptanoic acid-PFHpA	-	-	-		< 0.001	< 0.001	*nc*	< 0.02	*nc*
Perfluorooctanoic acid-PFOA	0.56	5.6	220		< 0.001	< 0.001	*nc*	< 0.01	*nc*
Perfluorononanoic acid-PFNA	-	-	-		< 0.001	< 0.001	*nc*	< 0.02	*nc*
Perfluorodecanoic acid-PFDA	-	-	-		< 0.001	< 0.001	*nc*	< 0.02	*nc*
Perfluoroundecanoic acid-PFUnA	-	-	-		< 0.001	< 0.001	*nc*	< 0.02	*nc*
Perfluorododecanoic acid-PFDoA	-	-	-		< 0.001	< 0.001	*nc*	< 0.02	*nc*
Perfluorotridecanoic acid-PFTrDA	-	-	-		< 0.001	< 0.001	*nc*	< 0.02	*nc*
Perfluorotetradecanoic acid-PFTeDA	-	-	-		< 0.001	< 0.001	*nc*	< 0.05	*nc*

Notes:

Criteria 1 = Department of Health (2017) Health Based Guidance Values, Drinking Water Quality Guideline.
Criteria 2 = Department of Health (2017) Health Based Guidance Values, Recreational Water Quality Guideline.
Criteria 3 = DOEE (2016) Draft Commonwealth Environmental Management Guidance on PFOS and PFOA
Total concentrations in µg/L
- = assessment criteria not available
DW2 = duplicate of BORE1
TW2 = triplicate of BORE1
RPD = relative percent difference of duplicate/triplicate
nc = RPD not calculated, one or both samples below laboratory reporting limit
< # or ND = analyte(s) not detected in excess of laboratory reporting limit
-- = sample not analysed
Bold/red indicates exceedance of assessment criteria

MeFOSA = N-methyl-perfluorooctanesulfonamide
EtFOSAA = N-ethyl-perfluorooctanesulfonamide
MeFOSE = N-Methyl perfluorooctane sulfonamidoethanol
EtFOSE = N-Ethyl perfluorooctane sulfonamidoethanol
MeFOSAA = N-methyl-perfluorooctanesulfonamidoacetic acid
EtFOSAA = N-ethyl-perfluorooctanesulfonamidoacetic acid
4:2 FTS = 1H.1H.2H.2H-perfluorohexanesulfonic acid
6:2 FTS = 1H.1H.2H.2H-perfluorooctanesulfonic acid
8:2 FTS = 1H.1H.2H.2H-perfluorodecanesulfonic acid
10:2 FTS = 10:2 Fluorotelomer sulfonic acid

Table 5 : Summary of Groundwater Analytical Data - Per- and Polyfluorinated Alkyl Substances

Detailed Site Investigation

Project No.: 1701110

Enterprise Area
Westdale NSW 2340

	Criteria 1	Criteria 2	Criteria 3						
	DOH	DOH	DOEE						
	HBGV	HBGV	ESLs	Sample ID	BORE1	DW2	RPD_DW2	TW2	RPD_TW2
	Drinking	Recreational	Freshwater	Date	30/10/2017	30/10/2017	-	'10/2017 3:00:00	-
Perfluorooctanesulfonamide-PFOSA	-	-	-		< 0.005	< 0.005	*nc*	< 0.02	*nc*
MeFOSA	-	-	-		< 0.005	< 0.005	*nc*	< 0.05	*nc*
EtFOSA	-	-	-		< 0.005	< 0.005	*nc*	< 0.05	*nc*
MeFOSE	-	-	-		< 0.005	< 0.005	*nc*	--	--
EtFOSE	-	-	-		< 0.005	< 0.005	*nc*	< 0.05	*nc*
MeFOSAA	-	-	-		< 0.005	< 0.005	*nc*	< 0.02	*nc*
EtFOSAA	-	-	-		< 0.005	< 0.005	*nc*	< 0.02	*nc*
4:2 FTS	-	-	-		< 0.001	< 0.001	*nc*	< 0.05	*nc*
6:2 FTS	-	-	-		< 0.005	< 0.005	*nc*	< 0.05	*nc*
8:2 FTS	-	-	-		< 0.001	< 0.001	*nc*	< 0.05	*nc*
10:2 FTS	-	-	-		< 0.001	< 0.001	*nc*	< 0.05	*nc*
PFOA + PFOS	-	-	-		ND	ND	*nc*	ND	*nc*
PFHxS + PFOS	0.07	0.7	-		< 0.001	< 0.001	*nc*	< 0.01	*nc*
Total PFAS	-	-	-		ND	ND	*nc*	ND	*nc*

Notes:

Criteria 1 = Department of Health (2017) Health Based Guidance Values, Drinking Water Quality Guideline.
Criteria 2 = Department of Health (2017) Health Based Guidance Values, Recreational Water Quality Guideline.
Criteria 3 = DOEE (2016) Draft Commonwealth Environmental Management Guidance on PFOS and PFOA
Total concentrations in µg/L
- = assessment criteria not available
DW2 = duplicate of BORE1
TW2 = triplicate of BORE1
RPD = relative percent difference of duplicate/triplicate
nc = RPD not calculated, one or both samples below laboratory reporting limit
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MeFOSAA = N-methyl-perfluorooctanesulfonamidoacetic acid
EtFOSAA = N-ethyl-perfluorooctanesulfonamidoacetic acid
4:2 FTS = 1H.1H.2H.2H-perfluorohexanesulfonic acid
6:2 FTS = 1H.1H.2H.2H-perfluorooctanesulfonic acid
8:2 FTS = 1H.1H.2H.2H-perfluorodecanesulfonic acid
10:2 FTS = 10:2 Fluorotelomer sulfonic acid

Table 5 : Summary of Groundwater Analytical Data - Per- and Polyfluorinated Alkyl Substances

Detailed Site Investigation

Project No.: 1701110

Enterprise Area
Westdale NSW 2340

	Criteria 1	Criteria 2	Criteria 3		
	DOH	DOH	DOEE		
	HBGV	HBGV	ESLs	Sample ID	BORE2
	Drinking	Recreational	Freshwater	Date	30/10/2017
Perfluorobutanesulfonic acid-PFBS	-	-	-		< 0.001
Perfluoropentanesulfonic acid-PFPeS	-	-	-		< 0.001
Perfluorohexanesulfonic acid-PFHxS	-	-	-		< 0.001
Perfluoroheptanesulfonic acid-PFHp	-	-	-		< 0.001
Perfluorooctanesulfonic acid-PFOS	0.07	0.7	0.13		< 0.001
Perfluorodecanesulfonic acid-PFDS	-	-	-		< 0.001
Perfluorobutanoic acid-PFBA	-	-	-		< 0.005
Perfluoropentanoic acid-PFPeA	-	-	-		< 0.001
Perfluorohexanoic acid-PFHxA	-	-	-		< 0.001
Perfluoroheptanoic acid-PFHpA	-	-	-		< 0.001
Perfluorooctanoic acid-PFOA	0.56	5.6	220		< 0.001
Perfluorononanoic acid-PFNA	-	-	-		< 0.001
Perfluorodecanoic acid-PFDA	-	-	-		< 0.001
Perfluoroundecanoic acid-PFUnA	-	-	-		< 0.001
Perfluorododecanoic acid-PFDoA	-	-	-		< 0.001
Perfluorotridecanoic acid-PFTrDA	-	-	-		< 0.001
Perfluorotetradecanoic acid-PFTeDA	-	-	-		< 0.001

Notes:

Criteria 1 = Department of Health (2017) Health Based Guidance Values, Drinking Water Quality Guideline.
Criteria 2 = Department of Health (2017) Health Based Guidance Values, Recreational Water Quality Guideline.
Criteria 3 = DOEE (2016) Draft Commonwealth Environmental Management Guidance on PFOS and PFOA
Total concentrations in µg/L
- = assessment criteria not available
DW2 = duplicate of BORE1
TW2 = triplicate of BORE1
RPD = relative percent difference of duplicate/triplicate
nc = RPD not calculated, one or both samples below laboratory reporting limit
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4:2 FTS = 1H.1H.2H.2H-perfluorohexanesulfonic acid
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10:2 FTS = 10:2 Fluorotelomer sulfonic acid

Table 5 : Summary of Groundwater Analytical Data - Per- and Polyfluorinated Alkyl Substances

Detailed Site Investigation

Project No.: 1701110

Enterprise Area
Westdale NSW 2340

	Criteria 1	Criteria 2	Criteria 3		
	DOH	DOH	DOEE		
	HBGV	HBGV	ESLs	Sample ID	BORE2
	Drinking	Recreational	Freshwater	Date	30/10/2017
Perfluorooctanesulfonamide-PFOSA	-	-	-		< 0.005
MeFOSA	-	-	-		< 0.005
EtFOSA	-	-	-		< 0.005
MeFOSE	-	-	-		< 0.005
EtFOSE	-	-	-		< 0.005
MeFOSAA	-	-	-		< 0.005
EtFOSAA	-	-	-		< 0.005
4:2 FTS	-	-	-		< 0.001
6:2 FTS	-	-	-		< 0.005
8:2 FTS	-	-	-		< 0.001
10:2 FTS	-	-	-		< 0.001
PFOA + PFOS	-	-	-		ND
PFHxS + PFOS	0.07	0.7	-		< 0.001
Total PFAS	-	-	-		ND

Notes:

Criteria 1 = Department of Health (2017) Health Based Guidance Values, Drinking Water Quality Guideline.
Criteria 2 = Department of Health (2017) Health Based Guidance Values, Recreational Water Quality Guideline.
Criteria 3 = DOEE (2016) Draft Commonwealth Environmental Management Guidance on PFOS and PFOA
Total concentrations in µg/L
- = assessment criteria not available
DW2 = duplicate of BORE1
TW2 = triplicate of BORE1
RPD = relative percent difference of duplicate/triplicate
nc = RPD not calculated, one or both samples below laboratory reporting limit
< # or ND = analyte(s) not detected in excess of laboratory reporting limit
-- = sample not analysed
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EtFOSAA = N-ethyl-perfluorooctanesulfonamide
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EtFOSAA = N-ethyl-perfluorooctanesulfonamidoacetic acid
4:2 FTS = 1H.1H.2H.2H-perfluorohexanesulfonic acid
6:2 FTS = 1H.1H.2H.2H-perfluorooctanesulfonic acid
8:2 FTS = 1H.1H.2H.2H-perfluorodecanesulfonic acid
10:2 FTS = 10:2 Fluorotelomer sulfonic acid

Summary of QA/QC Data

Detailed Site Investigation

Project No.: 1701110

Enterprise Area
Westdale NSW 2340

	Criteria 1			
		Sample ID	B1	R1
		Date	30/10/2017	30/10/2017
Perfluorobutanesulfonic acid-PFBS	-		< 0.001	< 0.001
Perfluoropentanesulfonic acid-PFPeS	-		< 0.001	< 0.001
Perfluorohexanesulfonic acid-PFHxS	-		< 0.001	< 0.001
Perfluoroheptanesulfonic acid-PFHp	-		< 0.001	< 0.001
Perfluorooctanesulfonic acid-PFOS	-		< 0.001	< 0.001
Perfluorodecanesulfonic acid-PFDS	-		< 0.001	< 0.001
Perfluorobutanoic acid-PFBA	-		< 0.005	< 0.005
Perfluoropentanoic acid-PFPeA	-		< 0.001	< 0.001
Perfluorohexanoic acid-PFHxA	-		< 0.001	< 0.001
Perfluoroheptanoic acid-PFHpA	-		< 0.001	< 0.001
Perfluorooctanoic acid-PFOA	-		< 0.001	< 0.001
Perfluorononanoic acid-PFNA	-		< 0.001	< 0.001
Perfluorodecanoic acid-PFDA	-		< 0.001	< 0.001
Perfluoroundecanoic acid-PFUnA	-		< 0.001	< 0.001
Perfluorododecanoic acid-PFDoA	-		< 0.001	< 0.001
Perfluorotridecanoic acid-PFTrDA	-		< 0.001	< 0.001
Perfluorotetradecanoic acid-PFTeDA	-		< 0.001	< 0.001

Notes:

Total concentrations in µg/L
- = assessment criteria not available
B1 = blank sample
R1 = rinsate sample
< # or ND = analyte(s) not detected in excess of laboratory reporting limit
-- = sample not analysed
Bold/red indicates exceedance of assessment criteria
MeFOSA = N-methyl-perfluorooctanesulfonamide
EtFOSAA = N-ethyl-perfluorooctanesulfonamide
MeFOSE = N-Methyl perfluorooctane sulfonamidoethanol
EtFOSE = N-Ethyl perfluorooctane sulfonamidoethanol
MeFOSAA = N-methyl-perfluorooctanesulfonamidoacetic acid
EtFOSAA = N-ethyl-perfluorooctanesulfonamidoacetic acid
4:2 FTS = 1H.1H.2H.2H-perfluorohexanesulfonic acid
6:2 FTS = 1H.1H.2H.2H-perfluorooctanesulfonic acid
8:2 FTS = 1H.1H.2H.2H-perfluorodecanesulfonic acid
10:2 FTS = 10:2 Fluorotelomer sulfonic acid

Summary of QA/QC Data

Detailed Site Investigation

Project No.: 1701110

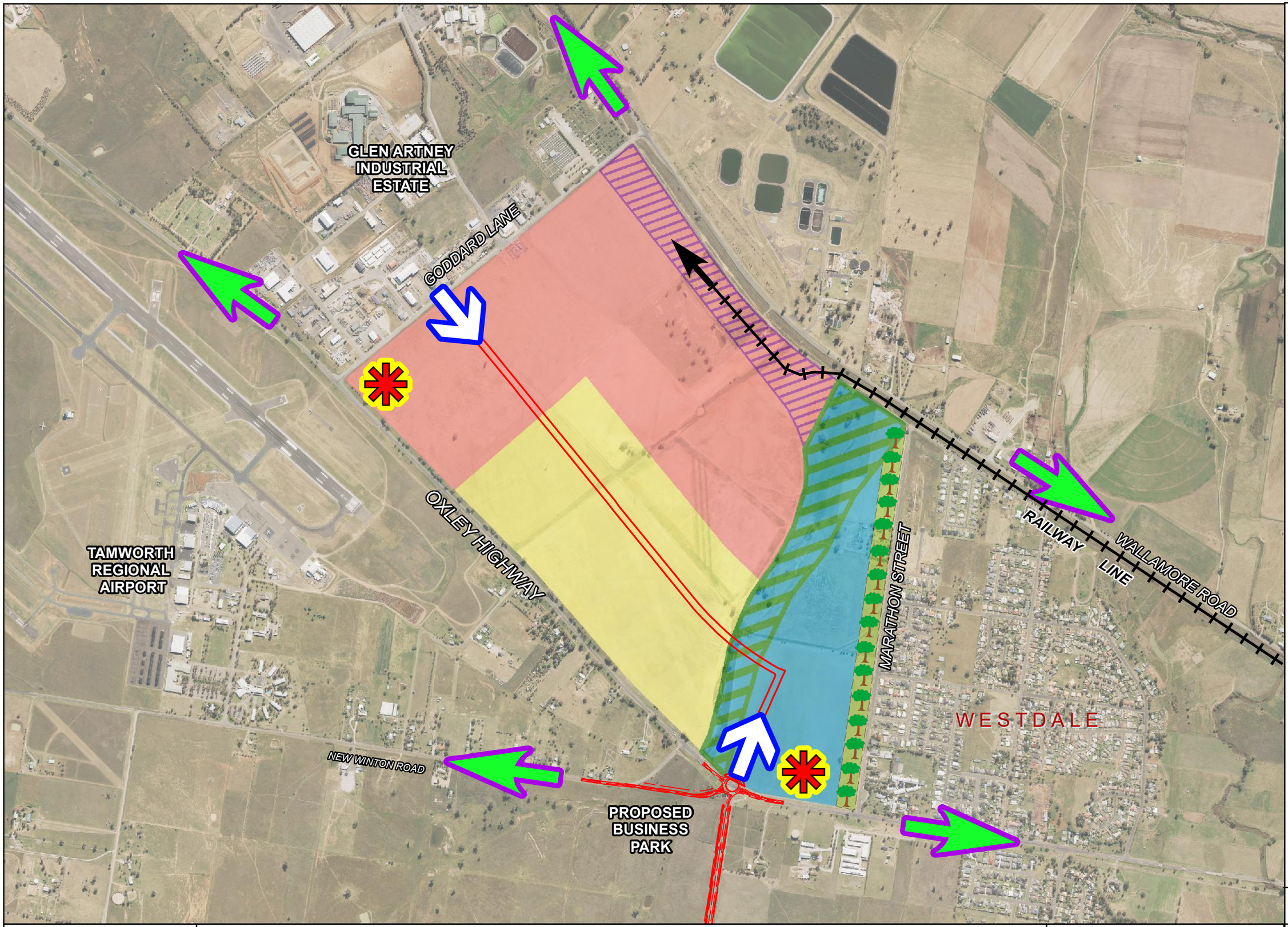
Enterprise Area
Westdale NSW 2340

	Criteria 1			
		Sample ID	B1	R1
		Date	30/10/2017	30/10/2017
Perfluorooctanesulfonamide-PFOSA	-		< 0.005	< 0.005
MeFOSA	-		< 0.005	< 0.005
EtFOSA	-		< 0.005	< 0.005
MeFOSE	-		< 0.005	< 0.005
EtFOSE	-		< 0.005	< 0.005
MeFOSAA	-		< 0.005	< 0.005
EtFOSAA	-		< 0.005	< 0.005
4:2 FTS	-		< 0.001	< 0.001
6:2 FTS	-		< 0.005	< 0.005
8:2 FTS	-		< 0.001	< 0.001
10:2 FTS	-		< 0.001	< 0.001
PFOA + PFOS	-		ND	ND
PFHxS + PFOS	-		< 0.001	< 0.001
Total PFAS	-		ND	ND

Notes:

Total concentrations in µg/L
- = assessment criteria not available
B1 = blank sample
R1 = rinsate sample
< # or ND = analyte(s) not detected in excess of laboratory reporting limit
-- = sample not analysed
Bold/red indicates exceedance of assessment criteria
MeFOSA = N-methyl-perfluorooctanesulfonamide
EtFOSAA = N-ethyl-perfluorooctanesulfonamide
MeFOSE = N-Methyl perfluorooctane sulfonamidoethanol
EtFOSE = N-Ethyl perfluorooctane sulfonamidoethanol
MeFOSAA = N-methyl-perfluorooctanesulfonamidoacetic acid
EtFOSAA = N-ethyl-perfluorooctanesulfonamidoacetic acid
4:2 FTS = 1H.1H.2H.2H-perfluorohexanesulfonic acid
6:2 FTS = 1H.1H.2H.2H-perfluorooctanesulfonic acid
8:2 FTS = 1H.1H.2H.2H-perfluorodecanesulfonic acid
10:2 FTS = 10:2 Fluorotelomer sulfonic acid

ATTACHMENT A



MAP KEY

- Intermodal Freight
- Heavy Industry
- General & Ligtht Industry
- Business & Technology
- Open Space / Drainage
- Vegetated Buffer (20m)
- Regional Movement
- Gateways
- Signiature Development Sites
- Rail Access

Cadastral Data: August 2017, Land and Property Information, NSW

Tamworth Regional Council

TAMWORTH ENTERPRISE AREA - CONCEPTUAL PRECINCT PLAN

DRAFT LAND USE WITHIN ENTERPRISE AREA

0 70 140 280 420 560
Metres

Scale @ A3: 1:12,500

Map Projection: Universal Transverse Mercator
Horizontal Datum: Geodetic Datum of Australia 1994
Grid: Map Grid of Australia, Zone 56

N

Tamworth Regional Council GIS and Spatial Services

ATTACHMENT B

Gunnedah road and rolled rapidly left, striking and severing high-voltage powerlines on the north-eastern side of the road. By this stage it had rolled about 90 degrees. The left wingtip then contacted the ground shortly before the aircraft struck other trees as it continued to roll left. The right propeller and the right forward fuselage then struck the ground. The aircraft then collided with the ground inverted and slid about 70 m before coming to a stop.

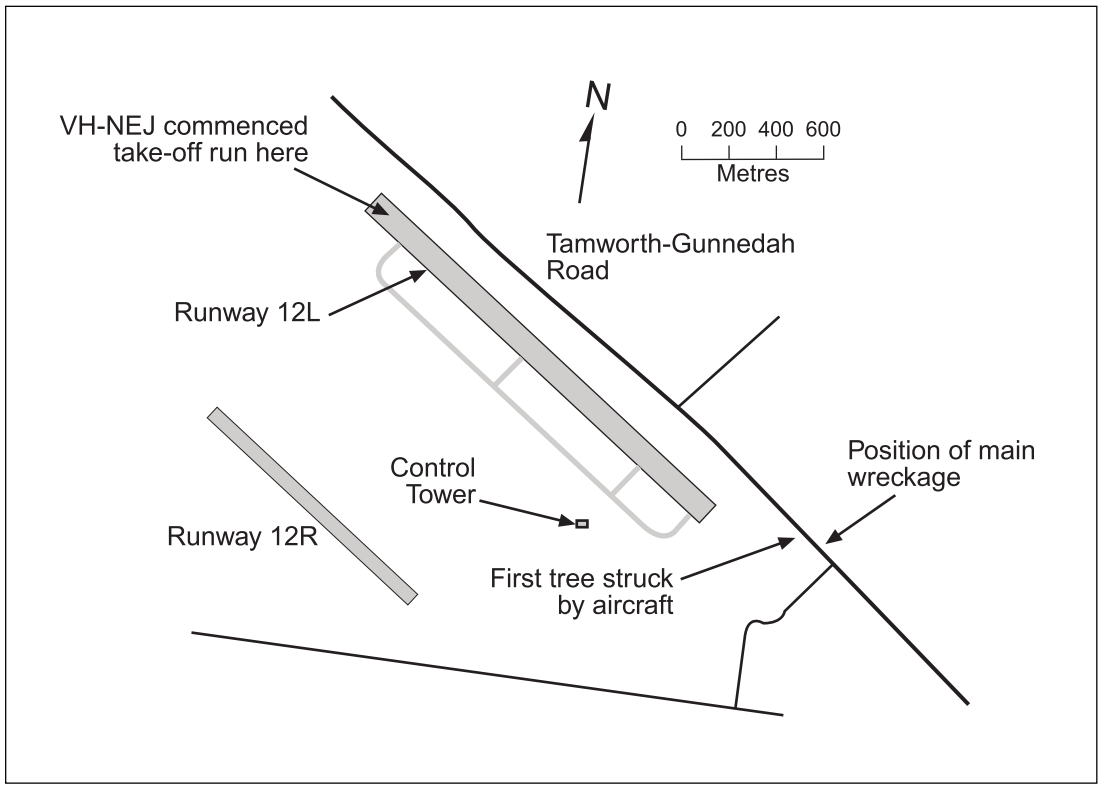


FIGURE 1 Tamworth Airport and surrounds, showing accident location in relation to runway 12L

1.12.3 Aircraft wreckage description

Except for the empennage and the nose section forward of the windscreen, the fuselage and wing centre section were burnt out, and the flaps partially destroyed. There were no witness marks on the remaining flaps structure to indicate their pre-impact position. The left wing flap actuator ram extension was 45 mm while the right ram extension was 19 mm.

FIGURE 2 Wreckage viewed back along the impact path

Examination of the cockpit revealed the following:

(a) The flap selector was between the ONE-QUARTER extended and UP positions.

(b) The landing gear selector was in the UP position.

(c) The emergency landing gear release handle was in the STOWED position with the locking pin engaged.

Engines

Examination of the engines revealed that the torque shaft assembly in each engine, located within the high-speed pinion gear, had sheared in torsional overload. Advice from the manufacturer indicated that shaft failure could result from the sum of the steady engine torque plus the momentary torque spike, caused by the impact, combining to exceed the pinion gear ultimate stress limit. The likelihood of such a failure would be greater at high propeller RPM than at low RPM.

Propellers

Detailed examination of the propeller hubs established that, at initial ground contact, the blade angle of the left propeller was 8.5–9 degrees, while that for the right propeller was 12.5–13 degrees. These angles were consistent with the right engine being at a high power setting and the left engine at a reduced power setting.

Landing gear

The position of the landing gear at impact could not be positively established.

A video recording taken shortly after the accident, while the aircraft was still on fire, showed the left main gear leg in what appeared to be the extended position. The right gear leg was not visible (see figure 3).

FIGURE 3 Image from video recording, showing the left main landing gear leg extending upwards from the inverted left wing

1.13 Medical and pathological information

Post-mortem examination of the co-pilot could not confirm that he was suffering from an upper respiratory tract infection at the time of the accident, or from any other condition which might have affected his performance.

1.14 Fire

Witnesses reported seeing a large blue flash, followed by two fireballs at about tree-top height, and then hearing two loud explosions. A trail of fire was observed extending forward from the fireballs to the aircraft. It is likely that fuel lines and/or tanks were disrupted when the aircraft struck the first tree and that ignition followed shortly thereafter.

ATTACHMENT C

Geo-Logix

GROUNDWATER SAMPLE LOG

WELL ID: BORE 2

PROJECT INFORMATION

PROJECT NUMBER: 170110	INITIALS: TG
DATE: 30.10.17	WEATHER: Fine 35°C

SAMPLING METHOD: LOW FLOW: ☐ HYDRASLEEVE: ☑ BAILER: ☐

WELL GAUGING DETAILS

STANDING WATER LEVEL (mBTOC): 1.419	TOTAL DEPTH (mBTOC): 12.901	TIME: 0800
DEPTH TO PSH (mBTOC): 12.	THICKNESS OF PSH (m): —	

FIELD PARAMETERS

TIME	DTW (mbTOC)	TOTAL DISCHARGE (L)	PH +/- 0.1	CONDUCTIVITY (MS/CM) +/- 3%	REDOX (MV) +/- 10MV	DO (MG/L) +/-10%	TEMP (°C)
0800	1.419	1L	6.78	958	102	4.44	18.7
TOTAL PURGE VOLUME (L):		APPROX. SAMPLE PURGE RATE (LPM):					

OBSERVATIONS DURING SAMPLING

NOTES: (WELL CONDITION, COLOUR, CLARITY, ODOUR) clear, some organic matter, no odour, no sheen

RECHARGE BEHAVIOUR: FAST RECHARGING ☑ SLOW RECHARGING (<80% RECHARGE AFTER 2 HRS) ☐

WELL SAMPLING

DTW (mbTOC): (AT SAMPLING) —

ORIGINAL	DUPLICATE	TRIPLICATE
SAMPLE ID: BORE2	SAMPLE ID:	SAMPLE ID:
SAMPLE TIME: 0800	SAMPLE TIME:	SAMPLE TIME:
NO. CONTAINERS: 1	NO. CONTAINERS	NO. CONTAINERS
ANALYSIS: PFAS	ANALYSIS:	ANALYSIS:

ATTACHMENT D

ThermoFisher SCIENTIFIC

The world leader in serving science

RENTALS

Equipment Certification Report – TPS 90FLMV Water Quality Meter

This Water Quality Meter has been performance checked and calibrated as follows:

Sensor	Concentration	Span 1	Span 2	Traceability Lot #	Pass?
pH	pH 7.00 / pH 4.00	7.00 pH	4.00 pH	305409/309016	☑
Conductivity	12.88mS/cm	0.00 mS/cm	12.88 mS/cm	309852	☑
TDS	36 ppk	0 ppk	36 ppk	306264	☑
Dissolved Oxygen	Sodium Sulphite / Air	0.00 ppm in Sodium Sulphite	9.15 ppm Saturation in Air	4005(SS) 300125 (DI)	☑

Check only

Redox (ORP) *	Electrode operability test	240mV +/- 10%	249 mV	A 306678 B 306359	☑

* This meter uses an Ag/AgCl ORP electrode. To convert readings to SHE (Standard Hydrogen Electrode), add 199mV to the mV reading.

☑ Battery Status 7.3 (min 7.2V)
☐ Electrical Safety Tag attached (AS/NZS 3760)

☑ Temperature 21.6 °C
☑ Electrodes Cleaned and checked

Tag No: 000930

Valid to: 13/12/2017

Date: 30/10/2017

Signed: [signature]

Please check that the following items are received and that all items are cleaned and decontaminated before return. A minimum $30 cleaning / service / repair charge may be applied to any unclean or damaged items. Items not returned will be billed for at the full replacement cost.

Sent	Returned	Item
☑	☐	90FLMV Unit. Ops check/Battery status: 8.0
☑	☐	pH sensor with wetting cap, 5m
☑	☐	Conductivity/TDS/Temperature K=10 sensor, 5m
☑	☐	Dissolved oxygen YSI5739 sensor with wetting cap, 5m
☑	☐	Redox (ORP) sensor with wetting cap, 5m
☑	☐	Power supply 240V to 12V DC 200mA
☑	☐	Instruction Manual
☑	☐	Quick Guide
☑	☐	Syringe with storage solution for pH and ORP sensors
☑	☐	Carry Case
☑	☐	Check to confirm electrical safety (tag must be valid)

Date: 30/10/2017

Signed: [signature]

TFS Reference	CS007753	Return Date:	/ /
Customer Reference		Return Time:	
Equipment ID	90FLMV502	Condition on return:	
Equipment Serial No.	T3872		

ATTACHMENT E

eurofins | mgt

30 years Testing For Life 1987–2017
Celebrating 30 years Testing and Protecting Human Health

Certificate of Analysis

Geo-Logix P/L
Bld Q2 Level 3, 2309/4 Daydream St
Warriewood
NSW 2102

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Attention: **Tim Gunns**

Report **570391-S**
Project name TRC ENTERPRISE
Project ID 1701110
Received Date Nov 01, 2017

Client Sample ID			SED1	SED2	SED4	SED5
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S17-No00563**	**S17-No00564**	**S17-No00565**	**S17-No00566**
Date Sampled			**Oct 30, 2017**	**Oct 30, 2017**	**Oct 30, 2017**	**Oct 30, 2017**
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanoic acid (PFPeA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorohexanoic acid (PFHxA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroheptanoic acid (PFHpA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorononanoic acid (PFNA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorodecanoic acid (PFDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroundecanoic acid (PFUnA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorododecanoic acid (PFDoA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorotridecanoic acid (PFTrDA)	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorotetradecanoic acid (PFTeDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
13C4-PFBA (surr.)	1	%	109	104	108	108
13C5-PFPeA (surr.)	1	%	110	105	108	104
13C5-PFHxA (surr.)	1	%	121	119	123	123
13C4-PFHpA (surr.)	1	%	136	136	140	138
13C8-PFOA (surr.)	1	%	123	128	140	132
13C5-PFNA (surr.)	1	%	127	128	131	127
13C6-PFDA (surr.)	1	%	145	147	151	154
13C2-PFUnDA (surr.)	1	%	144	145	144	147
13C2-PFDoDA (surr.)	1	%	172	169	163	171
13C2-PFTeDA (surr.)	1	%	168	166	165	161
Perfluoroalkane sulfonamides (PFASAs)						
Perfluorooctane sulfonamide (FOSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	10	ug/kg	< 10	< 10	< 10	< 10
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	10	ug/kg	< 10	< 10	< 10	< 10
13C8-FOSA (surr.)	1	%	133	124	119	125
D3-N-MeFOSA (surr.)	1	%	116	114	116	119
D5-N-EtFOSA (surr.)	1	%	81	127	99	104

Client Sample ID			SED1	SED2	SED4	SED5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S17-No00563	S17-No00564	S17-No00565	S17-No00566
Date Sampled			Oct 30, 2017	Oct 30, 2017	Oct 30, 2017	Oct 30, 2017
Test/Reference	LOR	Unit				
Perfluoroalkane sulfonamides (PFASAs)						
D7-N-MeFOSE (surr.)	1	%	56	54	50	58
D9-N-EtFOSE (surr.)	1	%	122	125	118	120
D5-N-EtFOSAA (surr.)	1	%	166	158	152	161
D3-N-MeFOSAA (surr.)	1	%	167	163	156	167
Perfluoroalkane sulfonic acids & Perfluoroalkane sulfonates (PFSAs)						
Perfluorobutanesulfonic acid (PFBS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanesulfonic acid (PFPeS)	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroheptanesulfonic acid (PFHpS)	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorodecanesulfonic acid (PFDS)	5	ug/kg	< 5	< 5	< 5	< 5
13C3-PFBS (surr.)	1	%	119	119	119	120
18O2-PFHxS (surr.)	1	%	130	130	133	131
13C8-PFOS (surr.)	1	%	163	152	157	163
n:2 Fluorotelomer sulfonic acids						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTS)[N11]	10	ug/kg	< 10	< 10	< 10	< 10
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTS)	5	ug/kg	< 5	< 5	< 5	< 5
13C2-4:2 FTS (surr.)	1	%	118	110	113	116
13C2-6:2 FTS (surr.)	1	%	110	121	113	126
13C2-8:2 FTS (surr.)	1	%	123	134	142	130
PFASs Summations						
Sum (PFHxS + PFOS)	5	ug/kg	< 5	< 5	< 5	< 5
Sum of US EPA PFAS (PFOS + PFOA)	5	ug/kg	< 5	< 5	< 5	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)	5	ug/kg	< 5	< 5	< 5	< 5
Sum of WA DER PFAS (n=10)	10	ug/kg	< 10	< 10	< 10	< 10
Sum of PFASs (n=28)	50	ug/kg	< 50	< 50	< 50	< 50
% Moisture	1	%	42	41	40	34

Client Sample ID			SED6	SED7	SED8	SED9
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S17-No00567	S17-No00568	S17-No00569	S17-No00570
Date Sampled			Oct 30, 2017	Oct 30, 2017	Oct 30, 2017	Oct 30, 2017
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanoic acid (PFPeA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorohexanoic acid (PFHxA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroheptanoic acid (PFHpA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorononanoic acid (PFNA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorodecanoic acid (PFDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroundecanoic acid (PFUnA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorododecanoic acid (PFDoA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5

Client Sample ID			SED6	SED7	SED8	SED9
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S17-No00567	S17-No00568	S17-No00569	S17-No00570
Date Sampled			Oct 30, 2017	Oct 30, 2017	Oct 30, 2017	Oct 30, 2017
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorotridecanoic acid (PFTrDA)	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorotetradecanoic acid (PFTeDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
13C4-PFBA (surr.)	1	%	106	110	111	113
13C5-PFPeA (surr.)	1	%	107	112	113	114
13C5-PFHxA (surr.)	1	%	121	124	125	128
13C4-PFHpA (surr.)	1	%	138	139	141	145
13C8-PFOA (surr.)	1	%	131	134	134	133
13C5-PFNA (surr.)	1	%	128	136	128	156
13C6-PFDA (surr.)	1	%	153	166	158	161
13C2-PFUnDA (surr.)	1	%	138	143	148	151
13C2-PFDoDA (surr.)	1	%	175	185	173	171
13C2-PFTeDA (surr.)	1	%	172	177	161	180
Perfluoroalkane sulfonamides (PFASAs)						
Perfluorooctane sulfonamide (FOSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	10	ug/kg	< 10	< 10	< 10	< 10
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	10	ug/kg	< 10	< 10	< 10	< 10
13C8-FOSA (surr.)	1	%	120	125	129	130
D3-N-MeFOSA (surr.)	1	%	117	124	132	136
D5-N-EtFOSA (surr.)	1	%	112	129	133	91
D7-N-MeFOSE (surr.)	1	%	53	47	57	64
D9-N-EtFOSE (surr.)	1	%	122	116	125	124
D5-N-EtFOSAA (surr.)	1	%	173	191	169	174
D3-N-MeFOSAA (surr.)	1	%	163	191	177	176
Perfluoroalkane sulfonic acids & Perfluoroalkane sulfonates (PFSAs)						
Perfluorobutanesulfonic acid (PFBS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanesulfonic acid (PFPeS)	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroheptanesulfonic acid (PFHpS)	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	< 5	[N09]6.0	< 5	< 5
Perfluorodecanesulfonic acid (PFDS)	5	ug/kg	< 5	< 5	< 5	< 5
13C3-PFBS (surr.)	1	%	117	121	123	127
18O2-PFHxS (surr.)	1	%	127	137	138	135
13C8-PFOS (surr.)	1	%	159	153	157	164
n:2 Fluorotelomer sulfonic acids						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTS)[N11]	10	ug/kg	< 10	< 10	< 10	< 10
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTS)	5	ug/kg	< 5	< 5	< 5	< 5
13C2-4:2 FTS (surr.)	1	%	107	118	117	121
13C2-6:2 FTS (surr.)	1	%	117	126	127	126
13C2-8:2 FTS (surr.)	1	%	127	140	140	146

Client Sample ID			SED6	SED7	SED8	SED9
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S17-No00567	S17-No00568	S17-No00569	S17-No00570
Date Sampled			Oct 30, 2017	Oct 30, 2017	Oct 30, 2017	Oct 30, 2017
Test/Reference	LOR	Unit				
PFASs Summations						
Sum (PFHxS + PFOS)	5	ug/kg	< 5	6	< 5	< 5
Sum of US EPA PFAS (PFOS + PFOA)	5	ug/kg	< 5	6	< 5	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)	5	ug/kg	< 5	6	< 5	< 5
Sum of WA DER PFAS (n=10)	10	ug/kg	< 10	< 10	< 10	< 10
Sum of PFASs (n=28)	50	ug/kg	< 50	< 50	< 50	< 50
% Moisture	1	%	39	15	8.1	17

Client Sample ID			SS1/0.0-0.1	SS2/0.0-0.1	SS3/0.0-0.1	SS4/0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S17-No00571	S17-No00572	S17-No00573	S17-No00574
Date Sampled			Oct 30, 2017	Oct 30, 2017	Oct 30, 2017	Oct 30, 2017
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanoic acid (PFPeA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorohexanoic acid (PFHxA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroheptanoic acid (PFHpA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorononanoic acid (PFNA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorodecanoic acid (PFDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroundecanoic acid (PFUnA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorododecanoic acid (PFDoA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorotridecanoic acid (PFTrDA)	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorotetradecanoic acid (PFTeDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
13C4-PFBA (surr.)	1	%	108	114	114	113
13C5-PFPeA (surr.)	1	%	118	120	114	120
13C5-PFHxA (surr.)	1	%	126	130	129	128
13C4-PFHpA (surr.)	1	%	144	144	145	144
13C8-PFOA (surr.)	1	%	134	133	136	134
13C5-PFNA (surr.)	1	%	141	144	136	147
13C6-PFDA (surr.)	1	%	159	161	162	183
13C2-PFUnDA (surr.)	1	%	155	151	156	157
13C2-PFDoDA (surr.)	1	%	176	181	180	192
13C2-PFTeDA (surr.)	1	%	158	163	170	193
Perfluoroalkane sulfonamides (PFASAs)						
Perfluorooctane sulfonamide (FOSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	10	ug/kg	< 10	< 10	< 10	< 10
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	10	ug/kg	< 10	< 10	< 10	< 10
13C8-FOSA (surr.)	1	%	134	116	128	132

Client Sample ID			SS1/0.0-0.1	SS2/0.0-0.1	SS3/0.0-0.1	SS4/0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S17-No00571	S17-No00572	S17-No00573	S17-No00574
Date Sampled			Oct 30, 2017	Oct 30, 2017	Oct 30, 2017	Oct 30, 2017
Test/Reference	LOR	Unit				
Perfluoroalkane sulfonamides (PFASAs)						
D3-N-MeFOSA (surr.)	1	%	129	125	127	129
D5-N-EtFOSA (surr.)	1	%	130	108	130	133
D7-N-MeFOSE (surr.)	1	%	45	51	51	72
D9-N-EtFOSE (surr.)	1	%	118	117	120	117
D5-N-EtFOSAA (surr.)	1	%	180	179	178	INT
D3-N-MeFOSAA (surr.)	1	%	176	179	186	INT
Perfluoroalkane sulfonic acids & Perfluoroalkane sulfonates (PFSAs)						
Perfluorobutanesulfonic acid (PFBS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanesulfonic acid (PFPeS)	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroheptanesulfonic acid (PFHpS)	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorodecanesulfonic acid (PFDS)	5	ug/kg	< 5	< 5	< 5	< 5
13C3-PFBS (surr.)	1	%	127	126	127	126
18O2-PFHxS (surr.)	1	%	139	137	136	138
13C8-PFOS (surr.)	1	%	156	162	152	147
n:2 Fluorotelomer sulfonic acids						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTS)[N11]	10	ug/kg	< 10	< 10	< 10	< 10
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTS)	5	ug/kg	< 5	< 5	< 5	< 5
13C2-4:2 FTS (surr.)	1	%	117	122	117	124
13C2-6:2 FTS (surr.)	1	%	135	130	144	131
13C2-8:2 FTS (surr.)	1	%	140	137	147	155
PFASs Summations						
Sum (PFHxS + PFOS)	5	ug/kg	< 5	< 5	< 5	< 5
Sum of US EPA PFAS (PFOS + PFOA)	5	ug/kg	< 5	< 5	< 5	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)	5	ug/kg	< 5	< 5	< 5	< 5
Sum of WA DER PFAS (n=10)	10	ug/kg	< 10	< 10	< 10	< 10
Sum of PFASs (n=28)	50	ug/kg	< 50	< 50	< 50	< 50
% Moisture	1	%	4.8	6.0	7.1	13

Client Sample ID			SS5/0.0-0.1	SS6/0.0-0.1	SS7/0.0-0.1	SS8/0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S17-No00575	S17-No00576	S17-No00577	S17-No00578
Date Sampled			Oct 30, 2017	Oct 30, 2017	Oct 30, 2017	Oct 30, 2017
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanoic acid (PFPeA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorohexanoic acid (PFHxA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroheptanoic acid (PFHpA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorononanoic acid (PFNA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorodecanoic acid (PFDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5

Client Sample ID			SS5/0.0-0.1	SS6/0.0-0.1	SS7/0.0-0.1	SS8/0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S17-No00575	S17-No00576	S17-No00577	S17-No00578
Date Sampled			Oct 30, 2017	Oct 30, 2017	Oct 30, 2017	Oct 30, 2017
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluoroundecanoic acid (PFUnA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorododecanoic acid (PFDoA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorotridecanoic acid (PFTrDA)	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorotetradecanoic acid (PFTeDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
13C4-PFBA (surr.)	1	%	112	112	115	112
13C5-PFPeA (surr.)	1	%	114	117	119	120
13C5-PFHxA (surr.)	1	%	127	127	129	126
13C4-PFHpA (surr.)	1	%	141	143	145	145
13C8-PFOA (surr.)	1	%	131	131	133	135
13C5-PFNA (surr.)	1	%	135	141	142	139
13C6-PFDA (surr.)	1	%	164	169	169	163
13C2-PFUnDA (surr.)	1	%	150	156	155	148
13C2-PFDoDA (surr.)	1	%	176	191	191	174
13C2-PFTeDA (surr.)	1	%	168	180	174	168
Perfluoroalkane sulfonamides (PFASAs)						
Perfluorooctane sulfonamide (FOSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	10	ug/kg	< 10	< 10	< 10	< 10
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	10	ug/kg	< 10	< 10	< 10	< 10
13C8-FOSA (surr.)	1	%	129	126	122	131
D3-N-MeFOSA (surr.)	1	%	129	131	133	126
D5-N-EtFOSA (surr.)	1	%	114	135	117	114
D7-N-MeFOSE (surr.)	1	%	44	54	72	51
D9-N-EtFOSE (surr.)	1	%	122	120	118	124
D5-N-EtFOSAA (surr.)	1	%	173	186	188	166
D3-N-MeFOSAA (surr.)	1	%	188	176	184	174
Perfluoroalkane sulfonic acids & Perfluoroalkane sulfonates (PFSAs)						
Perfluorobutanesulfonic acid (PFBS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanesulfonic acid (PFPeS)	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroheptanesulfonic acid (PFHpS)	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorodecanesulfonic acid (PFDS)	5	ug/kg	< 5	< 5	< 5	< 5
13C3-PFBS (surr.)	1	%	125	126	126	126
18O2-PFHxS (surr.)	1	%	139	130	133	138
13C8-PFOS (surr.)	1	%	162	164	160	165
n:2 Fluorotelomer sulfonic acids						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTS)[N11]	10	ug/kg	< 10	< 10	< 10	< 10
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTS)	5	ug/kg	< 5	< 5	< 5	< 5

Client Sample ID			SS5/0.0-0.1	SS6/0.0-0.1	SS7/0.0-0.1	SS8/0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S17-No00575	S17-No00576	S17-No00577	S17-No00578
Date Sampled			Oct 30, 2017	Oct 30, 2017	Oct 30, 2017	Oct 30, 2017
Test/Reference	LOR	Unit				
n:2 Fluorotelomer sulfonic acids						
13C2-4:2 FTS (surr.)	1	%	123	126	136	128
13C2-6:2 FTS (surr.)	1	%	132	138	119	125
13C2-8:2 FTS (surr.)	1	%	145	135	143	146
PFASs Summations						
Sum (PFHxS + PFOS)	5	ug/kg	< 5	< 5	< 5	< 5
Sum of US EPA PFAS (PFOS + PFOA)	5	ug/kg	< 5	< 5	< 5	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)	5	ug/kg	< 5	< 5	< 5	< 5
Sum of WA DER PFAS (n=10)	10	ug/kg	< 10	< 10	< 10	< 10
Sum of PFASs (n=28)	50	ug/kg	< 50	< 50	< 50	< 50
% Moisture	1	%	6.3	8.9	9.3	6.5

Client Sample ID			SS9/0.0-0.1	SS10/0.0-0.1	SS11/0.0-0.1	SS12/0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S17-No00579	S17-No00580	S17-No00581	S17-No00582
Date Sampled			Oct 30, 2017	Oct 30, 2017	Oct 30, 2017	Oct 30, 2017
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanoic acid (PFPeA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorohexanoic acid (PFHxA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroheptanoic acid (PFHpA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorononanoic acid (PFNA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorodecanoic acid (PFDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroundecanoic acid (PFUnA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorododecanoic acid (PFDoA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorotridecanoic acid (PFTrDA)	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorotetradecanoic acid (PFTeDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
13C4-PFBA (surr.)	1	%	112	117	108	112
13C5-PFPeA (surr.)	1	%	99	120	121	116
13C5-PFHxA (surr.)	1	%	125	128	128	127
13C4-PFHpA (surr.)	1	%	140	147	143	145
13C8-PFOA (surr.)	1	%	127	133	136	137
13C5-PFNA (surr.)	1	%	133	139	135	137
13C6-PFDA (surr.)	1	%	160	166	167	164
13C2-PFUnDA (surr.)	1	%	141	148	158	157
13C2-PFDoDA (surr.)	1	%	162	173	189	181
13C2-PFTeDA (surr.)	1	%	152	167	176	168
Perfluoroalkane sulfonamides (PFASAs)						
Perfluorooctane sulfonamide (FOSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)[N11]	5	ug/kg	< 5	< 5	< 5	< 5

Client Sample ID			SS9/0.0-0.1	SS10/0.0-0.1	SS11/0.0-0.1	SS12/0.0-0.1
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S17-No00579**	**S17-No00580**	**S17-No00581**	**S17-No00582**
Date Sampled			**Oct 30, 2017**	**Oct 30, 2017**	**Oct 30, 2017**	**Oct 30, 2017**
Test/Reference	LOR	Unit				
Perfluoroalkane sulfonamides (PFASAs)						
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	10	ug/kg	< 10	< 10	< 10	< 10
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	10	ug/kg	< 10	< 10	< 10	< 10
13C8-FOSA (surr.)	1	%	106	128	124	119
D3-N-MeFOSA (surr.)	1	%	126	125	131	134
D5-N-EtFOSA (surr.)	1	%	92	108	128	103
D7-N-MeFOSE (surr.)	1	%	43	46	43	46
D9-N-EtFOSE (surr.)	1	%	107	115	122	124
D5-N-EtFOSAA (surr.)	1	%	156	178	172	171
D3-N-MeFOSAA (surr.)	1	%	149	186	156	177
Perfluoroalkane sulfonic acids & Perfluoroalkane sulfonates (PFSAs)						
Perfluorobutanesulfonic acid (PFBS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanesulfonic acid (PFPeS)	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroheptanesulfonic acid (PFHpS)	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorodecanesulfonic acid (PFDS)	5	ug/kg	< 5	< 5	< 5	< 5
13C3-PFBS (surr.)	1	%	126	126	127	125
18O2-PFHxS (surr.)	1	%	133	140	137	136
13C8-PFOS (surr.)	1	%	156	163	169	162
n:2 Fluorotelomer sulfonic acids						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTS)[N11]	10	ug/kg	< 10	< 10	< 10	< 10
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTS)	5	ug/kg	< 5	< 5	< 5	< 5
13C2-4:2 FTS (surr.)	1	%	119	115	119	120
13C2-6:2 FTS (surr.)	1	%	128	121	127	116
13C2-8:2 FTS (surr.)	1	%	134	136	145	134
PFASs Summations						
Sum (PFHxS + PFOS)	5	ug/kg	< 5	< 5	< 5	< 5
Sum of US EPA PFAS (PFOS + PFOA)	5	ug/kg	< 5	< 5	< 5	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)	5	ug/kg	< 5	< 5	< 5	< 5
Sum of WA DER PFAS (n=10)	10	ug/kg	< 10	< 10	< 10	< 10
Sum of PFASs (n=28)	50	ug/kg	< 50	< 50	< 50	< 50
% Moisture	1	%	11	7.5	8.3	5.7

Client Sample ID			GS1/0.0-0.1	GS2/0.0-0.1	GS3/0.0-0.1	GS4/0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S17-No00583	S17-No00584	S17-No00585	S17-No00586
Date Sampled			Oct 30, 2017	Oct 30, 2017	Oct 30, 2017	Oct 30, 2017
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanoic acid (PFPeA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorohexanoic acid (PFHxA)[N11]	5	ug/kg	< 5	< 5	< 5	[N09]5.6
Perfluoroheptanoic acid (PFHpA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorononanoic acid (PFNA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorodecanoic acid (PFDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroundecanoic acid (PFUnA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorododecanoic acid (PFDoA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorotridecanoic acid (PFTrDA)	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorotetradecanoic acid (PFTeDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
13C4-PFBA (surr.)	1	%	113	120	115	114
13C5-PFPeA (surr.)	1	%	115	125	119	116
13C5-PFHxA (surr.)	1	%	128	136	129	127
13C4-PFHpA (surr.)	1	%	144	154	146	143
13C8-PFOA (surr.)	1	%	135	145	138	132
13C5-PFNA (surr.)	1	%	133	146	136	133
13C6-PFDA (surr.)	1	%	164	176	165	154
13C2-PFUnDA (surr.)	1	%	149	153	154	145
13C2-PFDoDA (surr.)	1	%	173	180	178	170
13C2-PFTeDA (surr.)	1	%	170	176	168	159
Perfluoroalkane sulfonamides (PFASAs)						
Perfluorooctane sulfonamide (FOSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	10	ug/kg	< 10	< 10	< 10	< 10
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	10	ug/kg	< 10	< 10	< 10	< 10
13C8-FOSA (surr.)	1	%	129	146	126	135
D3-N-MeFOSA (surr.)	1	%	128	143	133	135
D5-N-EtFOSA (surr.)	1	%	98	106	123	80
D7-N-MeFOSE (surr.)	1	%	51	54	52	49
D9-N-EtFOSE (surr.)	1	%	124	131	119	125
D5-N-EtFOSAA (surr.)	1	%	167	186	170	162
D3-N-MeFOSAA (surr.)	1	%	183	189	187	166
Perfluoroalkane sulfonic acids & Perfluoroalkane sulfonates (PFSAs)						
Perfluorobutanesulfonic acid (PFBS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanesulfonic acid (PFPeS)	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	< 5	< 5	< 5	[N09]36
Perfluoroheptanesulfonic acid (PFHpS)	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	< 5	< 5	[N09]9.0	[N09]530
Perfluorodecanesulfonic acid (PFDS)	5	ug/kg	< 5	< 5	< 5	< 5
13C3-PFBS (surr.)	1	%	125	134	125	124
18O2-PFHxS (surr.)	1	%	141	146	142	127
13C8-PFOS (surr.)	1	%	160	163	153	112

Client Sample ID			GS1/0.0-0.1	GS2/0.0-0.1	GS3/0.0-0.1	GS4/0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S17-No00583	S17-No00584	S17-No00585	S17-No00586
Date Sampled			Oct 30, 2017	Oct 30, 2017	Oct 30, 2017	Oct 30, 2017
Test/Reference	LOR	Unit				
n:2 Fluorotelomer sulfonic acids						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTS)[N11]	10	ug/kg	< 10	< 10	< 10	< 10
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTS)	5	ug/kg	< 5	< 5	< 5	< 5
13C2-4:2 FTS (surr.)	1	%	113	128	127	127
13C2-6:2 FTS (surr.)	1	%	136	130	124	128
13C2-8:2 FTS (surr.)	1	%	144	152	132	144
PFASs Summations						
Sum (PFHxS + PFOS)	5	ug/kg	< 5	< 5	9	566
Sum of US EPA PFAS (PFOS + PFOA)	5	ug/kg	< 5	< 5	9	530
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)	5	ug/kg	< 5	< 5	9	566
Sum of WA DER PFAS (n=10)	10	ug/kg	< 10	< 10	< 10	571.6
Sum of PFASs (n=28)	50	ug/kg	< 50	< 50	< 50	571.6
% Moisture	1	%	10	8.0	11	8.3

Client Sample ID			GS5/0.0-0.1	GS6/0.0-0.1	GS7/0.0-0.1	GS8/0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S17-No00587	S17-No00588	S17-No00589	S17-No00590
Date Sampled			Oct 30, 2017	Oct 30, 2017	Oct 30, 2017	Oct 30, 2017
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanoic acid (PFPeA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorohexanoic acid (PFHxA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroheptanoic acid (PFHpA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorononanoic acid (PFNA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorodecanoic acid (PFDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroundecanoic acid (PFUnA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorododecanoic acid (PFDoA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorotridecanoic acid (PFTrDA)	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorotetradecanoic acid (PFTeDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
13C4-PFBA (surr.)	1	%	119	115	114	113
13C5-PFPeA (surr.)	1	%	116	120	106	111
13C5-PFHxA (surr.)	1	%	131	130	129	129
13C4-PFHpA (surr.)	1	%	146	145	146	146
13C8-PFOA (surr.)	1	%	139	138	138	136
13C5-PFNA (surr.)	1	%	134	138	132	137
13C6-PFDA (surr.)	1	%	175	164	168	168
13C2-PFUnDA (surr.)	1	%	162	166	159	152
13C2-PFDoDA (surr.)	1	%	181	177	187	182
13C2-PFTeDA (surr.)	1	%	178	177	195	185

Client Sample ID			GS5/0.0-0.1	GS6/0.0-0.1	GS7/0.0-0.1	GS8/0.0-0.1
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S17-No00587**	**S17-No00588**	**S17-No00589**	**S17-No00590**
Date Sampled			**Oct 30, 2017**	**Oct 30, 2017**	**Oct 30, 2017**	**Oct 30, 2017**
Test/Reference	LOR	Unit				
Perfluoroalkane sulfonamides (PFASAs)						
Perfluorooctane sulfonamide (FOSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	10	ug/kg	< 10	< 10	< 10	< 10
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	10	ug/kg	< 10	< 10	< 10	< 10
13C8-FOSA (surr.)	1	%	133	142	133	127
D3-N-MeFOSA (surr.)	1	%	138	131	134	132
D5-N-EtFOSA (surr.)	1	%	105	98	148	112
D7-N-MeFOSE (surr.)	1	%	53	52	43	47
D9-N-EtFOSE (surr.)	1	%	127	122	121	115
D5-N-EtFOSAA (surr.)	1	%	175	164	174	169
D3-N-MeFOSAA (surr.)	1	%	180	177	169	161
Perfluoroalkane sulfonic acids & Perfluoroalkane sulfonates (PFSAs)						
Perfluorobutanesulfonic acid (PFBS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanesulfonic acid (PFPeS)	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroheptanesulfonic acid (PFHpS)	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	< 5	< 5	[N09]7.2	[N09]16
Perfluorodecanesulfonic acid (PFDS)	5	ug/kg	< 5	< 5	< 5	< 5
13C3-PFBS (surr.)	1	%	128	128	128	126
18O2-PFHxS (surr.)	1	%	141	142	142	140
13C8-PFOS (surr.)	1	%	163	164	155	146
n:2 Fluorotelomer sulfonic acids						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTS)[N11]	10	ug/kg	< 10	< 10	< 10	< 10
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTS)	5	ug/kg	< 5	< 5	< 5	< 5
13C2-4:2 FTS (surr.)	1	%	119	126	132	122
13C2-6:2 FTS (surr.)	1	%	128	129	121	119
13C2-8:2 FTS (surr.)	1	%	150	155	139	140
PFASs Summations						
Sum (PFHxS + PFOS)	5	ug/kg	< 5	< 5	7.2	16
Sum of US EPA PFAS (PFOS + PFOA)	5	ug/kg	< 5	< 5	7.2	16
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)	5	ug/kg	< 5	< 5	7.2	16
Sum of WA DER PFAS (n=10)	10	ug/kg	< 10	< 10	< 10	16
Sum of PFASs (n=28)	50	ug/kg	< 50	< 50	< 50	< 50
% Moisture	1	%	6.1	7.6	8.0	6.4

Client Sample ID			GS9/0.0-0.1	GS10/0.0-0.1	GS11/0.0-0.1	GS12/0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S17-No00591	S17-No00592	S17-No00593	S17-No00594
Date Sampled			Oct 30, 2017	Oct 30, 2017	Oct 30, 2017	Oct 30, 2017
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanoic acid (PFPeA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorohexanoic acid (PFHxA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroheptanoic acid (PFHpA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorononanoic acid (PFNA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorodecanoic acid (PFDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroundecanoic acid (PFUnA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorododecanoic acid (PFDoA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorotridecanoic acid (PFTrDA)	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorotetradecanoic acid (PFTeDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
13C4-PFBA (surr.)	1	%	116	113	114	114
13C5-PFPeA (surr.)	1	%	111	109	111	113
13C5-PFHxA (surr.)	1	%	130	127	128	130
13C4-PFHpA (surr.)	1	%	146	145	145	145
13C8-PFOA (surr.)	1	%	136	135	137	138
13C5-PFNA (surr.)	1	%	138	136	135	134
13C6-PFDA (surr.)	1	%	172	165	165	167
13C2-PFUnDA (surr.)	1	%	163	158	167	154
13C2-PFDoDA (surr.)	1	%	191	175	191	174
13C2-PFTeDA (surr.)	1	%	193	182	193	172
Perfluoroalkane sulfonamides (PFASAs)						
Perfluorooctane sulfonamide (FOSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	10	ug/kg	< 10	< 10	< 10	< 10
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	10	ug/kg	< 10	< 10	< 10	< 10
13C8-FOSA (surr.)	1	%	129	139	139	124
D3-N-MeFOSA (surr.)	1	%	140	134	134	127
D5-N-EtFOSA (surr.)	1	%	135	93	109	118
D7-N-MeFOSE (surr.)	1	%	52	43	46	42
D9-N-EtFOSE (surr.)	1	%	125	119	122	124
D5-N-EtFOSAA (surr.)	1	%	171	169	173	172
D3-N-MeFOSAA (surr.)	1	%	169	176	175	178
Perfluoroalkane sulfonic acids & Perfluoroalkane sulfonates (PFSAs)						
Perfluorobutanesulfonic acid (PFBS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanesulfonic acid (PFPeS)	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroheptanesulfonic acid (PFHpS)	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	< 5	< 5	[N09]8.7	[N09]< 5
Perfluorodecanesulfonic acid (PFDS)	5	ug/kg	< 5	< 5	< 5	< 5
13C3-PFBS (surr.)	1	%	126	127	122	128
18O2-PFHxS (surr.)	1	%	139	140	140	140
13C8-PFOS (surr.)	1	%	157	156	169	156

Client Sample ID			GS9/0.0-0.1	GS10/0.0-0.1	GS11/0.0-0.1	GS12/0.0-0.1
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S17-No00591**	**S17-No00592**	**S17-No00593**	**S17-No00594**
Date Sampled			**Oct 30, 2017**	**Oct 30, 2017**	**Oct 30, 2017**	**Oct 30, 2017**
Test/Reference	LOR	Unit				
n:2 Fluorotelomer sulfonic acids						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTS)[N11]	10	ug/kg	< 10	< 10	< 10	< 10
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTS)	5	ug/kg	< 5	< 5	< 5	< 5
13C2-4:2 FTS (surr.)	1	%	123	120	122	122
13C2-6:2 FTS (surr.)	1	%	125	114	110	132
13C2-8:2 FTS (surr.)	1	%	152	125	126	145
PFASs Summations						
Sum (PFHxS + PFOS)	5	ug/kg	< 5	< 5	8.7	< 5
Sum of US EPA PFAS (PFOS + PFOA)	5	ug/kg	< 5	< 5	8.7	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)	5	ug/kg	< 5	< 5	8.7	< 5
Sum of WA DER PFAS (n=10)	10	ug/kg	< 10	< 10	< 10	< 10
Sum of PFASs (n=28)	50	ug/kg	< 50	< 50	< 50	< 50
% Moisture	1	%	11	11	12	4.7

Client Sample ID			DS1	DS3	DS2
Sample Matrix			**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S17-No00603**	**S17-No00604**	**S17-No00649**
Date Sampled			**Oct 30, 2017**	**Oct 30, 2017**	**Oct 30, 2017**
Test/Reference	LOR	Unit			
Perfluoroalkyl carboxylic acids (PFCAs)					
Perfluorobutanoic acid (PFBA)[N11]	5	ug/kg	< 5	< 5	< 5
Perfluoropentanoic acid (PFPeA)[N11]	5	ug/kg	< 5	< 5	< 5
Perfluorohexanoic acid (PFHxA)[N11]	5	ug/kg	< 5	< 5	[N09]5.3
Perfluoroheptanoic acid (PFHpA)[N11]	5	ug/kg	< 5	< 5	< 5
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	< 5	< 5	< 5
Perfluorononanoic acid (PFNA)[N11]	5	ug/kg	< 5	< 5	< 5
Perfluorodecanoic acid (PFDA)[N11]	5	ug/kg	< 5	< 5	< 5
Perfluoroundecanoic acid (PFUnA)[N11]	5	ug/kg	< 5	< 5	< 5
Perfluorododecanoic acid (PFDoA)[N11]	5	ug/kg	< 5	< 5	< 5
Perfluorotridecanoic acid (PFTrDA)	5	ug/kg	< 5	< 5	< 5
Perfluorotetradecanoic acid (PFTeDA)[N11]	5	ug/kg	< 5	< 5	< 5
13C4-PFBA (surr.)	1	%	108	109	109
13C5-PFPeA (surr.)	1	%	111	107	118
13C5-PFHxA (surr.)	1	%	126	127	127
13C4-PFHpA (surr.)	1	%	142	144	144
13C8-PFOA (surr.)	1	%	134	133	137
13C5-PFNA (surr.)	1	%	136	132	134
13C6-PFDA (surr.)	1	%	160	168	154
13C2-PFUnDA (surr.)	1	%	151	158	157
13C2-PFDoDA (surr.)	1	%	176	183	183
13C2-PFTeDA (surr.)	1	%	185	188	173

Client Sample ID			DS1	DS3	DS2
Sample Matrix			Soil	Soil	Soil
Eurofins | mgt Sample No.			S17-No00603	S17-No00604	S17-No00649
Date Sampled			Oct 30, 2017	Oct 30, 2017	Oct 30, 2017
Test/Reference	LOR	Unit			
Perfluoroalkane sulfonamides (PFASAs)					
Perfluorooctane sulfonamide (FOSA)[N11]	5	ug/kg	< 5	< 5	< 5
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	5	ug/kg	< 5	< 5	< 5
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	5	ug/kg	< 5	< 5	< 5
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)[N11]	5	ug/kg	< 5	< 5	< 5
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)[N11]	5	ug/kg	< 5	< 5	< 5
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	10	ug/kg	< 10	< 10	< 10
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	10	ug/kg	< 10	< 10	< 10
13C8-FOSA (surr.)	1	%	133	136	123
D3-N-MeFOSA (surr.)	1	%	134	139	139
D5-N-EtFOSA (surr.)	1	%	139	140	174
D7-N-MeFOSE (surr.)	1	%	38	46	45
D9-N-EtFOSE (surr.)	1	%	120	127	123
D5-N-EtFOSAA (surr.)	1	%	172	164	169
D3-N-MeFOSAA (surr.)	1	%	173	167	160
Perfluoroalkane sulfonic acids & Perfluoroalkane sulfonates (PFSAs)					
Perfluorobutanesulfonic acid (PFBS)[N11]	5	ug/kg	< 5	< 5	< 5
Perfluoropentanesulfonic acid (PFPeS)	5	ug/kg	< 5	< 5	< 5
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	< 5	< 5	[N09]26
Perfluoroheptanesulfonic acid (PFHpS)	5	ug/kg	< 5	< 5	< 5
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	< 5	< 5	[N09]390
Perfluorodecanesulfonic acid (PFDS)	5	ug/kg	< 5	< 5	< 5
13C3-PFBS (surr.)	1	%	125	122	125
18O2-PFHxS (surr.)	1	%	139	137	136
13C8-PFOS (surr.)	1	%	160	164	114
n:2 Fluorotelomer sulfonic acids					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTS)[N11]	5	ug/kg	< 5	< 5	< 5
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTS)[N11]	10	ug/kg	< 10	< 10	< 10
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTS)[N11]	5	ug/kg	< 5	< 5	< 5
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTS)	5	ug/kg	< 5	< 5	< 5
13C2-4:2 FTS (surr.)	1	%	113	130	123
13C2-6:2 FTS (surr.)	1	%	123	123	114
13C2-8:2 FTS (surr.)	1	%	141	139	153
PFASs Summations					
Sum (PFHxS + PFOS)	5	ug/kg	< 5	< 5	416
Sum of US EPA PFAS (PFOS + PFOA)	5	ug/kg	< 5	< 5	390
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)	5	ug/kg	< 5	< 5	416
Sum of WA DER PFAS (n=10)	10	ug/kg	< 10	< 10	421.3
Sum of PFASs (n=28)	50	ug/kg	< 50	< 50	421.3
% Moisture	1	%	2.0	4.3	11

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
Per- and Polyfluorinated Alkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs)	Brisbane	Nov 07, 2017	180 Day
- Method: LTM-ORG-2100 Per- and Polyfluorinated Alkyl Substances by LC-MS/MS			
Perfluoroalkane sulfonamides (PFASAs)	Brisbane	Nov 07, 2017	180 Day
- Method: LTM-ORG-2100 Per- and Polyfluorinated Alkyl Substances by LC-MS/MS			
Perfluoroalkane sulfonic acids & Perfluoroalkane sulfonates (PFSAs)	Brisbane	Nov 07, 2017	180 Day
- Method: LTM-ORG-2100 Per- and Polyfluorinated Alkyl Substances by LC-MS/MS			
n:2 Fluorotelomer sulfonic acids	Brisbane	Nov 07, 2017	180 Day
- Method: LTM-ORG-2100 Per- and Polyfluorinated Alkyl Substances by LC-MS/MS			
% Moisture	Brisbane	Nov 01, 2017	14 Day
- Method: LTM-GEN-7080 Moisture			

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Site # 23736

Company Name: Geo-Logix P/L
Address: Bld Q2 Level 3, 2309/4 Daydream St
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NSW 2102

Project Name: TRC ENTERPRISE
Project ID: 1701110

Order No.: PO2229
Report #: 570391
Phone: 02 9979 1722
Fax: 02 9979 1222

Received: Nov 1, 2017 12:40 PM
Due: Nov 8, 2017
Priority: 5 Day
Contact Name: Tim Gunns

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Moisture Set	Per- and Polyfluorinated Alkyl Substances (PFASs)	Per- and Polyfluorinated Alkyl Substances (PFASs) - Trace
Melbourne Laboratory - NATA Site # 1254 & 14271								
Sydney Laboratory - NATA Site # 18217								
Brisbane Laboratory - NATA Site # 20794						X	X	X
Perth Laboratory - NATA Site # 23736								
External Laboratory								
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**			
1	SED1	Oct 30, 2017		Soil	S17-No00563	X	X	
2	SED2	Oct 30, 2017		Soil	S17-No00564	X	X	
3	SED4	Oct 30, 2017		Soil	S17-No00565	X	X	
4	SED5	Oct 30, 2017		Soil	S17-No00566	X	X	
5	SED6	Oct 30, 2017		Soil	S17-No00567	X	X	
6	SED7	Oct 30, 2017		Soil	S17-No00568	X	X	
7	SED8	Oct 30, 2017		Soil	S17-No00569	X	X	
8	SED9	Oct 30, 2017		Soil	S17-No00570	X	X	
9	SS1/0.0-0.1	Oct 30, 2017		Soil	S17-No00571	X	X	

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NATA # 1261 Site # 18217

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NATA # 1261 Site # 20794

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Sydney Laboratory - NATA Site # 18217								
Brisbane Laboratory - NATA Site # 20794						X	X	X
Perth Laboratory - NATA Site # 23736								
10	SS2/0.0-0.1	Oct 30, 2017		Soil	S17-No00572	X	X	
11	SS3/0.0-0.1	Oct 30, 2017		Soil	S17-No00573	X	X	
12	SS4/0.0-0.1	Oct 30, 2017		Soil	S17-No00574	X	X	
13	SS5/0.0-0.1	Oct 30, 2017		Soil	S17-No00575	X	X	
14	SS6/0.0-0.1	Oct 30, 2017		Soil	S17-No00576	X	X	
15	SS7/0.0-0.1	Oct 30, 2017		Soil	S17-No00577	X	X	
16	SS8/0.0-0.1	Oct 30, 2017		Soil	S17-No00578	X	X	
17	SS9/0.0-0.1	Oct 30, 2017		Soil	S17-No00579	X	X	
18	SS10/0.0-0.1	Oct 30, 2017		Soil	S17-No00580	X	X	
19	SS11/0.0-0.1	Oct 30, 2017		Soil	S17-No00581	X	X	
20	SS12/0.0-0.1	Oct 30, 2017		Soil	S17-No00582	X	X	
21	GS1/0.0-0.1	Oct 30, 2017		Soil	S17-No00583	X	X	

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Melbourne Laboratory - NATA Site # 1254 & 14271								
Sydney Laboratory - NATA Site # 18217								
Brisbane Laboratory - NATA Site # 20794						X	X	X
Perth Laboratory - NATA Site # 23736								
22	GS2/0.0-0.1	Oct 30, 2017		Soil	S17-No00584	X	X	
23	GS3/0.0-0.1	Oct 30, 2017		Soil	S17-No00585	X	X	
24	GS4/0.0-0.1	Oct 30, 2017		Soil	S17-No00586	X	X	
25	GS5/0.0-0.1	Oct 30, 2017		Soil	S17-No00587	X	X	
26	GS6/0.0-0.1	Oct 30, 2017		Soil	S17-No00588	X	X	
27	GS7/0.0-0.1	Oct 30, 2017		Soil	S17-No00589	X	X	
28	GS8/0.0-0.1	Oct 30, 2017		Soil	S17-No00590	X	X	
29	GS9/0.0-0.1	Oct 30, 2017		Soil	S17-No00591	X	X	
30	GS10/0.0-0.1	Oct 30, 2017		Soil	S17-No00592	X	X	
31	GS11/0.0-0.1	Oct 30, 2017		Soil	S17-No00593	X	X	
32	GS12/0.0-0.1	Oct 30, 2017		Soil	S17-No00594	X	X	
33	BORE1	Oct 30, 2017		Water	S17-No00595			X

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Melbourne Laboratory - NATA Site # 1254 & 14271								
Sydney Laboratory - NATA Site # 18217								
Brisbane Laboratory - NATA Site # 20794						X	X	X
Perth Laboratory - NATA Site # 23736								
34	BORE2	Oct 30, 2017		Water	S17-No00596			X
35	SW1	Oct 30, 2017		Water	S17-No00597			X
36	SW2	Oct 30, 2017		Water	S17-No00598			X
37	SW4	Oct 30, 2017		Water	S17-No00600			X
38	SW5	Oct 30, 2017		Water	S17-No00601			X
39	SW6	Oct 30, 2017		Water	S17-No00602			X
40	DS1	Oct 30, 2017		Soil	S17-No00603	X	X	
41	DS3	Oct 30, 2017		Soil	S17-No00604	X	X	
42	DW1	Oct 30, 2017		Water	S17-No00605			X
43	DW2	Oct 30, 2017		Water	S17-No00606			X
44	R1	Oct 30, 2017		Water	S17-No00607		X	
45	B1	Oct 30, 2017		Water	S17-No00608		X	

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Project Name:	TRC ENTERPRISE				
Project ID:	1701110				

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Moisture Set	Per- and Polyfluorinated Alkyl Substances (PFASs)	Per- and Polyfluorinated Alkyl Substances (PFASs) - Trace
Melbourne Laboratory - NATA Site # 1254 & 14271								
Sydney Laboratory - NATA Site # 18217								
Brisbane Laboratory - NATA Site # 20794						X	X	X
Perth Laboratory - NATA Site # 23736								
46	DS2	Oct 30, 2017		Soil	S17-No00649	X	X	
Test Counts						35	37	9

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. All biota results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

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

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

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

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

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

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

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

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	Quality Systems Manual ver 5.1 US Department of Defense
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

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

Results <10 times the LOR : No Limit

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

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

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

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

QC Data General Comments

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

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	ug/kg	< 5			5	Pass	
Perfluoropentanoic acid (PFPeA)	ug/kg	< 5			5	Pass	
Perfluorohexanoic acid (PFHxA)	ug/kg	< 5			5	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/kg	< 5			5	Pass	
Perfluorooctanoic acid (PFOA)	ug/kg	< 5			5	Pass	
Perfluorononanoic acid (PFNA)	ug/kg	< 5			5	Pass	
Perfluorodecanoic acid (PFDA)	ug/kg	< 5			5	Pass	
Perfluoroundecanoic acid (PFUnA)	ug/kg	< 5			5	Pass	
Perfluorododecanoic acid (PFDoA)	ug/kg	< 5			5	Pass	
Perfluorotridecanoic acid (PFTrDA)	ug/kg	< 5			5	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/kg	< 5			5	Pass	
Method Blank							
Perfluoroalkane sulfonamides (PFASAs)							
Perfluorooctane sulfonamide (FOSA)	ug/kg	< 5			5	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/kg	< 5			5	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/kg	< 5			5	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	ug/kg	< 5			5	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	ug/kg	< 5			5	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/kg	< 10			10	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/kg	< 10			10	Pass	
Method Blank							
Perfluoroalkane sulfonic acids & Perfluoroalkane sulfonates (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	ug/kg	< 5			5	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/kg	< 5			5	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/kg	< 5			5	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/kg	< 5			5	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/kg	< 5			5	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/kg	< 5			5	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTS)	ug/kg	< 5			5	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTS)	ug/kg	< 10			10	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTS)	ug/kg	< 5			5	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTS)	ug/kg	< 5			5	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	100			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	102			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	108			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	100			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	123			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	104			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	99			50-150	Pass	
Perfluoroundecanoic acid (PFUnA)	%	90			50-150	Pass	
Perfluorododecanoic acid (PFDoA)	%	103			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	118			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	115			50-150	Pass	
LCS - % Recovery							
Perfluoroalkane sulfonamides (PFASAs)							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorooctane sulfonamide (FOSA)	%	91			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	101			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	100			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	%	93			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	%	119			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	105			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	108			50-150	Pass	
LCS - % Recovery							
Perfluoroalkane sulfonic acids & Perfluoroalkane sulfonates (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	%	90			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	89			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	105			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	95			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	91			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	92			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTS)	%	96			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTS)	%	135			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTS)	%	129			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTS)	%	134			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1					
Perfluorobutanoic acid (PFBA)	S17-No00574	CP	%	121			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	S17-No00574	CP	%	129			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	S17-No00574	CP	%	128			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	S17-No00574	CP	%	121			50-150	Pass	
Perfluorooctanoic acid (PFOA)	S17-No00574	CP	%	137			50-150	Pass	
Perfluorononanoic acid (PFNA)	S17-No00574	CP	%	130			50-150	Pass	
Perfluorodecanoic acid (PFDA)	S17-No00574	CP	%	125			50-150	Pass	
Perfluoroundecanoic acid (PFUnA)	S17-No00574	CP	%	112			50-150	Pass	
Perfluorododecanoic acid (PFDoA)	S17-No00574	CP	%	117			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	S17-No00574	CP	%	127			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	S17-No00574	CP	%	138			50-150	Pass	
Spike - % Recovery									
Perfluoroalkane sulfonamides (PFASAs)				Result 1					
Perfluorooctane sulfonamide (FOSA)	S17-No00574	CP	%	117			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	S17-No00574	CP	%	128			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	S17-No00574	CP	%	133			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	S17-No00574	CP	%	133			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	S17-No00574	CP	%	124			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	S17-No00574	CP	%	118			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	S17-No00574	CP	%	132			50-150	Pass	
Spike - % Recovery									
Perfluoroalkane sulfonic acids & Perfluoroalkane sulfonates (PFSAs)				Result 1					

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorobutanesulfonic acid (PFBS)	S17-No00574	CP	%	110			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	S17-No00574	CP	%	113			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	S17-No00574	CP	%	117			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	S17-No00574	CP	%	126			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	S17-No00574	CP	%	123			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	S17-No00574	CP	%	101			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTS)	S17-No00574	CP	%	120			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTS)	S17-No00574	CP	%	135			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTS)	S17-No00574	CP	%	131			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTS)	S17-No00574	CP	%	124			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1					
Perfluorobutanoic acid (PFBA)	S17-No00584	CP	%	110			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	S17-No00584	CP	%	112			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	S17-No00584	CP	%	122			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	S17-No00584	CP	%	112			50-150	Pass	
Perfluorooctanoic acid (PFOA)	S17-No00584	CP	%	134			50-150	Pass	
Perfluorononanoic acid (PFNA)	S17-No00584	CP	%	122			50-150	Pass	
Perfluorodecanoic acid (PFDA)	S17-No00584	CP	%	109			50-150	Pass	
Perfluoroundecanoic acid (PFUnA)	S17-No00584	CP	%	104			50-150	Pass	
Perfluorododecanoic acid (PFDoA)	S17-No00584	CP	%	116			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	S17-No00584	CP	%	126			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	S17-No00584	CP	%	113			50-150	Pass	
Spike - % Recovery									
Perfluoroalkane sulfonamides (PFASAs)				Result 1					
Perfluorooctane sulfonamide (FOSA)	S17-No00584	CP	%	107			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	S17-No00584	CP	%	106			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	S17-No00584	CP	%	114			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	S17-No00584	CP	%	95			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	S17-No00584	CP	%	125			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	S17-No00584	CP	%	120			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	S17-No00584	CP	%	119			50-150	Pass	
Spike - % Recovery									
Perfluoroalkane sulfonic acids & Perfluoroalkane sulfonates (PFSAs)				Result 1					
Perfluorobutanesulfonic acid (PFBS)	S17-No00584	CP	%	104			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluoropentanesulfonic acid (PFPeS)	S17-No00584	CP	%	108			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	S17-No00584	CP	%	111			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	S17-No00584	CP	%	112			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	S17-No00584	CP	%	105			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	S17-No00584	CP	%	106			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTS)	S17-No00584	CP	%	121			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTS)	S17-No00584	CP	%	128			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTS)	S17-No00584	CP	%	134			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTS)	S17-No00584	CP	%	136			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1					
Perfluorobutanoic acid (PFBA)	S17-No00594	CP	%	113			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	S17-No00594	CP	%	115			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	S17-No00594	CP	%	117			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	S17-No00594	CP	%	113			50-150	Pass	
Perfluorooctanoic acid (PFOA)	S17-No00594	CP	%	135			50-150	Pass	
Perfluorononanoic acid (PFNA)	S17-No00594	CP	%	116			50-150	Pass	
Perfluorodecanoic acid (PFDA)	S17-No00594	CP	%	108			50-150	Pass	
Perfluoroundecanoic acid (PFUnA)	S17-No00594	CP	%	99			50-150	Pass	
Perfluorododecanoic acid (PFDoA)	S17-No00594	CP	%	113			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	S17-No00594	CP	%	134			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	S17-No00594	CP	%	123			50-150	Pass	
Spike - % Recovery									
Perfluoroalkane sulfonamides (PFASAs)				Result 1					
Perfluorooctane sulfonamide (FOSA)	S17-No00594	CP	%	105			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	S17-No00594	CP	%	108			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	S17-No00594	CP	%	116			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	S17-No00594	CP	%	112			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	S17-No00594	CP	%	131			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	S17-No00594	CP	%	121			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	S17-No00594	CP	%	133			50-150	Pass	
Spike - % Recovery									
Perfluoroalkane sulfonic acids & Perfluoroalkane sulfonates (PFSAs)				Result 1					
Perfluorobutanesulfonic acid (PFBS)	S17-No00594	CP	%	99			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	S17-No00594	CP	%	104			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorohexanesulfonic acid (PFHxS)	S17-No00594	CP	%	108			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	S17-No00594	CP	%	110			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	S17-No00594	CP	%	95			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	S17-No00594	CP	%	103			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTS)	S17-No00594	CP	%	106			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTS)	S17-No00594	CP	%	136			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTS)	S17-No00594	CP	%	130			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTS)	S17-No00594	CP	%	134			50-150	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	S17-No00563	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanoic acid (PFPeA)	S17-No00563	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanoic acid (PFHxA)	S17-No00563	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	S17-No00563	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	S17-No00563	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorononanoic acid (PFNA)	S17-No00563	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorodecanoic acid (PFDA)	S17-No00563	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroundecanoic acid (PFUnA)	S17-No00563	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorododecanoic acid (PFDoA)	S17-No00563	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotridecanoic acid (PFTrDA)	S17-No00563	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotetradecanoic acid (PFTeDA)	S17-No00563	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
Perfluoroalkane sulfonamides (PFASAs)				Result 1	Result 2	RPD			
Perfluorooctane sulfonamide (FOSA)	S17-No00563	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	S17-No00563	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	S17-No00563	CP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	S17-No00563	CP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	S17-No00563	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	S17-No00563	CP	ug/kg	< 10	< 10	<1	30%	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	S17-No00563	CP	ug/kg	< 10	< 10	<1	30%	Pass	

Duplicate									
Perfluoroalkane sulfonic acids & Perfluoroalkane sulfonates (PFSAs)				Result 1	Result 2	RPD			
Perfluorobutanesulfonic acid (PFBS)	S17-No00563	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanesulfonic acid (PFPeS)	S17-No00563	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	S17-No00563	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	S17-No00563	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanesulfonic acid (PFOS)	S17-No00563	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorodecanesulfonic acid (PFDS)	S17-No00563	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
n:2 Fluorotelomer sulfonic acids				Result 1	Result 2	RPD			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTS)	S17-No00563	CP	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTS)	S17-No00563	CP	ug/kg	< 10	< 10	<1	30%	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTS)	S17-No00563	CP	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTS)	S17-No00563	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S17-No00571	CP	%	4.8	4.6	5.0	30%	Pass	
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	S17-No00573	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanoic acid (PFPeA)	S17-No00573	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanoic acid (PFHxA)	S17-No00573	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	S17-No00573	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	S17-No00573	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorononanoic acid (PFNA)	S17-No00573	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorodecanoic acid (PFDA)	S17-No00573	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroundecanoic acid (PFUnA)	S17-No00573	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorododecanoic acid (PFDoA)	S17-No00573	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotridecanoic acid (PFTrDA)	S17-No00573	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotetradecanoic acid (PFTeDA)	S17-No00573	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
Perfluoroalkane sulfonamides (PFASAs)				Result 1	Result 2	RPD			
Perfluorooctane sulfonamide (FOSA)	S17-No00573	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	S17-No00573	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	S17-No00573	CP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	S17-No00573	CP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	S17-No00573	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	S17-No00573	CP	ug/kg	< 10	< 10	<1	30%	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	S17-No00573	CP	ug/kg	< 10	< 10	<1	30%	Pass	

Duplicate									
Perfluoroalkane sulfonic acids & Perfluoroalkane sulfonates (PFSAs)				Result 1	Result 2	RPD			
Perfluorobutanesulfonic acid (PFBS)	S17-No00573	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanesulfonic acid (PFPeS)	S17-No00573	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	S17-No00573	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	S17-No00573	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanesulfonic acid (PFOS)	S17-No00573	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorodecanesulfonic acid (PFDS)	S17-No00573	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
n:2 Fluorotelomer sulfonic acids				Result 1	Result 2	RPD			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTS)	S17-No00573	CP	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTS)	S17-No00573	CP	ug/kg	< 10	< 10	<1	30%	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTS)	S17-No00573	CP	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTS)	S17-No00573	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S17-No00581	CP	%	8.3	8.6	3.0	30%	Pass	
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	S17-No00583	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanoic acid (PFPeA)	S17-No00583	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanoic acid (PFHxA)	S17-No00583	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	S17-No00583	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	S17-No00583	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorononanoic acid (PFNA)	S17-No00583	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorodecanoic acid (PFDA)	S17-No00583	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroundecanoic acid (PFUnA)	S17-No00583	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorododecanoic acid (PFDoA)	S17-No00583	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotridecanoic acid (PFTrDA)	S17-No00583	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotetradecanoic acid (PFTeDA)	S17-No00583	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
Perfluoroalkane sulfonamides (PFASAs)				Result 1	Result 2	RPD			
Perfluorooctane sulfonamide (FOSA)	S17-No00583	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	S17-No00583	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	S17-No00583	CP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	S17-No00583	CP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	S17-No00583	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	S17-No00583	CP	ug/kg	< 10	< 10	<1	30%	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	S17-No00583	CP	ug/kg	< 10	< 10	<1	30%	Pass	

Duplicate									
Perfluoroalkane sulfonic acids & Perfluoroalkane sulfonates (PFSAs)				Result 1	Result 2	RPD			
Perfluorobutanesulfonic acid (PFBS)	S17-No00583	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanesulfonic acid (PFPeS)	S17-No00583	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	S17-No00583	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	S17-No00583	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanesulfonic acid (PFOS)	S17-No00583	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorodecanesulfonic acid (PFDS)	S17-No00583	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
n:2 Fluorotelomer sulfonic acids				Result 1	Result 2	RPD			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTS)	S17-No00583	CP	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTS)	S17-No00583	CP	ug/kg	< 10	< 10	<1	30%	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTS)	S17-No00583	CP	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTS)	S17-No00583	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S17-No00591	CP	%	11	12	2.0	30%	Pass	
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	S17-No00593	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanoic acid (PFPeA)	S17-No00593	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanoic acid (PFHxA)	S17-No00593	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	S17-No00593	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	S17-No00593	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorononanoic acid (PFNA)	S17-No00593	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorodecanoic acid (PFDA)	S17-No00593	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroundecanoic acid (PFUnA)	S17-No00593	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorododecanoic acid (PFDoA)	S17-No00593	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotridecanoic acid (PFTrDA)	S17-No00593	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotetradecanoic acid (PFTeDA)	S17-No00593	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
Perfluoroalkane sulfonamides (PFASAs)				Result 1	Result 2	RPD			
Perfluorooctane sulfonamide (FOSA)	S17-No00593	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	S17-No00593	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	S17-No00593	CP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	S17-No00593	CP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	S17-No00593	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	S17-No00593	CP	ug/kg	< 10	< 10	<1	30%	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	S17-No00593	CP	ug/kg	< 10	< 10	<1	30%	Pass	

Duplicate									
Perfluoroalkane sulfonic acids & Perfluoroalkane sulfonates (PFSAs)				Result 1	Result 2	RPD			
Perfluorobutanesulfonic acid (PFBS)	S17-No00593	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanesulfonic acid (PFPeS)	S17-No00593	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	S17-No00593	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	S17-No00593	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanesulfonic acid (PFOS)	S17-No00593	CP	ug/kg	8.7	8.7	<1	30%	Pass	
Perfluorodecanesulfonic acid (PFDS)	S17-No00593	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
n:2 Fluorotelomer sulfonic acids				Result 1	Result 2	RPD			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTS)	S17-No00593	CP	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTS)	S17-No00593	CP	ug/kg	< 10	< 10	<1	30%	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTS)	S17-No00593	CP	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTS)	S17-No00593	CP	ug/kg	< 5	< 5	<1	30%	Pass	

Comments

Sample Integrity

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

Comments

Qualifier Codes/Comments

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

Authorised By

Nibha Vaidya	Analytical Services Manager
Bryan Wilson	Senior Analyst-Metal (QLD)
Jonathon Angell	Senior Analyst-Inorganic (QLD)
Jonathon Angell	Senior Analyst-Organic (QLD)

Glenn Jackson

National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

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

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

eurofins | mgt

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Warriewood
NSW 2102

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Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Attention: **Tim Gunns**

Report **570391-W**
Project name TRC ENTERPRISE
Project ID 1701110
Received Date Nov 01, 2017

Client Sample ID			**BORE1**	**BORE2**	**SW1**	**SW2**
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins | mgt Sample No.			**S17-No00595**	**S17-No00596**	**S17-No00597**	**S17-No00598**
Date Sampled			**Oct 30, 2017**	**Oct 30, 2017**	**Oct 30, 2017**	**Oct 30, 2017**
Test/Reference	LOR	Unit				
PFASs Summations						
Sum (PFHxS + PFOS)	0.001	ug/L	< 0.001	< 0.001	0.001	0.003
Sum of US EPA PFAS (PFOS + PFOA)	0.001	ug/L	< 0.001	< 0.001	0.001	0.003
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)	0.001	ug/L	< 0.001	< 0.001	0.001	0.003
Sum of WA DER PFAS (n=10)	0.005	ug/L	< 0.005	< 0.005	< 0.005	< 0.005
Sum of PFASs (n=28)	0.005	ug/L	< 0.005	< 0.005	< 0.005	< 0.005
Perfluoroalkyl carboxylic acids (PFCAs) - Trace						
Perfluorobutanoic acid (PFBA)[N11]	0.005	ug/L	< 0.005	< 0.005	< 0.005	< 0.005
Perfluoropentanoic acid (PFPeA)[N11]	0.001	ug/L	< 0.001	< 0.001	0.001	< 0.001
Perfluorohexanoic acid (PFHxA)[N11]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
Perfluoroheptanoic acid (PFHpA)[N11]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
Perfluorooctanoic acid (PFOA)[N11]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
Perfluorononanoic acid (PFNA)[N11]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
Perfluorodecanoic acid (PFDA)[N11]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
Perfluoroundecanoic acid (PFUnA)[N11]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
Perfluorododecanoic acid (PFDoA)[N11]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
Perfluorotridecanoic acid (PFTrDA)	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
Perfluorotetradecanoic acid (PFTeDA)[N11]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
13C4-PFBA (surr.)	1	%	82	86	46	50
13C5-PFPeA (surr.)	1	%	86	91	55	57
13C5-PFHxA (surr.)	1	%	87	98	80	80
13C4-PFHpA (surr.)	1	%	77	93	88	86
13C8-PFOA (surr.)	1	%	77	90	90	91
13C5-PFNA (surr.)	1	%	75	87	94	97
13C6-PFDA (surr.)	1	%	57	74	80	80
13C2-PFUnDA (surr.)	1	%	54	65	73	66
13C2-PFDoDA (surr.)	1	%	50	53	51	41
13C2-PFTeDA (surr.)	1	%	37	48	20	22
Perfluoroalkane sulfonic acids & Perfluoroalkane sulfonates (PFSAs) -						
Perfluorobutanesulfonic acid (PFBS)[N11]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
Perfluoropentanesulfonic acid (PFPeS)	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
Perfluorohexanesulfonic acid (PFHxS)[N11]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
Perfluoroheptanesulfonic acid (PFHpS)	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
Perfluorooctanesulfonic acid (PFOS)[N11]	0.001	ug/L	< 0.001	< 0.001	[N09]0.001	[N09]0.003
Perfluorodecanesulfonic acid (PFDS)	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
13C3-PFBS (surr.)	1	%	88	95	87	87

Client Sample ID			BORE1	BORE2	SW1	SW2
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S17-No00595	S17-No00596	S17-No00597	S17-No00598
Date Sampled			Oct 30, 2017	Oct 30, 2017	Oct 30, 2017	Oct 30, 2017
Test/Reference	LOR	Unit				
Perfluoroalkane sulfonic acids & Perfluoroalkane sulfonates (PFSAs) -						
18O2-PFHxS (surr.)	1	%	83	88	94	90
13C8-PFOS (surr.)	1	%	67	75	85	84
Perfluoroalkane sulfonamides (PFASAs) - Trace						
Perfluorooctane sulfonamide (FOSA)[N11]	0.005	ug/L	< 0.005	< 0.005	< 0.005	< 0.005
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	0.005	ug/L	< 0.005	< 0.005	< 0.005	< 0.005
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	0.005	ug/L	< 0.005	< 0.005	< 0.005	< 0.005
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)[N11]	0.005	ug/L	< 0.005	< 0.005	< 0.005	< 0.005
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)[N11]	0.005	ug/L	< 0.005	< 0.005	< 0.005	< 0.005
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	0.005	ug/L	< 0.005	< 0.005	< 0.005	< 0.005
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	0.005	ug/L	< 0.005	< 0.005	< 0.005	< 0.005
13C8-FOSA (surr.)	1	%	70	50	53	53
D3-N-MeFOSA (surr.)	1	%	101	96	75	49
D5-N-EtFOSA (surr.)	1	%	104	109	88	49
D7-N-MeFOSE (surr.)	1	%	50	41	37	22
D9-N-EtFOSE (surr.)	1	%	45	40	34	21
D5-N-EtFOSAA (surr.)	1	%	38	50	56	43
D3-N-MeFOSAA (surr.)	1	%	42	59	70	55
n:2 Fluorotelomer sulfonic acids - Trace						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTS)[N11]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTS)[N11]	0.005	ug/L	< 0.005	< 0.005	< 0.005	< 0.005
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTS)[N11]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTS)	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
13C2-4:2 FTS (surr.)	1	%	40	67	85	89
13C2-6:2 FTS (surr.)	1	%	40	64	106	128
13C2-8:2 FTS (surr.)	1	%	32	59	88	99

Client Sample ID			SW4	SW5	SW6	DW1
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S17-No00600	S17-No00601	S17-No00602	S17-No00605
Date Sampled			Oct 30, 2017	Oct 30, 2017	Oct 30, 2017	Oct 30, 2017
Test/Reference	LOR	Unit				
PFASs Summations						
Sum (PFHxS + PFOS)	0.001	ug/L	0.005	0.003	0.003	0.003
Sum of US EPA PFAS (PFOS + PFOA)	0.001	ug/L	0.007	0.005	0.007	0.003
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)	0.001	ug/L	0.007	0.005	0.007	0.003
Sum of WA DER PFAS (n=10)	0.005	ug/L	0.009	0.006	0.016	< 0.005
Sum of PFASs (n=28)	0.005	ug/L	0.009	0.006	0.016	< 0.005
Perfluoroalkyl carboxylic acids (PFCAs) - Trace						
Perfluorobutanoic acid (PFBA)[N11]	0.005	ug/L	< 0.005	< 0.005	0.005	< 0.005
Perfluoropentanoic acid (PFPeA)[N11]	0.001	ug/L	0.001	< 0.001	0.001	< 0.001
Perfluorohexanoic acid (PFHxA)[N11]	0.001	ug/L	0.001	0.001	0.003	< 0.001
Perfluoroheptanoic acid (PFHpA)[N11]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001

Client Sample ID			SW4	SW5	SW6	DW1
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S17-No00600	S17-No00601	S17-No00602	S17-No00605
Date Sampled			Oct 30, 2017	Oct 30, 2017	Oct 30, 2017	Oct 30, 2017
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs) - Trace						
Perfluorooctanoic acid (PFOA)[N11]	0.001	ug/L	0.002	0.002	[N09]0.004	< 0.001
Perfluorononanoic acid (PFNA)[N11]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
Perfluorodecanoic acid (PFDA)[N11]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
Perfluoroundecanoic acid (PFUnA)[N11]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
Perfluorododecanoic acid (PFDoA)[N11]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
Perfluorotridecanoic acid (PFTrDA)	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
Perfluorotetradecanoic acid (PFTeDA)[N11]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
13C4-PFBA (surr.)	1	%	33	53	55	54
13C5-PFPeA (surr.)	1	%	56	57	65	61
13C5-PFHxA (surr.)	1	%	61	78	75	80
13C4-PFHpA (surr.)	1	%	78	87	89	91
13C8-PFOA (surr.)	1	%	84	92	92	98
13C5-PFNA (surr.)	1	%	97	99	99	102
13C6-PFDA (surr.)	1	%	89	91	94	88
13C2-PFUnDA (surr.)	1	%	79	85	86	81
13C2-PFDoDA (surr.)	1	%	56	61	53	55
13C2-PFTeDA (surr.)	1	%	16	26	14	28
Perfluoroalkane sulfonic acids & Perfluoroalkane sulfonates (PFSAs) -						
Perfluorobutanesulfonic acid (PFBS)[N11]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
Perfluoropentanesulfonic acid (PFPeS)	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
Perfluorohexanesulfonic acid (PFHxS)[N11]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
Perfluoroheptanesulfonic acid (PFHpS)	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
Perfluorooctanesulfonic acid (PFOS)[N11]	0.001	ug/L	[N09]0.005	[N09]0.003	[N09]0.003	[N09]0.003
Perfluorodecanesulfonic acid (PFDS)	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
13C3-PFBS (surr.)	1	%	83	90	89	93
18O2-PFHxS (surr.)	1	%	90	94	94	96
13C8-PFOS (surr.)	1	%	96	90	92	91
Perfluoroalkane sulfonamides (PFASAs) - Trace						
Perfluorooctane sulfonamide (FOSA)[N11]	0.005	ug/L	< 0.005	< 0.005	< 0.005	< 0.005
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	0.005	ug/L	< 0.005	< 0.005	< 0.005	< 0.005
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	0.005	ug/L	< 0.005	< 0.005	< 0.005	< 0.005
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)[N11]	0.005	ug/L	< 0.005	< 0.005	< 0.005	< 0.005
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)[N11]	0.005	ug/L	< 0.005	< 0.005	< 0.005	< 0.005
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	0.005	ug/L	< 0.005	< 0.005	< 0.005	< 0.005
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	0.005	ug/L	< 0.005	< 0.005	< 0.005	< 0.005
13C8-FOSA (surr.)	1	%	63	57	43	54
D3-N-MeFOSA (surr.)	1	%	65	50	65	56
D5-N-EtFOSA (surr.)	1	%	67	53	74	62
D7-N-MeFOSE (surr.)	1	%	30	26	32	25
D9-N-EtFOSE (surr.)	1	%	31	25	33	24
D5-N-EtFOSAA (surr.)	1	%	65	70	66	49
D3-N-MeFOSAA (surr.)	1	%	78	77	76	59

Client Sample ID			SW4	SW5	SW6	DW1
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S17-No00600	S17-No00601	S17-No00602	S17-No00605
Date Sampled			Oct 30, 2017	Oct 30, 2017	Oct 30, 2017	Oct 30, 2017
Test/Reference	LOR	Unit				
n:2 Fluorotelomer sulfonic acids - Trace						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTS)[N11]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTS)[N11]	0.005	ug/L	< 0.005	< 0.005	< 0.005	< 0.005
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTS)[N11]	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTS)	0.001	ug/L	< 0.001	< 0.001	< 0.001	< 0.001
13C2-4:2 FTS (surr.)	1	%	120	129	101	93
13C2-6:2 FTS (surr.)	1	%	159	171	133	132
13C2-8:2 FTS (surr.)	1	%	173	161	137	117

Client Sample ID			DW2	R1	B1
Sample Matrix			Water	Water	Water
Eurofins | mgt Sample No.			S17-No00606	S17-No00607	S17-No00608
Date Sampled			Oct 30, 2017	Oct 30, 2017	Oct 30, 2017
Test/Reference	LOR	Unit			
Perfluoroalkyl carboxylic acids (PFCAs)					
Perfluorobutanoic acid (PFBA)[N11]	0.005	ug/L	-	< 0.005	< 0.005
Perfluoropentanoic acid (PFPeA)[N11]	0.001	ug/L	-	< 0.001	< 0.001
Perfluorohexanoic acid (PFHxA)[N11]	0.001	ug/L	-	< 0.001	< 0.001
Perfluoroheptanoic acid (PFHpA)[N11]	0.001	ug/L	-	< 0.001	< 0.001
Perfluorooctanoic acid (PFOA)[N11]	0.001	ug/L	-	< 0.001	< 0.001
Perfluorononanoic acid (PFNA)[N11]	0.001	ug/L	-	< 0.001	< 0.001
Perfluorodecanoic acid (PFDA)[N11]	0.001	ug/L	-	< 0.001	< 0.001
Perfluoroundecanoic acid (PFUnA)[N11]	0.001	ug/L	-	< 0.001	< 0.001
Perfluorododecanoic acid (PFDoA)[N11]	0.001	ug/L	-	< 0.001	< 0.001
Perfluorotridecanoic acid (PFTrDA)	0.001	ug/L	-	< 0.001	< 0.001
Perfluorotetradecanoic acid (PFTeDA)[N11]	0.001	ug/L	-	< 0.001	< 0.001
13C4-PFBA (surr.)	1	%	-	95	92
13C5-PFPeA (surr.)	1	%	-	84	83
13C5-PFHxA (surr.)	1	%	-	94	86
13C4-PFHpA (surr.)	1	%	-	90	83
13C8-PFOA (surr.)	1	%	-	90	81
13C5-PFNA (surr.)	1	%	-	92	80
13C6-PFDA (surr.)	1	%	-	88	80
13C2-PFUnDA (surr.)	1	%	-	98	87
13C2-PFDoDA (surr.)	1	%	-	74	72
13C2-PFTeDA (surr.)	1	%	-	37	48
Perfluoroalkane sulfonamides (PFASAs)					
Perfluorooctane sulfonamide (FOSA)[N11]	0.005	ug/L	-	< 0.005	< 0.005
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	0.005	ug/L	-	< 0.005	< 0.005
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	0.005	ug/L	-	< 0.005	< 0.005
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)[N11]	0.005	ug/L	-	< 0.005	< 0.005
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)[N11]	0.005	ug/L	-	< 0.005	< 0.005
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	0.005	ug/L	-	< 0.005	< 0.005

Client Sample ID			DW2	R1	B1
Sample Matrix			Water	Water	Water
Eurofins | mgt Sample No.			S17-No00606	S17-No00607	S17-No00608
Date Sampled			Oct 30, 2017	Oct 30, 2017	Oct 30, 2017
Test/Reference	LOR	Unit			
Perfluoroalkane sulfonamides (PFASAs)					
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	0.005	ug/L	-	< 0.005	< 0.005
13C8-FOSA (surr.)	1	%	-	58	58
D3-N-MeFOSA (surr.)	1	%	-	107	101
D5-N-EtFOSA (surr.)	1	%	-	116	110
D7-N-MeFOSE (surr.)	1	%	-	48	49
D9-N-EtFOSE (surr.)	1	%	-	44	50
D5-N-EtFOSAA (surr.)	1	%	-	79	71
D3-N-MeFOSAA (surr.)	1	%	-	79	70
Perfluoroalkane sulfonic acids & Perfluoroalkane sulfonates (PFSAs)					
Perfluorobutanesulfonic acid (PFBS)[N11]	0.001	ug/L	-	< 0.001	< 0.001
Perfluoropentanesulfonic acid (PFPeS)	0.001	ug/L	-	< 0.001	< 0.001
Perfluorohexanesulfonic acid (PFHxS)[N11]	0.001	ug/L	-	< 0.001	< 0.001
Perfluoroheptanesulfonic acid (PFHpS)	0.001	ug/L	-	< 0.001	< 0.001
Perfluorooctanesulfonic acid (PFOS)[N11]	0.001	ug/L	-	< 0.001	< 0.001
Perfluorodecanesulfonic acid (PFDS)	0.001	ug/L	-	< 0.001	< 0.001
13C3-PFBS (surr.)	1	%	-	102	93
18O2-PFHxS (surr.)	1	%	-	94	89
13C8-PFOS (surr.)	1	%	-	87	81
n:2 Fluorotelomer sulfonic acids					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTS)[N11]	0.001	ug/L	-	< 0.001	< 0.001
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTS)[N11]	0.005	ug/L	-	< 0.005	< 0.005
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTS)[N11]	0.001	ug/L	-	< 0.001	< 0.001
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTS)	0.001	ug/L	-	< 0.001	< 0.001
13C2-4:2 FTS (surr.)	1	%	-	79	66
13C2-6:2 FTS (surr.)	1	%	-	83	65
13C2-8:2 FTS (surr.)	1	%	-	85	71
PFASs Summations					
Sum (PFHxS + PFOS)	0.001	ug/L	< 0.001	< 0.001	< 0.001
Sum of US EPA PFAS (PFOS + PFOA)	0.001	ug/L	< 0.001	< 0.001	< 0.001
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)	0.001	ug/L	< 0.001	< 0.001	< 0.001
Sum of WA DER PFAS (n=10)	0.005	ug/L	< 0.005	< 0.005	< 0.005
Sum of PFASs (n=28)	0.005	ug/L	< 0.005	< 0.005	< 0.005
Perfluoroalkyl carboxylic acids (PFCAs) - Trace					
Perfluorobutanoic acid (PFBA)[N11]	0.005	ug/L	< 0.005	-	-
Perfluoropentanoic acid (PFPeA)[N11]	0.001	ug/L	< 0.001	-	-
Perfluorohexanoic acid (PFHxA)[N11]	0.001	ug/L	< 0.001	-	-
Perfluoroheptanoic acid (PFHpA)[N11]	0.001	ug/L	< 0.001	-	-
Perfluorooctanoic acid (PFOA)[N11]	0.001	ug/L	< 0.001	-	-
Perfluorononanoic acid (PFNA)[N11]	0.001	ug/L	< 0.001	-	-
Perfluorodecanoic acid (PFDA)[N11]	0.001	ug/L	< 0.001	-	-
Perfluoroundecanoic acid (PFUnA)[N11]	0.001	ug/L	< 0.001	-	-
Perfluorododecanoic acid (PFDoA)[N11]	0.001	ug/L	< 0.001	-	-
Perfluorotridecanoic acid (PFTrDA)	0.001	ug/L	< 0.001	-	-
Perfluorotetradecanoic acid (PFTeDA)[N11]	0.001	ug/L	< 0.001	-	-
13C4-PFBA (surr.)	1	%	80	-	-
13C5-PFPeA (surr.)	1	%	77	-	-

Client Sample ID			DW2	R1	B1
Sample Matrix			Water	Water	Water
Eurofins | mgt Sample No.			S17-No00606	S17-No00607	S17-No00608
Date Sampled			Oct 30, 2017	Oct 30, 2017	Oct 30, 2017
Test/Reference	LOR	Unit			
Perfluoroalkyl carboxylic acids (PFCAs) - Trace					
13C5-PFHxA (surr.)	1	%	82	-	-
13C4-PFHpA (surr.)	1	%	76	-	-
13C8-PFOA (surr.)	1	%	78	-	-
13C5-PFNA (surr.)	1	%	73	-	-
13C6-PFDA (surr.)	1	%	58	-	-
13C2-PFUnDA (surr.)	1	%	53	-	-
13C2-PFDoDA (surr.)	1	%	47	-	-
13C2-PFTeDA (surr.)	1	%	32	-	-
Perfluoroalkane sulfonic acids & Perfluoroalkane sulfonates (PFSAs) -					
Perfluorobutanesulfonic acid (PFBS)[N11]	0.001	ug/L	< 0.001	-	-
Perfluoropentanesulfonic acid (PFPeS)	0.001	ug/L	< 0.001	-	-
Perfluorohexanesulfonic acid (PFHxS)[N11]	0.001	ug/L	< 0.001	-	-
Perfluoroheptanesulfonic acid (PFHpS)	0.001	ug/L	< 0.001	-	-
Perfluorooctanesulfonic acid (PFOS)[N11]	0.001	ug/L	< 0.001	-	-
Perfluorodecanesulfonic acid (PFDS)	0.001	ug/L	< 0.001	-	-
13C3-PFBS (surr.)	1	%	87	-	-
18O2-PFHxS (surr.)	1	%	84	-	-
13C8-PFOS (surr.)	1	%	65	-	-
Perfluoroalkane sulfonamides (PFASAs) - Trace					
Perfluorooctane sulfonamide (FOSA)[N11]	0.005	ug/L	< 0.005	-	-
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	0.005	ug/L	< 0.005	-	-
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	0.005	ug/L	< 0.005	-	-
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)[N11]	0.005	ug/L	< 0.005	-	-
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)[N11]	0.005	ug/L	< 0.005	-	-
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	0.005	ug/L	< 0.005	-	-
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	0.005	ug/L	< 0.005	-	-
13C8-FOSA (surr.)	1	%	66	-	-
D3-N-MeFOSA (surr.)	1	%	122	-	-
D5-N-EtFOSA (surr.)	1	%	136	-	-
D7-N-MeFOSE (surr.)	1	%	47	-	-
D9-N-EtFOSE (surr.)	1	%	45	-	-
D5-N-EtFOSAA (surr.)	1	%	33	-	-
D3-N-MeFOSAA (surr.)	1	%	34	-	-
n:2 Fluorotelomer sulfonic acids - Trace					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTS)[N11]	0.001	ug/L	< 0.001	-	-
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTS)[N11]	0.005	ug/L	< 0.005	-	-
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTS)[N11]	0.001	ug/L	< 0.001	-	-
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTS)	0.001	ug/L	< 0.001	-	-
13C2-4:2 FTS (surr.)	1	%	34	-	-
13C2-6:2 FTS (surr.)	1	%	39	-	-
13C2-8:2 FTS (surr.)	1	%	29	-	-

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
Per- and Polyfluorinated Alkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs)	Brisbane	Nov 02, 2017	14 Day
- Method: LTM-ORG-2100 Per- and Polyfluorinated Alkyl Substances by LC-MS/MS			
Perfluoroalkane sulfonamides (PFASAs)	Brisbane	Nov 02, 2017	14 Day
- Method: LTM-ORG-2100 Per- and Polyfluorinated Alkyl Substances by LC-MS/MS			
Perfluoroalkane sulfonic acids & Perfluoroalkane sulfonates (PFSAs)	Brisbane	Nov 02, 2017	14 Day
- Method: LTM-ORG-2100 Per- and Polyfluorinated Alkyl Substances by LC-MS/MS			
n:2 Fluorotelomer sulfonic acids	Brisbane	Nov 02, 2017	14 Day
- Method: LTM-ORG-2100 Per- and Polyfluorinated Alkyl Substances by LC-MS/MS			
Per- and Polyfluorinated Alkyl Substances (PFASs) - Trace			
Perfluoroalkyl carboxylic acids (PFCAs) - Trace	Brisbane	Nov 02, 2017	14 Day
- Method: LTM-ORG-2100 Per- and Polyfluorinated Alkyl Substances by LC-MS/MS			
Perfluoroalkane sulfonic acids & Perfluoroalkane sulfonates (PFSAs) - Trace	Brisbane	Nov 02, 2017	14 Day
- Method: LTM-ORG-2100 Per- and Polyfluorinated Alkyl Substances by LC-MS/MS			
Perfluoroalkane sulfonamides (PFASAs) - Trace	Brisbane	Nov 02, 2017	14 Day
- Method: LTM-ORG-2100 Per- and Polyfluorinated Alkyl Substances by LC-MS/MS			
n:2 Fluorotelomer sulfonic acids - Trace	Brisbane	Nov 02, 2017	14 Day
- Method: LTM-ORG-2100 Per- and Polyfluorinated Alkyl Substances by LC-MS/MS			

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Company Name: Geo-Logix P/L
Address: Bld Q2 Level 3, 2309/4 Daydream St
Warriewood
NSW 2102

Project Name: TRC ENTERPRISE
Project ID: 1701110

Order No.: PO2229
Report #: 570391
Phone: 02 9979 1722
Fax: 02 9979 1222

Received: Nov 1, 2017 12:40 PM
Due: Nov 8, 2017
Priority: 5 Day
Contact Name: Tim Gunns

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Moisture Set	Per- and Polyfluorinated Alkyl Substances (PFASs)	Per- and Polyfluorinated Alkyl Substances (PFASs) - Trace
Melbourne Laboratory - NATA Site # 1254 & 14271								
Sydney Laboratory - NATA Site # 18217								
Brisbane Laboratory - NATA Site # 20794						X	X	X
Perth Laboratory - NATA Site # 23736								
External Laboratory								
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**			
1	SED1	Oct 30, 2017		Soil	S17-No00563	X	X	
2	SED2	Oct 30, 2017		Soil	S17-No00564	X	X	
3	SED4	Oct 30, 2017		Soil	S17-No00565	X	X	
4	SED5	Oct 30, 2017		Soil	S17-No00566	X	X	
5	SED6	Oct 30, 2017		Soil	S17-No00567	X	X	
6	SED7	Oct 30, 2017		Soil	S17-No00568	X	X	
7	SED8	Oct 30, 2017		Soil	S17-No00569	X	X	
8	SED9	Oct 30, 2017		Soil	S17-No00570	X	X	
9	SS1/0.0-0.1	Oct 30, 2017		Soil	S17-No00571	X	X	

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Sample Detail						Moisture Set	Per- and Polyfluorinated Alkyl Substances (PFASs)	Per- and Polyfluorinated Alkyl Substances (PFASs) - Trace
Melbourne Laboratory - NATA Site # 1254 & 14271								
Sydney Laboratory - NATA Site # 18217								
Brisbane Laboratory - NATA Site # 20794						X	X	X
Perth Laboratory - NATA Site # 23736								
10	SS2/0.0-0.1	Oct 30, 2017		Soil	S17-No00572	X	X	
11	SS3/0.0-0.1	Oct 30, 2017		Soil	S17-No00573	X	X	
12	SS4/0.0-0.1	Oct 30, 2017		Soil	S17-No00574	X	X	
13	SS5/0.0-0.1	Oct 30, 2017		Soil	S17-No00575	X	X	
14	SS6/0.0-0.1	Oct 30, 2017		Soil	S17-No00576	X	X	
15	SS7/0.0-0.1	Oct 30, 2017		Soil	S17-No00577	X	X	
16	SS8/0.0-0.1	Oct 30, 2017		Soil	S17-No00578	X	X	
17	SS9/0.0-0.1	Oct 30, 2017		Soil	S17-No00579	X	X	
18	SS10/0.0-0.1	Oct 30, 2017		Soil	S17-No00580	X	X	
19	SS11/0.0-0.1	Oct 30, 2017		Soil	S17-No00581	X	X	
20	SS12/0.0-0.1	Oct 30, 2017		Soil	S17-No00582	X	X	
21	GS1/0.0-0.1	Oct 30, 2017		Soil	S17-No00583	X	X	

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Received: Nov 1, 2017 12:40 PM
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Priority: 5 Day
Contact Name: Tim Gunns

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Moisture Set	Per- and Polyfluorinated Alkyl Substances (PFASs)	Per- and Polyfluorinated Alkyl Substances (PFASs) - Trace
Melbourne Laboratory - NATA Site # 1254 & 14271								
Sydney Laboratory - NATA Site # 18217								
Brisbane Laboratory - NATA Site # 20794						X	X	X
Perth Laboratory - NATA Site # 23736								
22	GS2/0.0-0.1	Oct 30, 2017		Soil	S17-No00584	X	X	
23	GS3/0.0-0.1	Oct 30, 2017		Soil	S17-No00585	X	X	
24	GS4/0.0-0.1	Oct 30, 2017		Soil	S17-No00586	X	X	
25	GS5/0.0-0.1	Oct 30, 2017		Soil	S17-No00587	X	X	
26	GS6/0.0-0.1	Oct 30, 2017		Soil	S17-No00588	X	X	
27	GS7/0.0-0.1	Oct 30, 2017		Soil	S17-No00589	X	X	
28	GS8/0.0-0.1	Oct 30, 2017		Soil	S17-No00590	X	X	
29	GS9/0.0-0.1	Oct 30, 2017		Soil	S17-No00591	X	X	
30	GS10/0.0-0.1	Oct 30, 2017		Soil	S17-No00592	X	X	
31	GS11/0.0-0.1	Oct 30, 2017		Soil	S17-No00593	X	X	
32	GS12/0.0-0.1	Oct 30, 2017		Soil	S17-No00594	X	X	
33	BORE1	Oct 30, 2017		Water	S17-No00595			X

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Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Moisture Set	Per- and Polyfluorinated Alkyl Substances (PFASs)	Per- and Polyfluorinated Alkyl Substances (PFASs) - Trace
Melbourne Laboratory - NATA Site # 1254 & 14271								
Sydney Laboratory - NATA Site # 18217								
Brisbane Laboratory - NATA Site # 20794						X	X	X
Perth Laboratory - NATA Site # 23736								
34	BORE2	Oct 30, 2017		Water	S17-No00596			X
35	SW1	Oct 30, 2017		Water	S17-No00597			X
36	SW2	Oct 30, 2017		Water	S17-No00598			X
37	SW4	Oct 30, 2017		Water	S17-No00600			X
38	SW5	Oct 30, 2017		Water	S17-No00601			X
39	SW6	Oct 30, 2017		Water	S17-No00602			X
40	DS1	Oct 30, 2017		Soil	S17-No00603	X	X	
41	DS3	Oct 30, 2017		Soil	S17-No00604	X	X	
42	DW1	Oct 30, 2017		Water	S17-No00605			X
43	DW2	Oct 30, 2017		Water	S17-No00606			X
44	R1	Oct 30, 2017		Water	S17-No00607		X	
45	B1	Oct 30, 2017		Water	S17-No00608		X	

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Company Name:	Geo-Logix P/L	**Order No.:**	PO2229	**Received:**	Nov 1, 2017 12:40 PM
Address:	Bld Q2 Level 3, 2309/4 Daydream St Warriewood NSW 2102	**Report #:**	570391	**Due:**	Nov 8, 2017
		Phone:	02 9979 1722	**Priority:**	5 Day
		Fax:	02 9979 1222	**Contact Name:**	Tim Gunns
Project Name:	TRC ENTERPRISE				
Project ID:	1701110				

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Moisture Set	Per- and Polyfluorinated Alkyl Substances (PFASs)	Per- and Polyfluorinated Alkyl Substances (PFASs) - Trace
Melbourne Laboratory - NATA Site # 1254 & 14271								
Sydney Laboratory - NATA Site # 18217								
Brisbane Laboratory - NATA Site # 20794						X	X	X
Perth Laboratory - NATA Site # 23736								
46	DS2	Oct 30, 2017		Soil	S17-No00649	X	X	
Test Counts						35	37	9

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. All biota results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

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

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

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

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

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

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

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

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	Quality Systems Manual ver 5.1 US Department of Defense
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

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

Results <10 times the LOR : No Limit

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

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

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

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

QC Data General Comments

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

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.005			0.005	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.001			0.001	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.001			0.001	Pass	
Perfluoroundecanoic acid (PFUnA)	ug/L	< 0.001			0.001	Pass	
Perfluorododecanoic acid (PFDoA)	ug/L	< 0.001			0.001	Pass	
Perfluorotridecanoic acid (PFTrDA)	ug/L	< 0.001			0.001	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.001			0.001	Pass	
Method Blank							
Perfluoroalkane sulfonamides (PFASAs)							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.005			0.005	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.005			0.005	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.005			0.005	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	ug/L	< 0.005			0.005	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	ug/L	< 0.005			0.005	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.005			0.005	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.005			0.005	Pass	
Method Blank							
Perfluoroalkane sulfonic acids & Perfluoroalkane sulfonates (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.001			0.001	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.001			0.001	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.001			0.001	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.001			0.001	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.001			0.001	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.001			0.001	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTS)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTS)	ug/L	< 0.005			0.005	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTS)	ug/L	< 0.001			0.001	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTS)	ug/L	< 0.001			0.001	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	104			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	97			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	100			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	105			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	103			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	105			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	107			50-150	Pass	
Perfluoroundecanoic acid (PFUnA)	%	101			50-150	Pass	
Perfluorododecanoic acid (PFDoA)	%	109			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	103			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	114			50-150	Pass	
LCS - % Recovery							
Perfluoroalkane sulfonamides (PFASAs)							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorooctane sulfonamide (FOSA)	%	101			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	101			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	105			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	%	97			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	%	117			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	110			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	95			50-150	Pass	
LCS - % Recovery							
Perfluoroalkane sulfonic acids & Perfluoroalkane sulfonates (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	%	102			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	102			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	102			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	100			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	105			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	79			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTS)	%	100			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTS)	%	102			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTS)	%	90			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTS)	%	61			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1					
Perfluorobutanoic acid (PFBA)	S17-No00606	CP	%	100			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	S17-No00606	CP	%	102			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	S17-No00606	CP	%	98			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	S17-No00606	CP	%	100			50-150	Pass	
Perfluorooctanoic acid (PFOA)	S17-No00606	CP	%	99			50-150	Pass	
Perfluorononanoic acid (PFNA)	S17-No00606	CP	%	96			50-150	Pass	
Perfluorodecanoic acid (PFDA)	S17-No00606	CP	%	103			50-150	Pass	
Perfluoroundecanoic acid (PFUnA)	S17-No00606	CP	%	106			50-150	Pass	
Perfluorododecanoic acid (PFDoA)	S17-No00606	CP	%	111			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	S17-No00606	CP	%	138			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	S17-No00606	CP	%	110			50-150	Pass	
Spike - % Recovery									
Perfluoroalkane sulfonamides (PFASAs)				Result 1					
Perfluorooctane sulfonamide (FOSA)	S17-No00606	CP	%	100			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	S17-No00606	CP	%	101			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	S17-No00606	CP	%	104			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	S17-No00606	CP	%	110			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	S17-No00606	CP	%	109			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	S17-No00606	CP	%	111			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	S17-No00606	CP	%	94			50-150	Pass	
Spike - % Recovery									
Perfluoroalkane sulfonic acids & Perfluoroalkane sulfonates (PFSAs)				Result 1					

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorobutanesulfonic acid (PFBS)	S17-No00606	CP	%	100			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	S17-No00606	CP	%	100			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	S17-No00606	CP	%	96			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	S17-No00606	CP	%	99			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	S17-No00606	CP	%	100			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	S17-No00606	CP	%	76			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTS)	S17-No00606	CP	%	101			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTS)	S17-No00606	CP	%	105			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTS)	S17-No00606	CP	%	91			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTS)	S17-No00606	CP	%	90			50-150	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	S17-No00595	CP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
Perfluoropentanoic acid (PFPeA)	S17-No00595	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorohexanoic acid (PFHxA)	S17-No00595	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	S17-No00595	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	S17-No00595	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorononanoic acid (PFNA)	S17-No00595	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorodecanoic acid (PFDA)	S17-No00595	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluoroundecanoic acid (PFUnA)	S17-No00595	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorododecanoic acid (PFDoA)	S17-No00595	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorotridecanoic acid (PFTrDA)	S17-No00595	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorotetradecanoic acid (PFTeDA)	S17-No00595	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Duplicate									
Perfluoroalkane sulfonamides (PFASAs)				Result 1	Result 2	RPD			
Perfluorooctane sulfonamide (FOSA)	S17-No00595	CP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	S17-No00595	CP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	S17-No00595	CP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	S17-No00595	CP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	S17-No00595	CP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	S17-No00595	CP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	S17-No00595	CP	ug/L	< 0.005	< 0.005	<1	30%	Pass	

Duplicate									
Perfluoroalkane sulfonic acids & Perfluoroalkane sulfonates (PFSAs)				Result 1	Result 2	RPD			
Perfluorobutanesulfonic acid (PFBS)	S17-No00595	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluoropentanesulfonic acid (PFPeS)	S17-No00595	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	S17-No00595	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	S17-No00595	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorooctanesulfonic acid (PFOS)	S17-No00595	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Perfluorodecanesulfonic acid (PFDS)	S17-No00595	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
Duplicate									
n:2 Fluorotelomer sulfonic acids				Result 1	Result 2	RPD			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTS)	S17-No00595	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTS)	S17-No00595	CP	ug/L	< 0.005	< 0.005	<1	30%	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTS)	S17-No00595	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTS)	S17-No00595	CP	ug/L	< 0.001	< 0.001	<1	30%	Pass	

Comments

Sample Integrity

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

Comments

Qualifier Codes/Comments

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

Authorised By

Nibha Vaidya	Analytical Services Manager
Jonathon Angell	Senior Analyst-Organic (QLD)

Glenn Jackson

National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

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

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

eurofins | mgt

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Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

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Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
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Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261 Site # 23736

ABN – 50 005 085 521 e.mail : EnviroSales@eurofins.com web : www.eurofins.com.au

Sample Receipt Advice

Company name: **Geo-Logix P/L**

Contact name: Tim Gunns
Project name: TRC ENTERPRISE
Project ID: 1701110
COC number: Not provided
Turn around time: 5 Day
Date/Time received: Nov 1, 2017 12:40 PM
Eurofins | mgt reference: **570391**

Sample information

☑ A detailed list of analytes logged into our LIMS, is included in the attached summary table.

☑ Sample Temperature of a random sample selected from the batch as recorded by Eurofins | mgt Sample Receipt : 1.9 degrees Celsius.

☑ All samples have been received as described on the above COC.

☑ COC has been completed correctly.

☑ Attempt to chill was evident.

☑ Appropriately preserved sample containers have been used.

☑ All samples were received in good condition.

☑ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.

☑ Appropriate sample containers have been used.

N/A Sample containers for volatile analysis received with zero headspace.

☒ Split sample sent to requested external lab.

☒ Some samples have been subcontracted.

N/A Custody Seals intact (if used).

Notes

TS!, TS2, TS3, TW1, TW2 Forwarded to ALS

Contact notes

If you have any questions with respect to these samples please contact:

Nibha Vaidya on Phone : +61 (2) 9900 8400 or by e.mail: NibhaVaidya@eurofins.com

Results will be delivered electronically via e.mail to Tim Gunns - tgunns@geo-logix.com.au.

CHAIN OF CUSTODY

570391

Geo-Logix

Geo-Logix Pty Ltd
Building Q2, Level 3 Unit 2309/4
Daydream St, Warriewood
NSW 2102

ABN: 86 116 892 936

P: (02) 9979 1722

Project Manager: Tim Gunns
Contact Email: tgunns@geo-logix.com.au
Project Name: TRC Enterprise
Project Number: 1701110
Date Submitted: 01-11-17

Purchase Order No: PO2229
Quote Reference: 160811GLX
Invoice to: accounts@geo-logix.com.au
TAT required: STD

ANALYSIS REQUIRED

Lab ID	Sample ID	Date	Matrix: Soil	Water	Air	Paint / ACM	Other	Comments	PFAS
	SED1	30-10-17	X						X
	SED2	30-10-17	X						X
	SED4	30-10-17	X						X
	SED5	30-10-17	X						X
	SED6	30-10-17	X						X
	SED7	30-10-17	X						X
	SED8	30-10-17	X						X
	SED9	30-10-17	X						X
	SS1/0.0-0.1	30-10-17	X						X
	SS2/0.0-0.1	30-10-17	X						X
	SS3/0.0-0.1	30-10-17	X						X
	SS4/0.0-0.1	30-10-17	X						X
	SS5/0.0-0.1	30-10-17	X						X
	SS6/0.0-0.1	30-10-17	X						X
	SS7/0.0-0.1	30-10-17	X						X
	SS8/0.0-0.1	30-10-17	X						X
	SS9/0.0-0.1	30-10-17	X						X
	SS10/0.0-0.1	30-10-17	X						X
	SS11/0.0-0.1	30-10-17	X						X
	SS12/0.0-0.1	30-10-17	X						X
	GS1/0.0-0.1	30-10-17	X						X

Eurofins | MGT Suite Codes

B1	TRH/BTEXN
B1A	TRH/MAH
B2	TRH/BTEXN/Pb
B2A	TRH/MAH/Pb
B3	PAH/Phenols
B4	TRH/BTEXN/PAH
B4A	TRH/BTEXN/PAH/Phenols
B5	TRH/BTEXN/M7
B6	TRH/BTEXN/M8
B7	TRH/BTEXN/PAH/M8
B7A	TRH/BTEXN/PAH/Phenols/M8
B8	TRH/VOC/PAH/M8
B9	TRH/BTEXN/PAH/OCP/M8
B10	TRH/BTEXN/PAH/OCP/OPP/M8
B11	Na/K/Ca/Mg/Cl/SO4/CO3/HCO3/NH3/NO3
B11A	B11/Alkalinity
B11B	B11/EC/TDS
B12	TRH/BTEXN/Oxygenates/Ethanol
B12A	TRH/BTEXN/Oxygenates
B13	OCP/PCB
B14	OCP/OPP
B15	OCP/OPP/PCB
B16	TDS/SO4/CH4/Alk/BOD/COD/HPC/CUB
B17	SO4/NO3/Fe++/HPC/CUB
B18	Cl-/SO4/pH
B19	N/P/K
B20	CEC/%ESP/Ca/Mg/Na/K
R21	%Fe/ CEC/ pH(CaCl2)/ TOC/ % Clay

CHAIN OF CUSTODY

Relinquished by: TG Date/Time: 1-11-17 Signature:

Received by: Date/Time: Signature:

CHAIN OF CUSTODY

Geo-Logix

Geo-Logix Pty Ltd
Building Q2, Level 3 Unit 2309/4
Daydream St, Warriewood
NSW 2102

ABN: 86 116 892 936

P: (02) 9979 1722

Project Manager: Tim Gunns
Contact Email: tgunns@geo-logix.com.au
Project Name: TRC Enterprise
Project Number: 1701110
Date Submitted: 01-11-17

Purchase Order No: PO2229
Quote Reference: 160811GLX
Invoice to: accounts@geo-logix.com.au
TAT required: STD

ANALYSIS REQUIRED

Lab ID	Sample ID	Date	Matrix: Soil	Water	Air	Paint / ACM	Other	Comments	PFAS	PFAS (TRACE)
	GS2/0.0-0.1	30-10-17	X						X	
	GS3/0.0-0.1	30-10-17	X						X	
	GS4/0.0-0.1	30-10-17	X						X	
	GS5/0.0-0.1	30-10-17	X						X	
	GS6/0.0-0.1	30-10-17	X						X	
	GS7/0.0-0.1	30-10-17	X						X	
	GS8/0.0-0.1	30-10-17	X						X	
	GS9/0.0-0.1	30-10-17	X						X	
	GS10/0.0-0.1	30-10-17	X						X	
	GS11/0.0-0.1	30-10-17	X						X	
	GS12/0.0-0.1	30-10-17	X						X	
	BORE1	30-10-17		X						X
	BORE2	30-10-17		X						X
	SW1	30-10-17		X						X
	SW2	30-10-17		X						X
	SW4	30-10-17		X						X
	SW5	30-10-17		X						X
	SW6	30-10-17		X						X
	DS1	30-10-17	X						X	
	DS2	30-10-17	X						X	
	DS3	30-10-17	X						X	

Eurofins | MGT Suite Codes

B1	TRH/BTEXN
B1A	TRH/MAH
B2	TRH/BTEXN/Pb
B2A	TRH/MAH/Pb
B3	PAH/Phenols
B4	TRH/BTEXN/PAH
B4A	TRH/BTEXN/PAH/Phenols
B5	TRH/BTEXN/M7
B6	TRH/BTEXN/M8
B7	TRH/BTEXN/PAH/M8
B7A	TRH/BTEXN/PAH/Phenols/M8
B8	TRH/VOC/PAH/M8
B9	TRH/BTEXN/PAH/OCP/M8
B10	TRH/BTEXN/PAH/OCP/OPP/M8
B11	Na/K/Ca/Mg/Cl/SO4/CO3/HCO3/NH3/NO3
B11A	B11/Alkalinity
B11B	B11/EC/TDS
B12	TRH/BTEXN/Oxygenates/Ethanol
B12A	TRH/BTEXN/Oxygenates
B13	OCP/PCB
B14	OCP/OPP
B15	OCP/OPP/PCB
B16	TDS/SO4/CH4/Alk/BOD/COD/HPC/CUB
B17	SO4/NO3/Fe++/HPC/CUB
B18	Cl-/SO4/pH
B19	N/P/K
B20	CEC/%ESP/Ca/Ma/Na/K
R21	%Fe/ CEC/ pH(CaCl2)/ TOC/ % Clay

CHAIN OF CUSTODY

Relinquished by: TG Date/Time: 1-11-17 Signature:

Received by: Date/Time: Signature:

CHAIN OF CUSTODY

Geo-Logix

Geo-Logix Pty Ltd
Building Q2, Level 3 Unit 2309/4
Daydream St, Warriewood
NSW 2102

ABN: 86 116 892 936

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Project Manager: Tim Gunns
Contact Email: tgunns@geo-logix.com.au
Project Name: TRC Enterprise
Project Number: 1701110
Date Submitted: 01-11-17

Purchase Order No: PO2229
Quote Reference: 160811GLX
Invoice to: accounts@geo-logix.com.au
TAT required: STD

ANALYSIS REQUIRED

Lab ID	Sample ID	Date	Matrix: Soil	Water	Air	Paint / ACM	Other	Comments	PFAS	PFAS (TRACE)
	DW1	30-10-17		X						X
	DW2	30-10-17		X						X
	R1	30-10-17		X					X	
	B1	"		X					X	

Eurofins | MGT Suite Codes

B1	TRH/BTEXN
B1A	TRH/MAH
B2	TRH/BTEXN/Pb
B2A	TRH/MAH/Pb
B3	PAH/Phenols
B4	TRH/BTEXN/PAH
B4A	TRH/BTEXN/PAH/Phenols
B5	TRH/BTEXN/M7
B6	TRH/BTEXN/M8
B7	TRH/BTEXN/PAH/M8
B7A	TRH/BTEXN/PAH/Phenols/M8
B8	TRH/VOC/PAH/M8
B9	TRH/BTEXN/PAH/OCP/M8
B10	TRH/BTEXN/PAH/OCP/OPP/M8
B11	Na/K/Ca/Mg/Cl/SO4/CO3/HCO3/NH3/NO3
B11A	B11/Alkalinity
B11B	B11/EC/TDS
B12	TRH/BTEXN/Oxygenates/Ethanol
B12A	TRH/BTEXN/Oxygenates
B13	OCP/PCB
B14	OCP/OPP
B15	OCP/OPP/PCB
B16	TDS/SO4/CH4/Alk/BOD/COD/HPC/CUB
B17	SO4/NO3/Fe++/HPC/CUB
B18	Cl-/SO4/pH
B19	N/P/K
B20	CEC/%ESP/Ca/Ma/Na/K
R21	%Fe/ CEC/ pH(CaCl2)/ TOC/ % Clay

CHAIN OF CUSTODY

Relinquished by: TG Date/Time: 1-11-17 Signature:

Received by: Date/Time: Signature:

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES1727534**	Page	: 1 of 7
Client	: **GEO-LOGIX PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: TIM GUNNS	Contact	: Customer Services ES
Address	: Building Q2, Level 3 Unit 2309 / 4 Daydream Street WARRIEWOOD NSW, AUSTRALIA 2102	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 9979 1722	Telephone	: +61-2-8784 8555
Project	: 1701110 TRC Enterprise	Date Samples Received	: 02-Nov-2017 13:00
Order number	: PO2230	Date Analysis Commenced	: 03-Nov-2017
C-O-C number	: ----	Issue Date	: 08-Nov-2017 13:52
Sampler	: ----		
Site	: ----		
Quote number	: SYBQ/273/16		
No. of samples received	: 5		
No. of samples analysed	: 5		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
Alex Rossi	Organic Chemist	Sydney Inorganics, Smithfield, NSW
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Raymond Commodore	Instrument Chemist	Sydney Inorganics, Smithfield, NSW

General Comments

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

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

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

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

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

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

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TS1	TS2	TS3	----	----
			Client sampling date / time	30-Oct-2017 00:00	30-Oct-2017 00:00	30-Oct-2017 00:00	----	----
Compound	CAS Number	LOR	Unit	ES1727534-001	ES1727534-002	ES1727534-003	--------	--------
				Result	Result	Result	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**5.0**	**10.2**	**8.7**	**----**	**----**
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	**0.0013**	<0.0002	**----**	**----**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	**0.0012**	<0.0002	**----**	**----**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	**0.0156**	<0.0002	**----**	**----**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	**0.0026**	<0.0002	**----**	**----**
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	**0.221**	**0.0005**	**----**	**----**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	**0.0022**	<0.0002	**----**	**----**
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	**0.010**	<0.001	**----**	**----**
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	**0.0013**	<0.0002	**----**	**----**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	**0.0035**	<0.0002	**----**	**----**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	**0.0003**	<0.0002	**----**	**----**
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	**0.0012**	<0.0002	**----**	**----**
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	**----**	**----**
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	**----**	**----**
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	**----**	**----**
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	**----**	**----**
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	**----**	**----**
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	**----**	**----**
EP231C: Perfluoroalkyl Sulfonamides								
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	**0.0015**	<0.0002	**----**	**----**
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	**----**	**----**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TS1	TS2	TS3	----	----
				Client sampling date / time	30-Oct-2017 00:00	30-Oct-2017 00:00	30-Oct-2017 00:00	----	----
Compound	CAS Number	LOR	Unit		ES1727534-001	ES1727534-002	ES1727534-003	--------	--------
					Result	Result	Result	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	**0.0213**	<0.0005	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	**0.0008**	<0.0005	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		<0.0002	**0.284**	**0.0005**	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		<0.0002	**0.237**	**0.0005**	----	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		<0.0002	**0.276**	**0.0005**	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**78.0**	**68.0**	**74.0**	----	----
13C8-PFOA	----	0.0002	%		**71.0**	**61.0**	**69.0**	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	TW1	TW2	----	----	----
				Client sampling date / time	30-Oct-2017 00:00	30-Oct-2017 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES1727534-004	ES1727534-005	--------	--------	--------
					Result	Result	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	<0.01	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	<0.01	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	TW1	TW2	----	----	----
				Client sampling date / time	30-Oct-2017 00:00	30-Oct-2017 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES1727534-004	ES1727534-005	--------	--------	--------
					Result	Result	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	<0.01	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	<0.01	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	<0.01	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**95.0**	**83.0**	----	----	----
13C8-PFOA	----	0.02	%		**107**	**93.3**	----	----	----

Surrogate Control Limits

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

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

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES1727534**	Page	: 1 of 5
Client	: **GEO-LOGIX PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: TIM GUNNS	Telephone	: +61-2-8784 8555
Project	: 1701110 TRC Enterprise	Date Samples Received	: 02-Nov-2017
Site	: ----	Issue Date	: 08-Nov-2017
Sampler	: ----	No. of samples received	: 5
Order number	: PO2230	No. of samples analysed	: 5

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

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

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EP231A: Perfluoroalkyl Sulfonic Acids	ES1727423--001	Anonymous	**Perfluorohexane sulfonic acid (PFHxS)**	355-46-4	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231A: Perfluoroalkyl Sulfonic Acids	ES1727423--001	Anonymous	**Perfluorooctane sulfonic acid (PFOS)**	1763-23-1	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Analysis Holding Time Compliance

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

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

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

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

Matrix: **SOIL**

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

Method / *Container* / Client Sample ID(s)	*Sample Date*	*Extraction / Preparation*			*Analysis*		
		Date extracted	Due for extraction	Evaluation	*Date analysed*	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
HDPE Soil Jar (EA055) TS1, TS2, TS3	**30-Oct-2017**	**----**	----	----	**03-Nov-2017**	13-Nov-2017	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE Soil Jar (EP231X) TS1, TS2, TS3	**30-Oct-2017**	**07-Nov-2017**	28-Apr-2018	✓	**07-Nov-2017**	17-Dec-2017	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE Soil Jar (EP231X) TS1, TS2, TS3	**30-Oct-2017**	**07-Nov-2017**	28-Apr-2018	✓	**07-Nov-2017**	17-Dec-2017	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE Soil Jar (EP231X) TS1, TS2, TS3	**30-Oct-2017**	**07-Nov-2017**	28-Apr-2018	✓	**07-Nov-2017**	17-Dec-2017	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE Soil Jar (EP231X) TS1, TS2, TS3	**30-Oct-2017**	**07-Nov-2017**	28-Apr-2018	✓	**07-Nov-2017**	17-Dec-2017	✓

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231P: PFAS Sums							
HDPE Soil Jar (EP231X)							
TS1, TS2, TS3	**30-Oct-2017**	**07-Nov-2017**	28-Apr-2018	✓	**07-Nov-2017**	17-Dec-2017	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
TW1, TW2	**30-Oct-2017**	**----**	----	----	**03-Nov-2017**	28-Apr-2018	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
TW1, TW2	**30-Oct-2017**	**----**	----	----	**03-Nov-2017**	28-Apr-2018	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X)							
TW1, TW2	**30-Oct-2017**	**----**	----	----	**03-Nov-2017**	28-Apr-2018	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
TW1, TW2	**30-Oct-2017**	**----**	----	----	**03-Nov-2017**	28-Apr-2018	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
TW1, TW2	**30-Oct-2017**	**----**	----	----	**03-Nov-2017**	28-Apr-2018	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **SOIL**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-House. A portion of soil is extracted with MTBE. The extract is taken to dryness, made up in mobile phase. Analysis is by LC/MSMS, ESI Negative Mode using MRM. Where commercially available, isotopically labelled analogues of the target analytes are used as internal standards for quantification. Where a labelled analogue is not commercially available, the internal standard with similar chemistry and the closest retention time to the target is used for quantification. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers.
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In house: Direct injection analysis of fresh waters after dilution (1:1) with methanol. Analysis by LC-Electrospray-MS-MS, Negative Mode using MRM. Where commercially available, isotopically labelled analogues of the target analytes are used as internal standards for quantification. Where a labelled analogue is not commercially available, the internal standard with similar chemistry and the closest retention time to the target is used for quantification. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers.

Preparation Methods	Method	Matrix	Method Descriptions
Sample Extraction for PFAS	EP231-PR	SOIL	In house

QUALITY CONTROL REPORT

Work Order	: **ES1727534**	Page	: 1 of 10
Client	: **GEO-LOGIX PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: TIM GUNNS	Contact	: Customer Services ES
Address	: Building Q2, Level 3 Unit 2309 / 4 Daydream Street WARRIEWOOD NSW, AUSTRALIA 2102	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 9979 1722	Telephone	: +61-2-8784 8555
Project	: 1701110 TRC Enterprise	Date Samples Received	: 02-Nov-2017
Order number	: PO2230	Date Analysis Commenced	: 03-Nov-2017
C-O-C number	: ----	Issue Date	: 08-Nov-2017
Sampler	: ----		
Site	: ----		
Quote number	: SYBQ/273/16		
No. of samples received	: 5		
No. of samples analysed	: 5		

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

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
Alex Rossi	Organic Chemist	Sydney Inorganics, Smithfield, NSW
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Raymond Commodore	Instrument Chemist	Sydney Inorganics, Smithfield, NSW

General Comments

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

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

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

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

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1220119)									
ES1727508-004	Anonymous	EA055: Moisture Content	----	1	%	15.8	15.3	3.15	0% - 50%
ES1727534-003	TS3	EA055: Moisture Content	----	1	%	8.7	8.6	0.00	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 1219113)									
ES1727423-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	0.0024	0.0022	7.59	0% - 50%
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	0.0019	0.0016	16.7	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	0.0104	0.0105	1.03	0% - 20%
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	0.0002	0.0003	0.00	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0210	0.0214	1.94	0% - 20%
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 1219113)									
ES1727423-001	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	0.0014	0.0011	19.9	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	0.0036	0.0034	5.76	0% - 50%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	0.0002	0.0002	0.00	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.00	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 1219113)									
ES1727423-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 1219113) - continued									
ES1727423-001	Anonymous	EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 1219113)									
ES1727423-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 1219081)									
EB1722639-001	Anonymous	EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.00	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.00	No Limit
ES1727518-005	Anonymous	EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.00	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.00	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 1219081)									
EB1722639-001	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.00	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 1219081) - continued									
EB1722639-001	Anonymous	EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.00	No Limit
ES1727518-005	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.00	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.00	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 1219081)									
EB1722639-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.00	No Limit
ES1727518-005	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 1219081) - continued									
ES1727518-005	Anonymous	EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.00	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 1219081)									
EB1722639-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.00	No Limit
ES1727518-005	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.00	No Limit
EP231P: PFAS Sums (QC Lot: 1219081)									
EB1722639-001	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.00	No Limit
ES1727518-005	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.00	No Limit

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

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

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 1219113)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.00125 mg/kg	108	57	121
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	102	55	125
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	72.9	52	126
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	66.0	54	123
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	72.3	55	127
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	76.9	54	125
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 1219113)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	89.9	52	128
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	107	54	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	84.4	58	127
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	115	57	128
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	69.8	60	134
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	109	63	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	123	55	130
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	101	62	130
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	109	53	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	73.4	49	129
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	101	59	129
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 1219113)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	101	52	132
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	79.9	65	126
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	86.6	64	126
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	97.3	63	124
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	75.8	58	125
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	119	61	130
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	66.5	55	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 1219113)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00125 mg/kg	116	54	130
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00125 mg/kg	117	61	130
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.00125 mg/kg	109	62	130

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 1219113) - continued								
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.00125 mg/kg	111	60	130

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 1219081)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.5 µg/L	98.0	70	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.5 µg/L	99.8	70	130
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.02	µg/L	<0.02	0.5 µg/L	90.6	70	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.5 µg/L	90.8	70	130
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.5 µg/L	100	70	130
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.5 µg/L	93.6	70	130
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 1219081)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	2.5 µg/L	104	70	130
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.5 µg/L	104	70	130
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.5 µg/L	110	70	130
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.5 µg/L	108	70	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.5 µg/L	105	70	130
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.5 µg/L	97.4	70	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.5 µg/L	107	70	130
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.5 µg/L	110	70	130
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.5 µg/L	73.0	70	130
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.5 µg/L	119	70	130
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	1.25 µg/L	114	70	150
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 1219081)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.5 µg/L	97.8	70	130
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	1.25 µg/L	89.6	70	150
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	1.25 µg/L	100	70	150
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	1.25 µg/L	115	70	150
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	1.25 µg/L	129	70	150
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.5 µg/L	76.4	70	130
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.5 µg/L	101	70	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 1219081)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.5 µg/L	101	70	130
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.5 µg/L	106	70	130

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 1219081) - continued								
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.5 µg/L	97.8	70	130
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.5 µg/L	126	70	130

Matrix Spike (MS) Report

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

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 1219113)							
ES1727423-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.00125 mg/kg	78.8	50	130
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00125 mg/kg	82.0	50	130
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00125 mg/kg	# Not Determined	50	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00125 mg/kg	60.4	50	130
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00125 mg/kg	# Not Determined	50	130
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.00125 mg/kg	54.0	50	130
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 1219113)							
ES1727423-001	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	65.8	30	130
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	102	50	130
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	111	50	130
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	94.0	50	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	75.6	50	130
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.00125 mg/kg	84.0	50	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	74.4	50	130
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	77.2	50	130
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	68.0	50	130
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.00125 mg/kg	58.0	30	130
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00312 mg/kg	72.8	30	130
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 1219113)							
ES1727423-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	76.0	50	130
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	62.0	30	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	57.4	30	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	60.2	30	130

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: SpikeRecovery(%) MS	Recovery Limits (%): Low	Recovery Limits (%): High
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 1219113) - continued							
ES1727423-001	Anonymous	EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	60.9	30	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	80.8	30	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	72.0	30	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 1219113)							
ES1727423-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00125 mg/kg	93.2	50	130
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00125 mg/kg	90.4	50	130
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.00125 mg/kg	81.2	50	130
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.00125 mg/kg	110	50	130

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: SpikeRecovery(%) MS	Recovery Limits (%): Low	Recovery Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 1219081)							
EB1722639-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.5 µg/L	93.8	50	130
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.5 µg/L	98.4	50	130
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.5 µg/L	78.2	50	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.5 µg/L	91.6	50	130
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.5 µg/L	95.8	50	130
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.5 µg/L	87.0	50	130
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 1219081)							
EB1722639-001	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	2.5 µg/L	95.3	50	130
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.5 µg/L	101	50	130
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.5 µg/L	97.2	50	130
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.5 µg/L	117	50	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.5 µg/L	98.8	50	130
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.5 µg/L	94.0	50	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.5 µg/L	103	50	130
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.5 µg/L	110	50	130
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.5 µg/L	81.0	50	130
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.5 µg/L	116	50	130
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	1.25 µg/L	111	50	150
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 1219081)							
EB1722639-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.5 µg/L	93.8	50	130
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	1.25 µg/L	84.9	50	150
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	1.25 µg/L	100	50	150

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 1219081) - continued							
EB1722639-001	Anonymous	EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	1.25 µg/L	119	50	150
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	1.25 µg/L	105	50	150
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.5 µg/L	72.6	50	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.5 µg/L	91.6	50	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 1219081)							
EB1722639-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.5 µg/L	100	50	130
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.5 µg/L	103	50	130
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.5 µg/L	100	50	130
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.5 µg/L	123	50	130

CHAIN OF CUSTODY

Geo-Logix

Geo-Logix Pty Ltd
Building G2, Level 3 Unit 2309/4
Daydream St, Warriewood
NSW 2102

ABN: 86 116 892 936

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Project Manager: Tim Gunns
Contact Email: tgunns@geo-logix.com.au
Project Name: TRC Enterprise
Project Number: 1701110
Date Submitted: 01-11-17

Purchase Order No: PO2230
Quote Reference: SYBQ/273/16
Invoice to: accounts@geo-logix.com.au
TAT required: STD*

ANALYSIS REQUIRED

Lab ID	Sample ID	Date	Matrix: Soil	Water	Air	Paint / ACM	Other	Comments	PFAS (EP231X)
1	TS1	30-10-17	X					SEND TO ALS AS TRIPLICATE	X
2	TS2	30-10-17	X					SEND TO ALS AS TRIPLICATE	X
3	TS3	30-10-17	X					SEND TO ALS AS TRIPLICATE	X
4	TW1	30-10-17	X					SEND TO ALS AS TRIPLICATE	X
5	TW2	30-10-17	X					SEND TO ALS AS TRIPLICATE	X

Environmental Division
Sydney
Work Order Reference
ES1727534

Telephone : +61-2-8784 8555

Eurofins | MGT Suite Codes

B1	TRH/BTEXN
B1A	TRH/MAH
B2	TRH/BTEXN/Pb
B2A	TRH/MAH/Pb
B3	PAH/Phenols
B4	TRH/BTEXN/PAH
B4A	TRH/BTEXN/PAH/Phenols
B5	TRH/BTEXN/M7
B6	TRH/BTEXN/M8
B7	TRH/BTEXN/PAH/M8
B7A	TRH/BTEXN/PAH/Phenols/M8
B8	TRH/VOC/PAH/M8
B9	TRH/BTEXN/PAH/OCP/M8
B10	TRH/BTEXN/PAH/OCP/OPP/M8
B11	Na/K/Ca/Mg/Cl/SO4/CO3/HCO3/NH3/NO3
B11A	B11/Alkalinity
B11B	B11/EC/TDS
B12	TRH/BTEXN/Oxygenates/Ethanol
B12A	TRH/BTEXN/Oxygenates
B13	OCP/PCB
B14	OCP/OPP
B15	OCP/OPP/PCB
B16	TDS/SO4/CH4/Alk/BOD/COD/HPC/CUB
B17	SO4/NO3/Fe++/HPC/CUB
B18	Cl-/SO4/pH
B19	N/P/K
B20	CEC/%ESP/Ca/Ma/Na/K
R21	%Fe/ CEC/ pH(CaCl2)/ TOC/ % Clay

CHAIN OF CUSTODY

Relinquished by: JG Date/Time: 1-11-17 Signature:

Received by: Navid Date/Time: 02/11/17 Signature:

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